Report of the ITTO Workshop

Asia-Pacific Regional Workshop on Afforestation and Reforestation Projects Development under the CDM

8~12 September 2008

Seoul National University

Seoul, Korea

Organized by

SEOUL NATIONAL UNIVERSITY & INTERNATIONAL TROPICAL TIMBER ORGANIZATION

ITTO

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산림청 KOREA FOREST SERVICE

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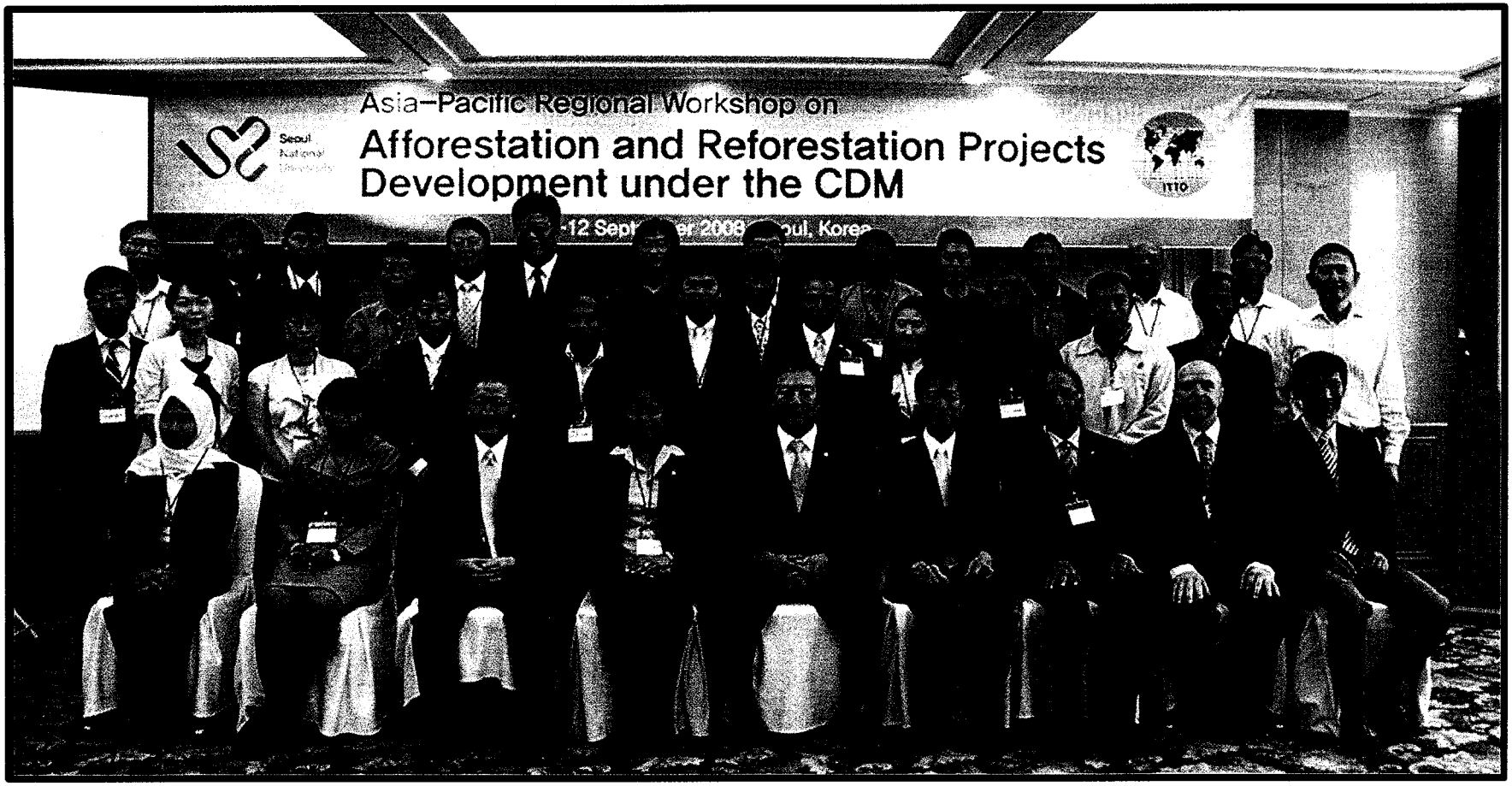
Asia-Pacific Regional Workshop on
Afforestation and Reforestation Projects
Development under the CDM
Seoul
National

Introduction

There has been a high hope and expectation for financing sustainable plantation practices in tropical forests when the Kyoto Protocol took effect in February 1997 within the United Nations Framework Convention on Climate Change (UNFCCC) since the Clean Development Mechanism (CDM) of the Kyoto Protocol allowed afforestation and reforestation activities in developing countries (non-Annex-I countries to the UNFCCC).

Under the context of CDM, land use change and forestry projects have an added value. Trees can be grown in most areas of the world, providing benefit to the poorest people in the poorest areas. LULUCF projects also tend to have a large number of "co-benefits" such as: erosion prevention, watershed protection, biodiversity enhancement, and provision of forest resources for local people, among others.

ITTO, in collaboration with concerned international organizations and non-governmental organizations, has joined forces to build the capacity to develop and implement A/R CDM project activities. To achieve this objective, ITTO published a guidebook for the formulation of A/R projects under CDM with the assistance of Winrock International. Since 2006, ITTO has also organized six regional workshops to promote the understanding of the rules and procedures of AR-CDM and encourage country level initiatives in promoting AR-CDM project activities in line with the ITTO Guidelines for the Restoration, Management and Rehabilitation of Degraded and Secondary Tropical Forests. As part of the six workshops, Asia-Pacific Regional Workshop on Afforestation and Reforestation Projects Development under the CDM was held from 8~12 September 2008 in Seoul Korea. This workshop was organized jointly by ITTO and Seoul National University with the support of Korea Forest Services and EcoServices Consulting.

The specific objectives of the workshop were to:

- enhance participants' general knowledge of AR-CDM projects, including introduction to the rules and regulations governing AR-CDM projects, Project Design Document (PDD), baseline and monitoring methodologies development;
- familiarize participants with the financial and investment issues related to AR-CDM projects;
- promote the exchange of experiences in the development of AR-CDM projects through case studies;
- enhance the capacity of project proponents in preparing the AR-CDM Project Design Document; and

- facilitate the exchange of views on reducing emissions from deforestation and forest degradation (REDD).

Fifty participants attended the workshop, of which 21 were coming from Korea, 2 from China, 1 from Russia, 1 from Mongolia, 25 from tropical countries in the Asia-Pacific Region. The workshop was facilitated by Professor Youn Yeo-chang (Seoul National University), Dr Hwan-Ok Ma (ITTO), Dr. Promode Kant (India) and Mr. Tatsushi Hemmi (Japan).

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1 Workshop Programme

Day 1, Monday (September 8, 2008)

08:30~09:00 AM	Registration
Opening Session	
09:00~09:15 AM	Opening Remarks by Professor Youn Yeo-chang of Seoul National University
09:15~09:30 AM	Opening Remarks by Dr. Hwan Ok Ma, Projects Manager, Reforestation and Forest Management, ITTO
09:30~09:45 AM	Congratulatory Speech by Dr. Ha Young-je, Minister of Korea Forest Service, Korea
09:45~10:00 AM	Congratulatory Speech by Professor Don Koo Lee, President of International Union of Forest Research Organizations (IUFRO)
10:00~10.30 AM	Group Photo/Coffee/tea break
10:30~11:00 AM	Background information and administrative arrangements of the Workshop by Dr. Hwan Ok Ma, Projects Manager, ITTO / Professor Youn Yeo-chang of Seoul National University
11:00~11:30 AM	Introduction to UNFCCC, the Kyoto Protocol, and forestry CDM projects by Dr. Hwan Ok Ma, Projects Manager, ITTO
11:30~12:30 PM	Afforestation and Reforestation Activities in Korea by Dr. Young Ho Kong of Korea Green Promotion Agency
12:30~02:00 PM	Lunch break
02:00~02:30 PM	Introduction to the procedures for the development of AR CDM projects- concepts of baseline, additionality and leakages, monitoring and verification including an overview of approved methodologies for carbon sequestration projects and selection of an appropriate methodology by Dr. Promode Kant
Session 1. Overview of AR-CDM Opportunities and Constraints	
02:30~04:30 PM	Country presentation (each 10 min) – Project idea for Afforestation & Reforestation CDM Project Activities Cambodia, China, Fiji, Indonesia, Malaysia, Myanmar, Papua New Guinea, Philippines, Thailand
04:30~05:00 PM	Coffee/tea break
05:00~06:00 PM	Introduction and work on Section A of small-scale AR-CDM PDD by Mr. Tatsushi HEMMI 1. Project description and boundaries 2. Eligibility assessment
	END OF DAY ONE

Day 2, Tuesday (September 9, 2008)

Session 2. Work on Section B of PDD	
08:30~10:30 AM	Introduction and work on Section B –baseline & monitoring methodology of small-scale AR-CDM PDD by Dr. Promode Kant 1. Applicability of baseline and monitoring methodologies 2. Additionality tests 3. Monitoring methodology and monitoring plan
10:30~11:00 AM	Coffee/tea break
11:00~12:30 AM	Introduction and work on Section B –baseline & monitoring methodology of small-scale AR-CDM PDD by Dr. Promode Kant/ Mr. Tatsushi HEMMI (Cont'd) 1. Applicability of baseline and monitoring methodologies 2. Additionality tests 3. Monitoring methodology and monitoring plan
12:30~02:00 PM	Lunch break
Session 3. Work on Section C of PDD	
02:00~04:00 PM	Introduction and work on Section C (ex-ante estimation of carbon sequestration under project scenario) of small-scale AR-CDM PDD by Dr. Promode Kant 1. Project carbon stock from non-trees and trees 2. Above ground and below ground biomass estimation 3. Estimation of leakage during project period
04:00~04:30 PM	Coffee/tea break
04:30~05:30 PM	Introduction and work on Section C (ex-ante estimation of carbon sequestration under project scenario) of small-scale AR-CDM PDD by Dr. Promode Kant/Mr. Tatsushi HEMMI (Cont'd) 1. Project carbon stock from non-trees and trees 2. Above ground and below ground biomass estimation 3. Estimation of leakage during project period
	END OF DAY TWO

Day 3, Wednesday (September 10, 2008)

Session 4. Issues of AR CDM, Forest carbon markets and REDD	
08:30~09:00 AM	AR CDM project activities in China by Dr. Zhang Sangdan, State Forestry Administration, China
09:00~09:20 AM	Challenges in reconciling AR CDM and sustainable forest management: Experiences from Malaysia by Dr. Gary W. Theseira, FRIM, Malaysia
09:20~09:50 AM	Investment in AR CDM project activities: An experience from a private company in Korea by Dr. Jae-Hyup Lee, Seoul National University, Korea
09:50~10:20 AM	Investment in forest carbon markets: A view from Japanese investors by Mr. Tatsushi HEMMI, Pacific Consultants Co. Japan
10:20~10:50 AM	Coffee/tea break
10:50~11:20 AM	Opportunities in voluntary carbon markets for forestry projects by Mr. Kijoo Han, EcoServices Consulting
11:20~11:40 AM	Issues of Reducing Emissions from Deforestation and Forest Degradation (REDD) by Dr. Hwan Ok Ma, ITTO
11:40~12:00 AM	Introduction to outcomes of the workshop on policy incentives on issues related to REDD and the role of conservation, SFM and enhancement of forest carbon stocks in developing countries which held in Accra, Ghana in August 2008 by Dr. Syaiful Anwar, Ministry of Forestry, Indonesia
12:00~12:20 PM	REDD pilot activities in Indonesia by Mr. Kadim Martana, Ministry of Forestry, Indonesia
12:20~02:00 PM	Lunch break
Session 5. Visit to Korea Forest Research Institute (KFRI)	
02:00~06:00 PM	Visit to the Korea Forest Research Institute (KFRI) KFRI hosting 2010 IUFRO World Congress is the sole national institute committed to research and development in the field of the forest sector Introduction to research and development programmes of KFRI Introduction to research work relating to forest carbon accounting in Korea
	END OF DAY THREE

Day 4, Thursday (September 11, 2008)

SESSION 6. Work on Sections D, E & F of PDD	
08:30~09:30 AM	Introduction and work on Sections D (environmental impacts) of small-scale AR-CDM PDD by Mr. Tatsushi HEMMI 1. Technical assessment of environmental impacts 2. Transboundary impacts 3. Risks and countermeasures
09:30~10:30 AM	Introduction and work on E (socio-economic impacts) of small-scale AR-CDM PDD by Mr. Tatsushi HEMMI 1. Present socio-economic status of the project neighborhood 2. Direct income and employment generation from project activities 3. Downstream and dispersed socio-economic impacts 4. Risks and remedies
10:30~11:00 AM	Coffee/tea break
11:00~12:30 PM	Introduction and work on Section F (stakeholders comments) of small-scale AR-CDM PDD by Dr. Promode Kant 1. Identification of key stakeholders and taking their views 2. Analysis and incorporation of stakeholders views in project design 3. Institutionalizing stakeholders'participation in the project
12:30~02:00 PM	Lunch break
SESSION 7. Work on PDD and Discussion on forestry CDM activities	
02:00~03:30 PM	Work on Sections A, B,C, D, E, F of AR-CDM PDD
03:30~04:00 PM	Coffee/tea break
04:00~05:30 PM	Panel Discussion on promotion of forestry CDM project activities in Asia-Pacific region Legal and institutional issues Technical issues Stakeholders analysis Investment and market development
	END OF DAY FOUR
06:00~08:30 PM	Reception Dinner

Day 5, Friday (September 12, 2008)

SESSION 8. Presentation on prepared PDDs	
08:30~10:20 AM	Presentation on prepared AR CDM PDD by country groups (each 15 min). Cambodia, China, Fiji&Philippines, Malaysia, Indonesia, Myanmar, Papua New Guinea, India
Closing Session	
10:20~10:50 AM	Wrap Up & Closing
END OF WORKSHOP	

2 Summary of Proceedings

Day 1, Tuesday (September 9, 2008)

Opening session

1. **Opening Remarks by Professor Youn Yeo-chang, Seoul National University**

   Professor Youn warmly welcomed everyone to the workshop on behalf of Seoul National University. He mentioned that SNU being a co-organizer of the workshop is a leading academic institution in Asia and has greatly contributed to forest restoration activities in Korea through educating forestry professionals and developing forestry technologies supporting reforestation activities. He outlined the objective of the workshop as well as the different presentations that will take place during the workshop period.

2. **Opening Remarks by Dr. Hwan Ok Ma, Projects Manager, Reforestation and Forest Management, ITTO**

   Dr. Ma welcomed everyone on behalf of ITTO and mentioned the theme of the workshop which is "capacity building for Afforestation and Reforestation CDM Projects Development" which he said is an important issue for ITTO since forests have enormous potential to contribute to climate change mitigation and adaptation. He also mentioned the ITTO initiatives over the past two decades in developing internationally agreed policy documents in order to promote sustainable forest management as well as in assisting tropical countries in the adoption of such policies to be implemented in the field. Finally, he expressed his confidence that the partnerships and networks established through the workshop would be enhanced for the development and implementation of forest-based climate change mitigation initiatives in the region.

3. **Congratulatory Speech by Dr. Ha Young-je, Minister of Korea Forest Service, Korea**

   Dr. Ha. welcomed all participants of the workshop to Korea. He stressed the importance of addressing climate change at the global level and the possibility to achieve sustainable development in both developed and developing countries by mitigating climate change. Finally, he expressed his hope that the workshop could serve as a venue to revitalize A/R CDM projects in Asia-Pacific region and to exchange views on reducing emissions from deforestation and forest degradation as stated in the Bali Action Plan of the UNFCCC.

4. **Congratulatory Speech by Professor Don Koo Lee, President of the International Union of Forest Research Organizations (IUFRO)**

   Professor Lee congratulated ITTO for organizing the workshop in collaboration with SNU in order to promote the understanding of the rules and procedures of AR-CDM

and encourage country level initiatives in promoting AR-CDM project activities in line with ITTO Guidelines for the Restoration, Management and Rehabilitation of Degraded and Secondary Tropical Forests. He expected that through the different workshop presentations, better opportunities shall be developed to better understand the application of CDM and REDD projects in the tropical and temperate forests. He also expressed his hope that the workshop would eventually serve as a successful venue for the enhancement of participant's knowledge of AR-CDM projects and for the familiarization of the participants with the financial and investment issues related to AR-CDM projects.

5. **Background information and administrative arrangements of the workshop by Dr. Hwan Ok Ma, Projects manager, ITTO and Professor Youn Yeo-chang of Seoul National University**

   Dr. Ma and Prof. Youn introduced the objectives and tentative programme of the workshop as well as the different administrative arrangements for all participants. They also motivated all resource persons, moderators, participants and the secretariat/support staff to introduce themselves stating relevant information about themselves and institutional affiliations.

6. **Introduction to UNFCCC, the Kyoto Protocol and forestry CDM projects by Dr. Hwan Ok Ma, Projects Manager, ITTO**

   Dr. Ma presented a brief overview of UNFCC/Kyoto Protocol and forests. He also introduced ITTO's activities related to climate change mitigation and adaptation. He briefed all workshop participants on the ITTO mandate, member countries and donors. He also introduced the ITTO Guideline for the Restoration, Management and rehabilitation of Degraded and Secondary Forests. He discussed sustainable forest management in relation to climate change and mentioned some key findings of the last International Expert Meeting in addressing climate change held in Yokohama last 30 April to 2 May 2008. He also mentioned other related ITTO workshops in Ghana, Peru and Ivory Coast. Finally, he concluded by discussing the different forest-based climate change mitigation initiatives which will play a central role in addressing climate change.

7. **Afforestation and Reforestation Activities in Korea by Dr. Young Ho Kong of Korea Green Promotion Agency**

   Dr. Kong traced the afforestation and reforestation activities in Korea from the Japanese occupation (1910-1945) up to the three National Plantation Plans (1973 to 1997) where he stressed the various factors that contributed to the success and failure of forestry in Korea. He also mentioned the different challenges being faced by Korean forestry today and in the future. Finally, he discussed and presented slides on the pulpwood plantation

in Western Australia using Eucalyptus globullus species in comparison with Korean forestry.

8. **Introduction to the procedures for the development of AR/CDM projects by Dr. Promode Kant**

   Dr. Kant discussed the project versus the program of activities, concepts of baseline, additionality and leakages, monitoring and verification including an overview of approved methodologies for carbon sequestration projects and selection of an appropriate methodology.

Session 1. Overview of AR/CDM Opportunities and constraints

1. **Country Presentations**

   The participants from different countries presented their reports in connection with the various activities/projects their respective countries have so far been undertaken on A/R CDM as well as the possible opportunities and constraints of these projects. The following was the order of presentation: Cambodia, China, Fiji, Indonesia, Malaysia, Myanmar, Papua New Guinea, Philippines, Thailand and India.

2. **Introduction and work on Section A of small-scale AR-CDM PDD by Mr. Tatsushi Hemmi**

   Mr. Hemmi made an overview of the Project Design and Development (PDD). He presented the guidelines for the simplified small-scale (SS) A/R. He also discussed the structure of the PDD for SS AR mentioning the various sections that composed the structure such as: description of the project, project participants, location and boundary, technical description, legality and eligibility of land, approach for non-permanence and other relevant information.

Day 2, Tuesday (September 9, 2008)

Sessions 2, 3. Work on Sections B and C of PDD

Dr. Kant discussed experiences in organizing landowners for AR/CDM Project. He also discussed the use of GPS in AR/CDM eg. ground cover assessment of trees (density, ht, etc.). Specific examples from the Haryana CDM Project were presented. He also elaborated on the available approved methodologies, simplified baseline monitoring of small scale CDM project implementation in wetlands and large scale methodologies. Finally, an exercise for baseline and project calculation was done using the CDM Project design development. With the aid of the project design document form, the baseline monitoring methodology was applied. Calculations needed were explained and sources of information (e.g. wood densities of tropical tree species, etc.) were presented. Actual writing of A, B and C were done after showing a hypothetical example with calculations. After working on Sections A, B and C, a discussion and sharing of experiences were done on the application of methodologies in participants' individual proposals. A special icebreaker exercise was introduced to the participants after the discussion in order to lighten up the mood due to hard work on the calculations. All the participants enjoyed the game.

Day 3, Wednesday (September 10, 2008)

Session 4. Issues of AR CDM, Forest carbon markets and REDD

1. AR CDM project activities in China by Dr. Zhang Sangdan, State Forestry Administration, China
2. Challenges in reconciling AR CDM and sustainable forest management: Experiences from Malaysia by Dr. Gary W. Theseira, FRIM, Malaysia
3. Investment in AR CDM activities: An experience from a private company in Korea by Dr. Jae-Hyup Lee, Seoul National University, Korea.
4. Investment in forest carbon markets: A view from Japanese investors by Mr. Tatsushi Hemmi, Pacific Consultants Co. Japan
5. Opportunities in voluntary carbon markets for forestry projects by Mr. Kijoo Han, EcoServices Consulting
6. Issues of reducing emissions from deforestation and forest degradation (REDD) by Dr. Hwan Ok Ma, ITTO
7. Introduction to outcomes of the workshop on policy incentives on issues related to REDD and the role of conservation, SFM and enhancement of forest carbon stocks in developing countries held in Ghana in August 2008 by Dr. Syaiful Anwar, Ministry of Forestry, Indonesia
8. REDD pilot activities in Indonesia by Mr. Kadim Martana, Ministry of Forestry, Indonesia.

Session 5. Visit to Korea Forest Research Institute

Participants visited the Korea Forest Research Institute (KFRI) where they were introduced to the different research and development programmes of KFRI as well as its various research activities related to forest carbon accounting in Korea.

Day 4, Thursday (September 11, 2008)

Session 6. Work on Sections D, E & F of PDD

1. **Environmental Impacts**

   Impacts on biodiversity and natural ecosystems

   Relevant documentation (EIA report, EIA approval from government, etc)

   Risks associated with the project (species selection, fire, pests and diseases, etc)

2. **Socioeconomic Impacts**

   Local communities

   Indigenous peoples

   Land tenure

   Local employment

   Food production

   Cultural and religious sites

   Access to fuelwood and other forest products

3. **Stakeholders' comments**

4. **References including PDD guideline by section**

   REED Pilot activities in Indonesia by Mr. Kadim Martana, Ministry of Forestry, Indonesia. Mr. Mantana discussed the REED pilot activities in Indonesia.

   Dr. Chongho Park of the Korea Forest Service, International Cooperation Division discussed the International Cooperation projects of KFS and investment to foreign community as well as the workshop on green carbon markets sponsored by KFS.

Session 7. Work on PDD and Discussion on forestry CDM activities

1. **Work on Sections A,B,C,D,E,F of AR CDM**

2. **Panel Discussion on promotion of forestry CDM project activities in Asia_Pacific Region**

   Legal and institutional issues

   Technical issues

   Stakeholders' analysis

   Investment and market development

   Panelists:

- Mr. Ajay Kumar Lal
- Dr. Gary W. Theseira
- Ms. Latipah Hendant
- Dr. Syaiful Anwar
- Mr. Bo Ni

Issues raised:

- On the limitations of the baseline methodologies used, the selection of approved methodology is a challenge
- There is a need to modify the timeframe and simplify the methodologies in PDD
- There is a need for a methodology that would cater to the present time/flexible methodology in the face of disasters e.g. volcano eruptions, etc. especially for developing countries
- Although the baseline methodologies were already relaxed and enough time was given to get familiar with, still a lot more has to be learned
- Our mindset has to be attuned to the community's mindset
- Understanding the local language is important
- Participation is very important in AR CDM
- Participatory action research may be possible (communities can participate in carbon accounting)
- Local people must be motivated to participate through demonstration of the benefits they will get from the activity
- Dissemination of information is very important
- Communication should be in simplified language for effective understanding of both parties
- Possibility to write/formulate the project with the people to make it more participatory and to have a good sense of ownership of their land
- Capacity building and community empowerment must be operationalized
- Collaborative management is also an important strategy
- Provision of incentives to people is important to discourage deforestation and encourage their participation
- Resource mobilization and good governance are important in the project
- There should be transparency in benefit sharing

Day 5, Friday (September 12, 2008)

Session 8. Presentation on Prepared PDDs by country groups

1. Country Presentations

The participants presented their workshop outputs on AR CDM PDD by country groups except in the case of the Philippines and Fiji where the participants combined their efforts to come up with one report. The order of presentation was as follows: Cambodia, China, Fiji/Philippines, Indonesia, Malaysia, Myanmar, Papua New Guinea, Thailand and India.

3 Directory of Participants

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5 Annexes

5.1 Presentation materials of Day 1

Opening Ceremony/Overview of AR/CDM Opportunities and Constraints

Opening Programme

1. Opening Remarks

Professor Youn Yeo-chang
Chairman, Workshop Organizing Committee
Professor of Forest Economics and Policy, Seoul National University

Dr. HA Young-je, Minister of Korea Forest Service, Professor LEE Don Koo, President of International Union of Forest Research Organizations (IUFRO), Dr. CHOI Wan Yong, Director General of Korea Forest Research Institute, Dr. Hwan Ok Ma from ITTO, distinguished and honorable participants, ladies and gentlemen, It is an honour and privilege for me to welcome you all to this "Asia-Pacific Regional Workshop on Afforestation and Reforestation Projects Development under the CDM" co-organized by the International Tropical Timber Organization and Seoul National University.

Seoul National University, as a co-organizer for the workshop, is a leading academic institution in Asia, especially forestry education and research including issues in climate change. The Department of Forest Sciences has more than one century of history in forestry education and 60 years of forestry research. We have contributed to restoration of once denuded forestlands in Korea through educating forestry professionals and developing forestry technologies supporting reforestation activities. For the last ten years we have initiated international forestry programmes in co-operation with other international academic institutions. It is a great pleasure for our University to have you all here for the workshop.

Ladies and gentlemen,

We all know that climate change is a global phenomenon that transcends all geographical boundaries and all spheres of economic activity. To tackle climate change became the most popular and critical topic which has been discussed at regional, national, and international level during the last one and a half decades since the Rio Conference in 1992. We also know that forests are in the center of these global circumstances as a sink which absorbs tremendous amount of greenhouse gases as well as a source which is responsible for 17.4% of total global anthropogenic greenhouse gas emissions.

As the Kyoto Protocol entered into force in 2005, international community took the first step to tackle climate change. We are here now in the first year of the first commitment period of the Protocol. The Kyoto Protocol acknowledged forestry activities as a feasible and cost effective measure to sequester greenhouse gases without a restriction of geographical locations. Known as the Clean Development Mechanism, emission reductions in developing countries through afforestation and reforestation projects can be transferred to developed countries for

them to commit their emission reduction targets. In addition to AR CDM, the Bali Action Plan which was accepted in the 13th conference of the parties to the United Nations Framework Convention of Climate Change triggered international negotiations where other forestry-related activities for the Post-Kyoto regime such as REDD, Reducing Emissions from Deforestation and Degradation, and HWP, Harvested Wood Products are being on the table.

In these circumstances, we are gathered here, not just to explore the potential of AR CDM in developing countries, but to step forward to strategic approaches in carbon forestry project development. The objective of the workshop is to provide key players in Asia-Pacific regions with practical knowledge to design AR CDM projects. This workshop will address technical procedures of project developments with real cases from this region. I do hope that through this workshop, each participant's capacity for designing AR CDM projects in her or his home country would be enhanced.

On the first two days, the workshop will have presentations on the introduction to AR CDM project development and country presentations. The training on project development will continue on the second day. On the third day, experts from various fields will address lessons learnt from previous AR CDM projects and discuss the status of carbon market and the state of international negotiations on forestry activities under the Post-Kyoto regime. Field trip to the Korea Forest Research Institute will expose participants to the Korean forest research institution's activities, in particular on forest carbon accounting. On the fourth day, training on project development will continue with a focus on small-scale project development. A panel discussion on promotion of forestry CDM project activities in Asia-Pacific region will be followed. On the last day, the workshop will be wrapped up by presentations of project design documents prepared by our distinguished participants.

Ladies and gentlemen,

I would like to thank ITTO, Seoul National University, Korea Forest Service, Korea Forest Research Institute and EcoServices International for organizing this timely Workshop. I am also grateful to graduate students of the Department of Forest Sciences at SNU and all others who have contributed to make this workshop possible and successful.

I welcome you all once again and hope that your five days here in Seoul will witness fruitful deliberations and yield successful outcomes during the workshop.

Thank you.

2. Opening Remarks

Dr. Hwan Ok Ma,
Projects Manager of International Tropical Timber Organization (ITTO)

Dr. Ha Young-je, Minister of Korea Forest Service, Professor Don Koo Lee, President of International Union of Forest Research Organizations (IUFRO), Professor Yeo-Chang Youn of Seoul National University, Distinguished participants, Ladies and gentlemen,

I have the honor of welcoming you all today to the opening of the Asia-Pacific Regional Workshop on Afforestation and Reforestation Projects Development under the CDM which is jointly organized by the International Tropical Timber Organization (ITTO), and the Seoul National University with the support of the Government of the Republic of Korea through the Korea Forest Service.

It is my great pleasure to welcome Dr. Ha Young-je, Minister of Korea Forest Service as well as Professor Don Koo Lee, President of IUFRO. I thank you very much for your presence and speeches/addresses to the Workshop. Please allow me to put on record ITTO's gratitude to you, Seoul National University and Korea Forest Service for the ongoing support of ITTO's various works, including the hosting of this important regional workshop in Seoul.

The theme of this workshop is "capacity building for Afforestation and Reforestation CDM Projects Development". This is an important issue to all of us, particularly for the work of ITTO since forests have enormous potential to contribute to climate change mitigation and adaptation. I am sure that all of us are aware of the importance of sustainable management of forests in terms of providing multiple benefits such as biodiversity conservation, climate change mitigation and adaptation, and livelihood opportunities for forest-dependent indigenous people. AR CDM projects could help mitigate climate change by increasing carbon stocks while simultaneously providing many ecological and socio-economic benefits.

Over the past two decades ITTO has developed internationally agreed policy documents to promote sustainable forest management and has assisted tropical countries in the adoption of such policies to be implemented in the field. For instance, ITTO's Guidelines for the Sustainable Management of Natural Tropical Forests and Criteria and Indicators for the Sustainable Management of Tropical Forests are important contributions to forest management in the tropics. In the area of rehabilitation of secondary tropical forests, ITTO has published Guidelines for the Restoration, Management and Rehabilitation of Degraded and Secondary Tropical Forests which are being widely applied in many tropical countries.

I am pleased to inform you that ITTO organized the International Expert Meeting on Addressing Climate Change through Sustainable Management of Tropical Forests, in early May this year in Yokohama, Japanin collaboration with the governments of Japan, Switzerland and

Norway and the city of Yokohama. The key conclusions of the International Expert Meeting were:

First, forest restoration and sustainable forest management are important measures for mitigating climate change. They also have many additional benefits, including biodiversity conservation, the provision of other ecosystem services, and the alleviation of poverty;

Second, tropical forests and forest-dependent people are highly vulnerable to climate change. Measures to help the forests sector adapt to climate change are urgently required;

Third, sustainable forest management can help increase the resilience of tropical forest ecosystems and forest-dependent people in the face of climate change;

Fourth, bioenergy production from forestry and the substitution of fossil-fuel-intensive products by wood products could be important strategies for mitigating climate change; and

Finally, ITTO can play an important role in encouraging and assisting member countries to develop and implement forest-based climate change mitigation and adaptation initiatives.

In connection with AR CDM projects, the Expert Meeting also recognized that to date, the Clean Development Mechanism (CDM) has not sufficiently encouraged afforestation and reforestation due to its complexity, thus, made a strong recommendation for the simplication of the rules and procedures in the application for AR CDM so that AR CDM will contribute substantially to the enhancement of carbon sinks. These include revising the reference year for defining land eligibility; proposing flexible project boundaries to promote recognition of additional carbon sequestration; developing micro-financing mechanisms for project implementation; and promoting the creation of operational entities at the regional level. It is a small but important step towards enhancing the potential of the tropical forest sector in tackling climate change.

I trust that ITTO will have a sound programme on climate change in the context of sustainable forest management that can attract increased funding from a broader base of donors to enable the Organization to assume its increasing role in this field. In this respect, I am delighted to share with you the information that Japan's Seven & I Holdings Co. which is operating the business of SevenEleven Convenient Stores in Japan, has recently pledged to fund a five-year tropical forest conservation programme in Africa, Asia and Latin America through ITTO, with the objective of offsetting some of the company's carbon dioxide emissions. We are in the process of selecting project sites for this voluntary carbon offset project and we expect that the initial project activities will take place next year.

I am confident that the knowledge on AR CDM, in particular carbon stocks assessment methods, that will be learned from this Workshop would greatly help in highlighting carbon components in the ongoing and new forest projects as well as obtaining growing opportunities from voluntary carbon markets which have been fuelled largely by private sector such as Seven & I Holdings Co. in Japan. Moreover, I am sure that this Workshop will also

contribute to the understanding of the critical issues related to reducing emissions from deforestation and forest degradation (REDD) which will be included in a 2012-post international climate change agreement in accordance with the Bali Action Plan adopted at COP 13 of UNFCCC in last November in Bali, Indonesia.

Before closing, I want to thank Promode Kant from India and Tatsushi Hemmi from Japan, two resource persons,with whom we will benefit from during the next four days of the workshop because of their vast experiences on the topic. I also wish to thank Prof Youn of Seoul National University and his assistants for their excellent arrangements and for holding the Workshop at the Hoam Faculty House, which is a good and suitable place for us to concentrate with our workshop activities. But I hope our participants would be able to find some time to enjoy the beautiful season in Korea while working hard during the workshop.

Finally, I sincerely hope that the partnerships and networks established though this Workshop would be enhanced for the development and implementation of forest-based climate change mitigation initiatives in the region.

Thank you.

3. Congratulatory Speech

Dr. HA Young-je
Minister of Korea Forest Service

Good Morning ! Distinguished Participants,

It is my great pleasure to make a congratulatory speech at the ITTO Asia-Pacific Regional Workshop on A/R CDMProjects Development co-hosted by Seoul National University, and to welcome you all to Korea in which a successful forest rehabilitation is internationally recognized.

I would like to express my sincere thanks to president of IUFRO, Dr. Lee Don Koo, representative of ITTO, Dr. MA Hwan-ok and participants from ITTO member countries in Asia-Pacific region.

Each member country under the United Nations Framework Convention on Climate Change (UNFCCC) has been striving to reduce its greenhouse gas emissions in various sectors.

Forest has been widely regarded as an important sector in the international society, considering the carbon sequestration from the atmosphere in forests. Sustainable forest management (SFM) is also recognized as a crucial vehicle for expanding existing forest carbon sinks.

The carbon sequestration in forests has been a key agenda in UNFCCC Post-2012 negotiation as well as SFM, afforestation and reforestation.

In this regard, A/R CDM has been introduced to assist developed countries in meeting their GHG emission reduction commitment under the Kyoto Protocol as well as to support developing countries in rehabilitating forest ecosystem and creating forests.

In fact, there have been less A/R CDM projects compared to those in other sectors.I believe, however, that these projects have great potentials for facilitating sustainable development of developing countries while contributing the ultimate objective of the UNFCCC.

Distinguished Participants,

I expect that all of you participants will have better understanding of A/R CDM projects development through this workshop.

Further, I hope that the workshop can serve as a momentum to revitalize A/R CDM projects in Asia-Pacific region and to exchange views on reducing emissionsfrom deforestation and forest degradation suggested in Bali Action Plan of the UNFCCC.

In Closing, I wish you an enjoyable stay during the workshop and safe return to your respective countries.

Thank you.

4. Congratulatory Speech

Prof. Don Koo LEE
President of IUFRO

Distinguished guests and participants, Ladies and Gentlemen, Good morning!

It is my great privilege and pleasure to deliver an Opening Remarks in this important event on the 'Asia-Pacific Regional Workshop' under the framework of ITTO project PD 359/05 Rev.1 (F) "Building Capacity to Develop and Implement Afforestation and Reforestation Projects - Clean Development Mechanisms (CDM) of the Kyoto Protocol". On behalf of the International Union of Forest Research Organizations (IUFRO), I sincerely congratulate ITTO for organizing this kind of activity to promote the understanding of the rules and procedures of AR-CDM and encourage country level initiatives in promoting AR-CDM project activities in line with ITTO Guidelines for the Restoration, Management and Rehabilitation of Degraded and Secondary Tropical Forests.

Since the acceptance of the Kyoto Protocol under the UN Framework Convention on Climate Change in 1997 and eventually became effective in February 2005, many countries made their great effort to mitigate greenhouse gas emission. The Clean Development Mechanism (CDM) and Joint Implementation (JI) are the two forestry projects of Kyoto Mechanisms that allowed for the Annex I countries to help reduce global warming.In the 11thConference of the Parties (COP) to the UNFCCC in December 2005, the idea of reducing emissions from deforestation and forest degradation (REDD) was re-examined, and in the COP13 Meeting in Bali, Indonesia last year it was well-received and discussed by many parties.

During the COP13, ITTO held two side events: "SFM for REDD: from acronyms to implementation in the tropics" and "Sustainable forest management to reduce deforestation and forest degradation in the tropics". For two decades that ITTO has been promoting sustainable forest management in the tropics, I'm sure that their experiences focusing on REDD and CDM could greatly contribute in mitigating climate change.

I do understand that not only many countries but various organizations, such as ITTO, IUFRO, FAO, CIFOR, and among others are very interested in these, JI, AR-CDM and REDD Projects. To become successful in the implementation of these Projects, careful consideration and better international cooperation is needed. In South Korea, there has been large increase in forest biomass since the reforestation project was launched by the Korea Forest Service in the early 1970s. For 30 years, it shows high potential for sequestering atmospheric carbon dioxide but effort should be devoted in identifying factors that affect carbon uptake by forests.

From a variety of presentations in this Workshop, better opportunities shall be developed to

understand the application of CDM and REDD projects in different types of forests, particularly tropical and temperate forests. DPR Korea is one of the countries, which is feasible to initiate such projects in their degraded forest areas. It is estimated that more than 1.7 million ha are needed for rehabilitation in DPRK. FAO estimated that 364,000 ha of forestsare lost annually in Asia and at least more than 400,000 ha of degraded forest areas should be recovered every year in Asia. Therefore, we should extend our effort in rehabilitating degraded forests into other countries in Asia, especially India, Mongolia, Myanmar, Lao PDR, Cambodia, and Vietnam.

I am confident that this Workshop will provide a very meaningful chance for countries in the Asia-Pacific Region and organizations to identify new approaches and strategies for developing CDM and carbon markets as well as for reducing poverty in the developing countries.

I wish you all a very productive Workshop. I sincerely hope that this Workshop would serve as a successful venue for the enhancement of participant's knowledge of AR-CDM projects and for the familiarization of the participants with the financial and investment issues relating to AR-CDM projects. May this Workshop also be an active exchange of scientific and technical information among the participants. I am also very optimistic that this event will become an intellectually satisfying and meaningful opportunity especially in identifying new approaches and strategies for managing tropical timbers.

Finally, please allow me to congratulate ITTO, particularly Dr. Hwan Ok Ma, Projects Manager, Reforestation and Forest Management Division, ITTO Secretariat, for organizing this activity in collaboration with the Seoul National University and the Government of the Republic of Korea. I would like to thank the participants from ITTO member countries in the Asia-Pacific Region, speakers, discussants and moderators for their participation and support. With this, I am hoping for the success of the whole duration of this Workshop.

Thank you very much for your attention and have a nice day to all of us.

5. Background information and administrative arrangements of the Workshop

Dr. Hwan Ok Ma_Projects Manager, ITTO
Professor Youn Yeo-chang_Seoul National University

Asia-Pacific Regional Workshop on Afforestation and Reforestation Projects Development under the CDM

8 – 12 September 2008, Seoul, Korea

1

Introduction to the Korea workshop

- Objectives
- Tentative programme
- Adminstrative arrangements
- Introduction of resource persons and partcipants

2

Objectives of the workshop

3

Objectives of the workshop

To promote the understanding of the rules and procedures of AR-CDM and encourage "country level initiatives"

- enhance participants' knowledge of AR-CDM projects, including introduction to the rules and regulations governing AR-CDM projects;
- familiarize participants with the financial and investment issues relating to AR-CDM projects;
- enhance the capacity of project proponents in collecting the data and information necessary for preparing the AR-CDM Project Design Document (PDD); and
- facilitate the exchange of views on reducing emissions from deforestation in a post-2012 agreement of the Kyoto Protocol and information on the readiness mechanism planned under the Forest Carbon Partnership Facility managed by the World Bank.

Selection of two promising AR-CDM PDD proposals

4

Selection of two AR-CDM PDD proposals

To provide assistance in the formulation of two AR CDM PDDs for submission to CDM-Executive Board

- Selection criteria
  - I. Project feasibility - eligibility
  - II. Replicability of the project work – methodology
  - III. Availability of data and information – resources
- Evaluation based on presentations to be held on 12 Sept
- Evaluators
  - ✓ Resource persons and
  - ✓ Each country

5

Provisional Programme

6

Administrative arrangements

7

Administrative arrangements

- The workshop will cover the folloing costs:
  - Economy class round air tickets
  - Hotel accomodation only
    (No breakfast, lunch and dinner - No coffee/tea)
  - Visa fees, air port tax and transportation cost between residence and airport in home country
- Pocket money per day during the workshop
  - Equvalent to USD100 per day

8

Introduction of resource persons and participants

9

Workshop people

- Workshop moderators and resource persons
  - Hwan Ok Ma (ITTO)
  - Yeo Chang Youn (SNU)
  - Promode Kant (IWGES, India)
  - Tatsushi Hemmi (Pacific Consultants Co., Japan)
- Workshop secretatiat
  - Byoung-Yi Choi (SNU)
  - Kyoung-Suk Kang (SNU)
  - Others
- Workhop room/secretraiat room

10

Introduction of Workshop Participants

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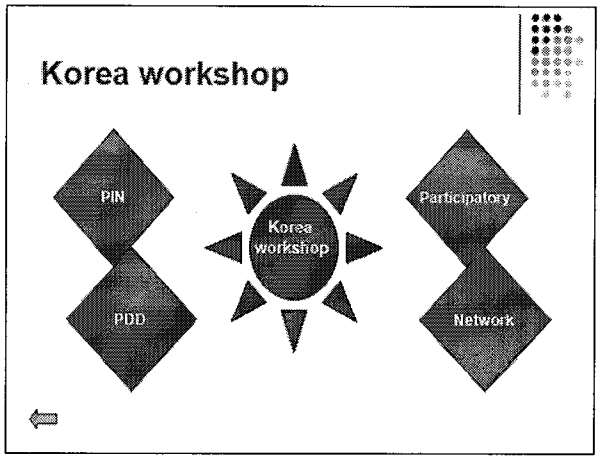
Korea workshop
PIN
PDD
Korea workshop
Participatory
Network

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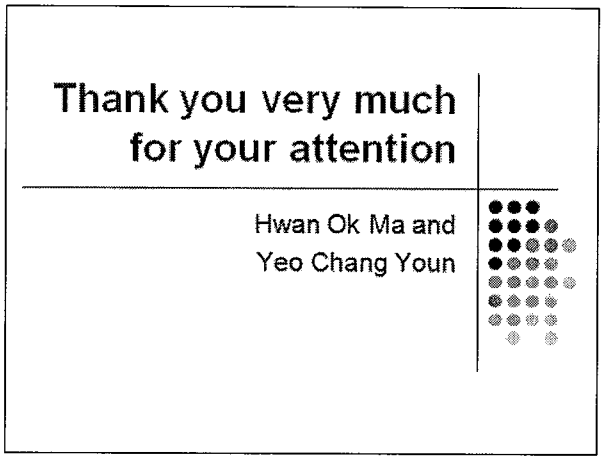
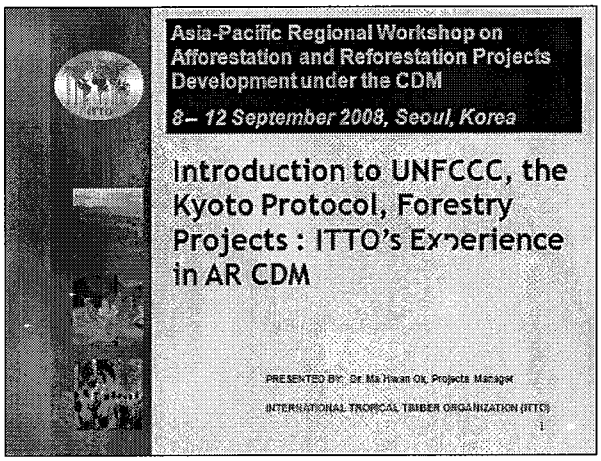

Thank you very much for your attention
Hwan Ok Ma and
Yeo Chang Youn

14

6. Introduction to UNFCCC, the Kyoto Protocol, and forestry CDM projects

Dr. Hwan Ok Ma
Projects Manager of International Tropical Timber Organization (ITTO)



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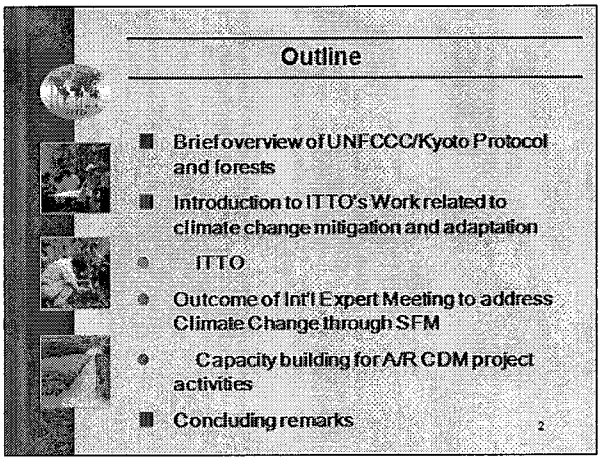

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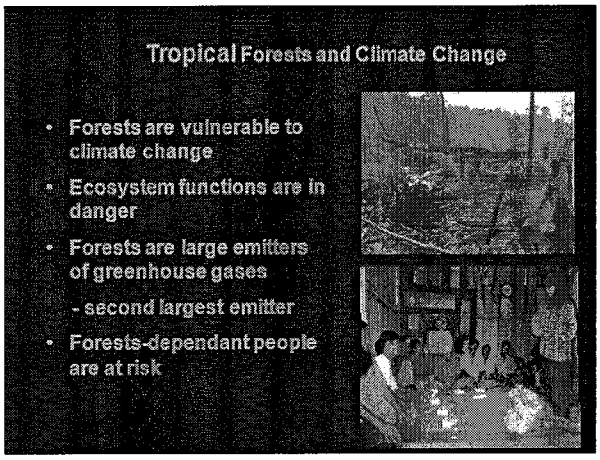

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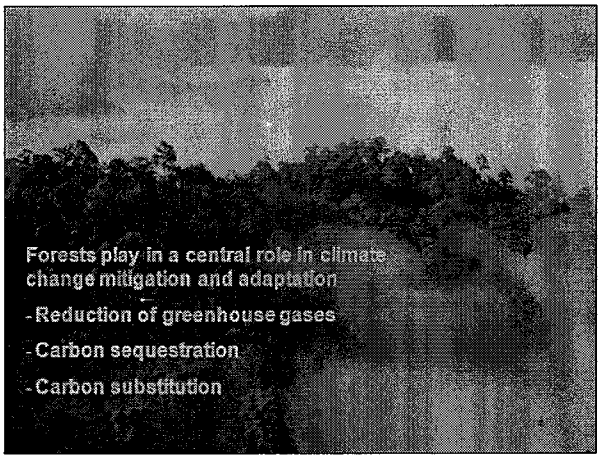

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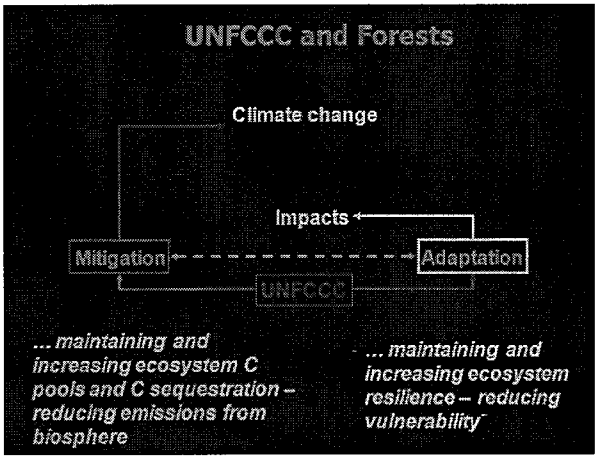

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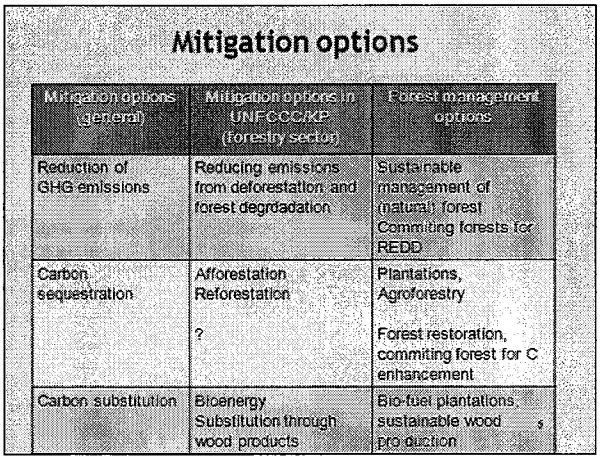

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Global Carbon Markets (1)

Regulated carbon market

European Union's Emission Trading Scheme (EU ETS)

-Involves EU member states and the world's largest GHG emission trading scheme. In 2007, the market was valued at US$50 billion (World Bank)

New South Wales GHG abatement scheme

-Australian mandatory state-level program. US$0.2 billion in 2007

9

7

Global Carbon Markets (2)

Voluntary carbon market

Chicago Climate Exchange (CCX)

North America's voluntary, legally-biding, rules-based GHG emission reduction and trading system

Over-the-Counter Market (OTC)

Not part of cap-and-trade system-not operate through a formal exchange.

10

8

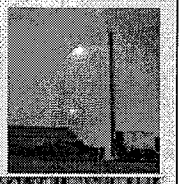
- Introduction to ITTO's Work related to climate change mitigation and adaptation
- ITTO
- Outcome of Int'l Expert Meeting to address Climate Change through SFM
- Capacity building for A/R CDM project activities

11

9

The International Tropical Timber Organization (ITTO)

- an intergovernmental organization established under the auspices of the UN in 1986
- has a secretariat of 35 people based in Yokohama, Japan
- has 60 member countries
- is governed by the ITTC and associated committees



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The ITTO mandate

Promoting the conservation and sustainable management, use and trade of tropical forest resources

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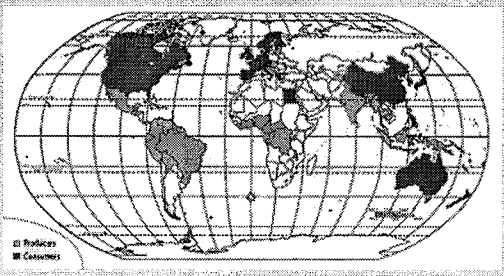
ITTO members (60)



- 80% of the world's tropical forests
- 90% of the world's tropical timber trade

12

Producer member countries (33)

Africa	Asia	Latin America
Cameroon	Cambodia	Bolivia
Central African Rep.	Fiji	Brazil
Congo	India	Colombia
Cote d'Ivoire	Indonesia	Ecuador
Dem. Rep. of Congo	Malaysia	Guatemala
Gabon	Myanmar	Guyana
Ghana	Papua New Guinea	Honduras
Liberia	Philippines	Mexico
Nigeria	Thailand	Panama
Togo	Vanuatu	Peru
		Suriname
		Trinidad & Tobago
		Venezuela

13

13

Consumer member countries (27)

Australia	Germany	Norway
Austria	Greece	Poland
Belgium/Lux.	Ireland	Portugal
Canada	Italy	Sweden
China	Japan	Switzerland
Denmark	Korea	UK
Egypt	Nepal	USA
Finland	Netherlands	EU
France	New Zealand	

14

14

Donors

Financial contributions by any country or organization

Main donors for project work and other activities

- Japan
- Switzerland
- United States

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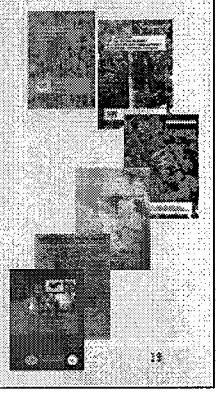
15

SFM for mitigation and adaptation

ITTO Guidelines:

- Sustainable management of natural tropical forests
- Establishment and sustainable management of planted tropical forests
- Conservation of biological diversity in tropical production forests
- Fire management in tropical forests
- Criteria and indicators for sustainable management of natural tropical forests
- ATO/ITTO principles, criteria and indicators for the sustainable management of African natural tropical forests



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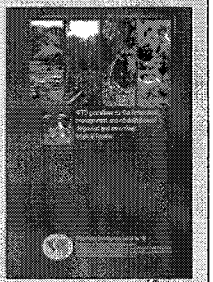
16

ITTO Guidelines for the Restoration, Management and Rehabilitation of Degraded and Secondary Forests (2002)

- collaboration with IUCN, CIFOR, FAO and WWF International
- Six workshops attended by 103 participants from 32 countries
- filling a knowledge gap in degraded forest restoration and land rehabilitation



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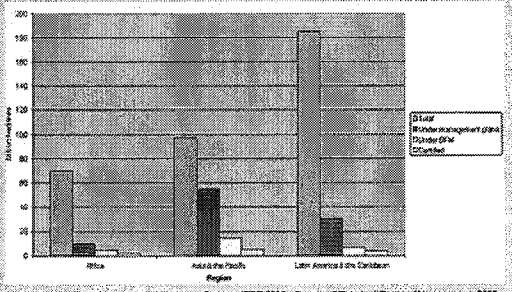
Key finding of *Status of Tropical Forest Management 2005*



Source: ITTO 2005, *Status of Tropical Forest Management 2005*.

The overall proportion of the PFE under SFM remains very low, at less than 5% of the total PFE

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SFM and Climate Change

SFM has expanded in the tropics but the work is far from finished. Much more needs to be done to promote SFM widely across the tropics.

SFM in the tropics is contributing to

- → Achievement of sustainable development
- → Conservation of biodiversity
- → Reduction of greenhouse gas emissions

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International Expert Meeting on Addressing Climate Change Through SFM (Yokohama, 30 April-2 May 2008)

Outcomes are available at:
http://www.itto.or.jp/live/PageDisplayHandler?pageId=223&id=3845

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Discussion on AR CDM from working group of the International Expert Meeting (1)

- Lack of presence of knowledge and experienced foresters in UNFCCC lead to a too complicated system
- Improvement to make it easier and realistic - Definition, scope and extent, flexible project boundaries
- Holistic approach (complementary to other alternatives such as REDD). It excludes restoration
- Current model and procedures makes project's transaction costs artificially too high
- Year of reference (1990) should be revised to allow greater land eligibility.
- Permanence/non-permanence shouldn't be a barrier.
- Lack of financing for implementing projects in order to produce credits to be sold. Needs for micro-credits programs for implementing projects.
- Too much expectations and too low payments
- What is the role of voluntary markets? Requirements are almost same as for A/R CDM projects

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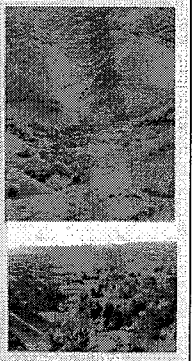
Discussion on AR CDM from working group of the International Expert Meeting (2)

Simplification of A/R CDM

- **Promote creation of modules and tools for "building" projects**
- **Revision of reference year for defining land eligibility**
- **Proposing flexible project boundaries to promote recognition of additional carbon sequestration and additional benefits as result of replication in areas surrounding successful projects.**
- **Developing mechanisms for upfront financing for project implementation (e.g. micro-financing)**
- **Promoting creation of operational entities at regional level.**



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Key messages from the International Expert Meeting (1)

- ✓ **Forest restoration and SFM are important measures for mitigating climate change. They also have many additional benefits, including biodiversity conservation, the provision of other ecosystem services, and the alleviation of poverty.**
- ✓ **Tropical forests and forest-dependent people are highly vulnerable to climate change. Measures to help the forests sector adapt to climate change are urgently required.**
- ✓ **SFM can help increase the resilience of tropical forest ecosystems and forest-dependent people in the face of climate change.**

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Key messages from the International Expert Meeting (2)

- ✓ **Bioenergy production from forestry and the substitution of fossil-fuel-intensive products by wood products could be important strategies for mitigating climate change.**
- ✓ **ITTO can play an important role in encouraging and assisting member countries to develop and implement forest-based climate change mitigation and adaptation initiatives.**

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ITTO's A/R CDM Project

Building capacity to develop and implement Sink-CDM of the Kyoto Protocol in Tropical Forestry Sector

Expected outputs

I. Guidebook for A/R CDM project developers on how to identify and formulate A/R CDM project activities.

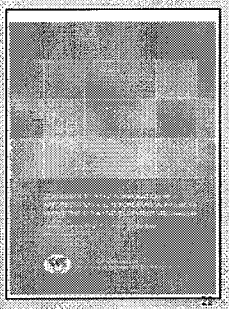
II. Six regional workshops to provide training for potential project developers in A/R CDM host countries

III. Six Project Design Documents submitted to CDM EB

25

Guidebook for the formulation of A/R projects under the CDM

- Part I is an introduction to the Kyoto Protocol and the CDM
- Part II describes the conceptual and procedural details for formulating an A/R CDM project
- Part III explores the financing of CDM projects



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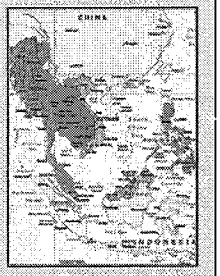
ASEAN-ITTO Regional Workshop on Perspectives of CDM Forestry Projects in Asia and The Pacific

(Phnom Penh, Cambodia, 22-24 March 2006)



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ITTO Workshop on AR CDM for Sub-Saharan Africa

- 2-5 Oct 2006 in Accra, Ghana
- 80 participants from more than 30 countries
- Collaborating agencies: Ghana Forestry Commission, UNFCCC, FAO, UNDP-GEF, AfDB, Swiss Intercooperation, etc.

28

Latin American Regional Workshop on Afforestation and Reforestation Projects Development

(Lima, Peru, 19-23 March 2007)

- To support the development of financing mechanisms for the CDM-AR activities;
- To support the identification of alternatives that can make rules more flexible and reduce transaction costs for the implementation of the CDM-AR activities. In the case of small-scale CDM-AR projects, it was suggested that the maximum limit of GHG sequestration should increases to 32 ktonCOe/year;
- Latin American countries should be supported in the establishment of instruments to guarantee land tenure and property rights;
- To encourage negotiation in order to European market accept tCERs and lCERs based on CDM-AR activities;

29

African Regional Workshop on Afforestation and Reforestation Projects Development under the CDM (23-27 June 2008, Abidjan, Côte d'Ivoire

Selection of two Small-scale AR CDM proposals;

I.Ghana- Reforestation of the Catchment area of the Volta Lake in Ghana

II.Ivory Cost- Reboisement dans les cultures pérennes (complantation) en forêt classée de Rapides Grah dans le Sud-Ouest de la Côte d'Ivoire

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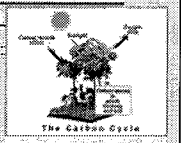
Are A/R CDM still worthwhile in the tropics?

- Opportunities in the regular carbon market: Carbon sequestration in tropical forests
  - A mean annual sequestration:
    10 t CO_2-e per ha per year
  - 1 % cap: 137 mil t CO_2-e per year
  (i.e. 4,500 A/R CDM projects with an average area of 3,000 ha)
- Growing opportunities from voluntary carbon markets (offset projects), fueled largely by private sector supporting conservation and encouraging socio-economic development

- Income generation activities for the poor
- Western Africa Poverty Indices (Ghana and 16)
  GNP (per capita): US$ 545
  Population below poverty ($1/day): 51.1%



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Concluding remarks

Forest-based climate change mitigation initiatives will play a central role in addressing CC

- **Co-benefits of A/R CDM project activities**
  carbon sequestration/rehabilitation of degraded forests in the tropics/poverty alleviation
- **Improve the local capacity in the formulation of A/R CDM projects**
  secure appropriate land tenure and property rights/facilitation in identifying "Kyoto lands" eligible for A/R CDM/simplication of the rules and the procedures for A/R CDM
- **Support to the development of financing mechanisms for A/R CDM activities**
  enhance partnerships between the public and private sectors through voluntary carbon markets for AR-CDM activities

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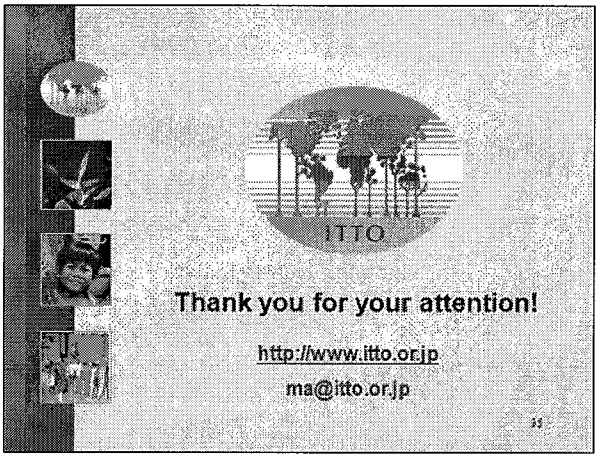

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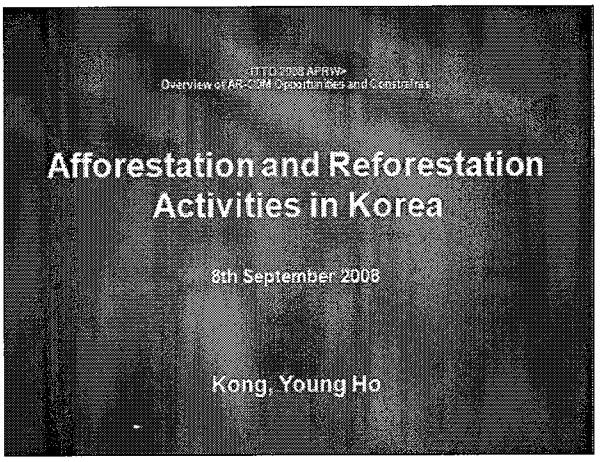
7. Afforestation and Reforestation Activities in Korea

Dr. Young Ho Kong
Korea Green Promotion Agency



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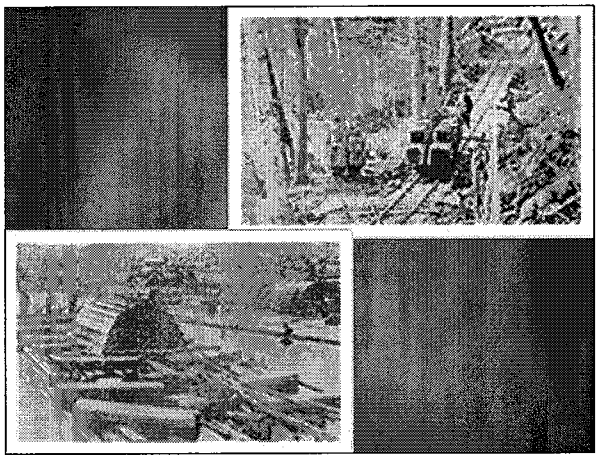

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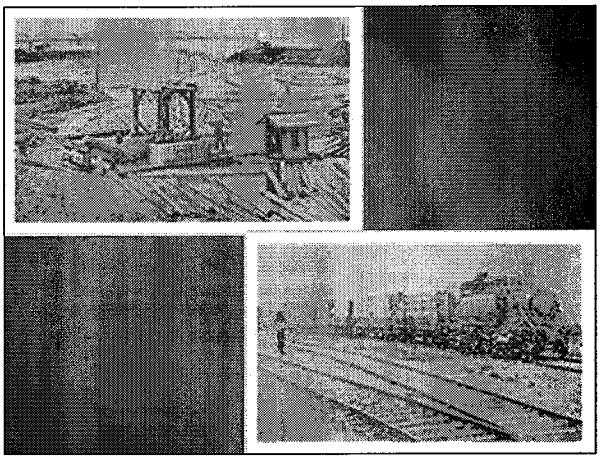

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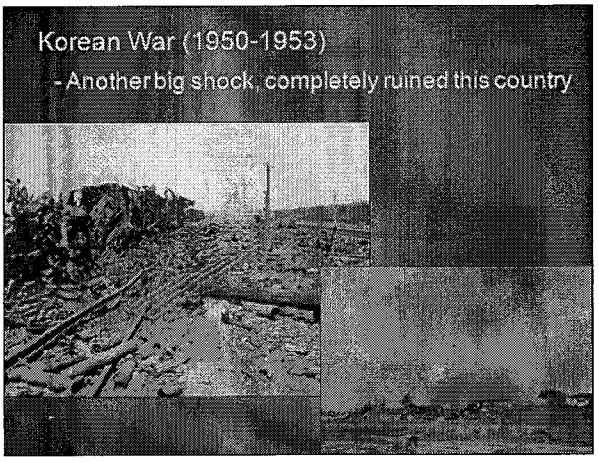

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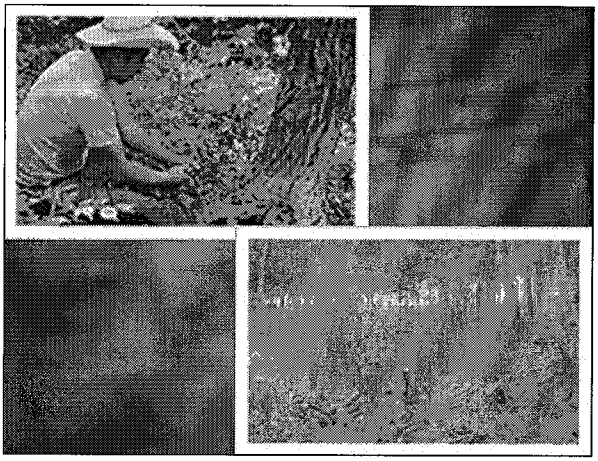

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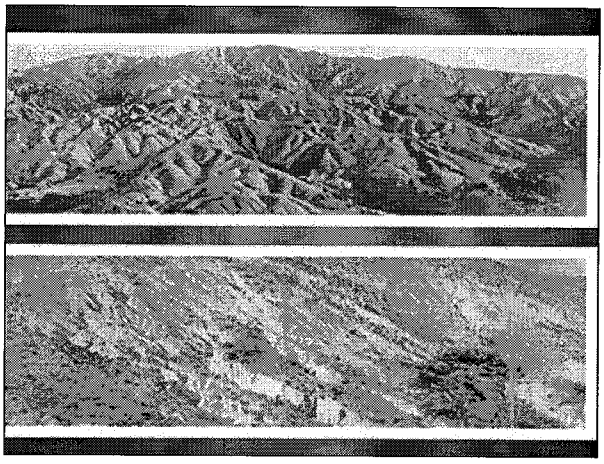

8

Organization of Korean Forest Service (1967)

- Important turning point for systematic long term feasible plans and practices
- Priority mission was solution of fuel wood problem and forest rehabilitation
- Active support from top of government
  - National movement of plantation
- 900,000 ha planted in 5 years until 1972
- Turned eyes to overseas to secure timber

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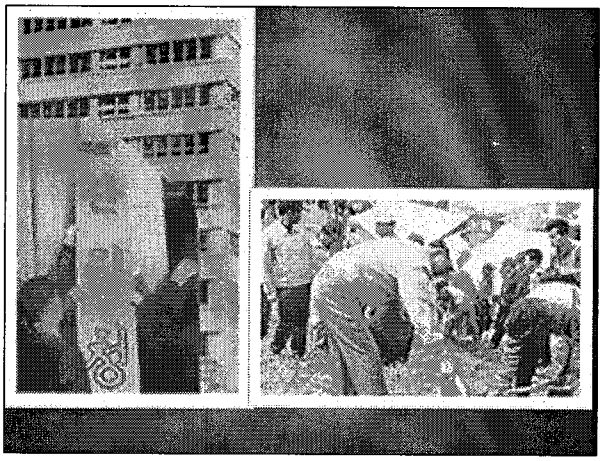

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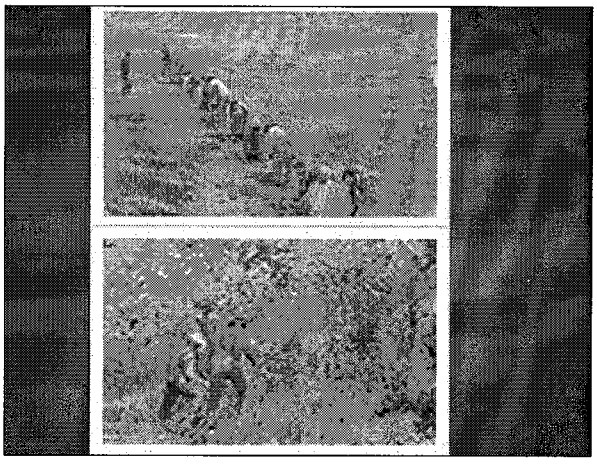

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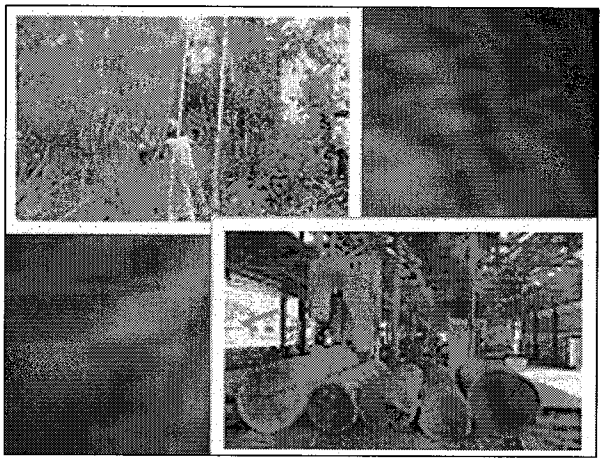

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1st National plantation plan
(1973-1978)

- Main issue was a greening of country
  - Solve fuel problem and prevent erosion
  - Preferably fast growing trees (70%)
  - Advanced skills and techniques through Kor/Ger co-op, UNDP, FAO programs
- More strong support from the government
  - Forest entering prohibition for protection
  - Arbor day and Silvicultural day activities
- Successfully planted 1 million ha

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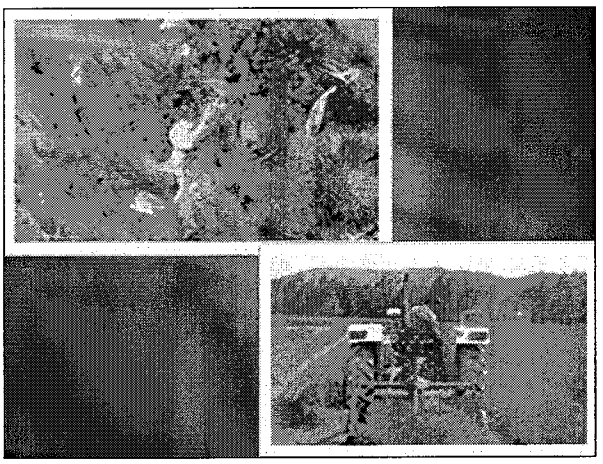

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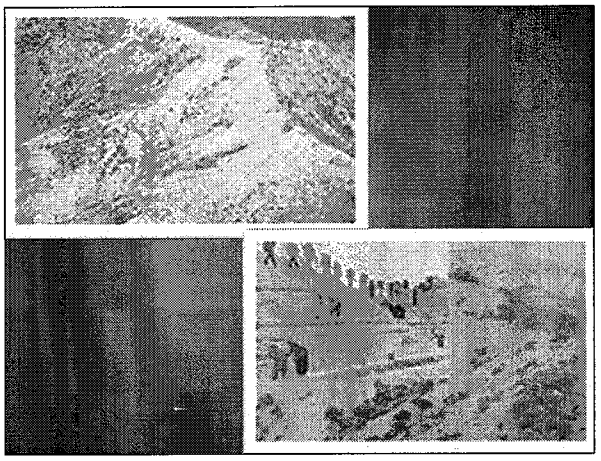

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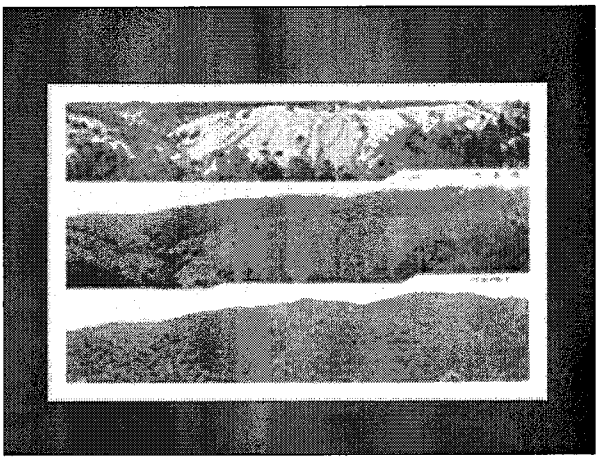

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2st National plantation plan
(1979-1987)

- Main issue was a forest resource security and sustainable management
  - No more fuel wood issue
  - Economic growth and Timber demand
- 10 economical species recommended
- 400,000 ha of long term forests established
  - Softwood like Larix, Rigi-teda, Korean pine
- Successfully completed the national greening

17

Changes in forestry

- Skilled forest worker shortage, High labor costs, aged people in countryside
  - Need to develop effective forest technique and machinery,
  - Workers training, forest road construction
  - Conservation of superior natural forest
- Various demands on Forest
  - For example, recreation, water, wildlife etc.
  - It's value may be equivalent about U$60billion

18

3rd National plan (1988-1997)

- Forest Resource-lization
  - Diversification of recommended trees (21 species)
  - Replacement of inappropriate and unsuccessful plantations
  - Special purpose trees recommended to enhance a income of rural residents
- Cost effective regeneration methods development
  - Natural regeneration, Coppice management, Plantation under existing tree, etc.

19

- More focused on forest conservation
  - Conservation of superior nature stand.
  - Forest fire prevention and extinguishment
  - Prevention of tree disease or insect
- Forest management model development
  - Showing good example like weed control, pruning, thinning, etc.
  - Forest multiple use
- Scenic plantation around city or public area

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Facing Korean forestry situation

- No spaces for new plantation
- High timber demand and low self-supply
- Still Long time away to the harvesting
- Very rely on imported timber
- Forest is perceived as area for public interests rather than production
- Overseas plantation recognized as a solution

21

A long term Wood outlook

- 2005
  - Demamd : 22.8 million m3
  - Supply : Imported 20.5 million m3 (90%)
    Domestic 2.3 million m3 (10%)
- 2050
  - Demamd : 27.8 million m3
  - Supply : Imported 27.8 million m3 (82%)
    Domestic 6.2 million m3 (18%)

22

Overseas plantation

- Government target : 1 million ha
  - Which is to cover 50% of imported logs
- Achievement (1993-2006) : 127,800 ha
  - In 7 countries : Australia, New Zealand, Solomon, Vietnam, China, Paraguay
  - By 9 companies, mainly timber user
  - Dominantly short rotation species for pulp and paper like eucalyptus or acasia.

23

New aspect for overseas plantation

- Energy consumption companies as well as timber using companies are interested in overseas plantation
  - To secure Carbon credit or Bio energy
- Stronger support from Korean government
  - Long term finance with low interest for 10 – 28 years
  - Forestry cooperation agreement with other countries
  - Participating in international forestry aid programs
  - Set up the long term overseas forestry development basic plan (2008-2017)

24

Summary

- Not exaggeration to say nothing left in Korean forest after Japanese occupation and Korean war.
- Korean government, universities, companies, people even military army, all of them voluntarily and eagerly participated in plantation to recover it
- Korea completed the forest restoration and are going for it's resource-lization and sustainable management

25

- Korea relies on imported wood too much, but domestic harvest is still far away
- Moreover public use demand on the forest is getting increasing
- Overseas plantation is recognized as the best solution
- Recently overseas plantation for Carbon credit or Bio energy is considered

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- Example
- The pulpwood plantation in Western Australia
- *Eucalyptus globulus spp.*

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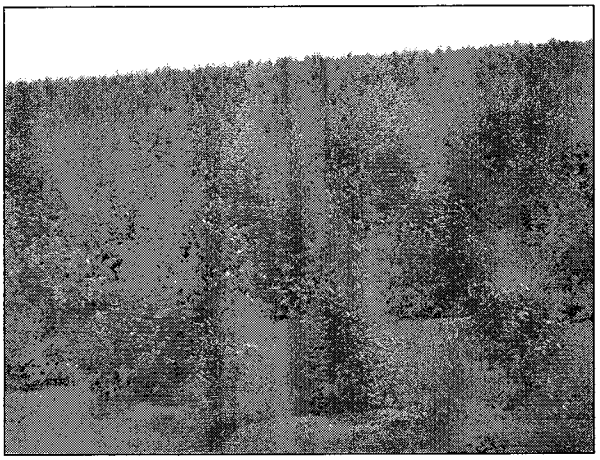

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Thanks a lot

30

8. Introduction to the procedures for the development of AR CDM projects

Dr. Promode Kant
Director, Institute of Climate Change and Ecology

CDM

Promode Kant
Director, Institute of Climate Change & Ecology, New Delhi

1

Project Vs Program of Activities

Project	PoA
• One or more locations	• Multiple locations including in other countries
• One or more project participants (PP)	• Multiple PP
• One project at a time	• Number of activities submitted in groups over the life-time of the PoA
• One crediting period	• Each Project Activity has its own crediting period
• PP known ex-ante	• at least one PP known ex-ante, rest join later

2

Program of Activities (PoA)

- Implementation of a policy, measure or goal with institutional, financial and methodological framework to achieve ERs
- One coordinating agent - Private or public, communicates with the Board, coordinates implementation and responsible for ER accounting, ensures no double counting
- Physical boundary could extend beyond one country, Letter of approval from each necessary
- Duration - 30 years for fixed period / 40 or 60 years for renewable period, Baseline reviewed at every 20 years for renewable period, Revisions or deviations apply to all CPAs
- Additionality - PoA would not be implemented under normal circumstances, or Policy/measure would not be enforced, or PoA leads to greater enforcement
- All CDM Project Activities end when PoA terminates
- One methodology - Small scale or large scale approved methodology, Small scale methodologies are adjusted for leakage when used under PoA
- All CDM Project Activities are monitored as per monitoring plan
- Verification is done by sampling

3

PoA Design includes

- Policies and measures leading to a defined goal
- Start date and duration
- Coordinating Entity with clearly delineated managerial responsibilities, Operational and management arrangements
- Boundary of the PoA
- Confirmation of voluntary action by host party DNA
- Additionality of the entire PoA
- Justification of the methodology
- Eligibility criteria for inclusion of CDM Project Activity
- Monitoring plan
- Environmental Analysis and stakeholder comments
- Letters of Approval from the host parties

4

CDM Project Activities Design within PoA includes

Identification of Responsible Entity
Host Party approvals
Starting date and duration
How the POA stipulated eligibility criteria for inclusion are met
Demonstration of additionality
Baseline, project and leakage emission calculations
Environmental analysis
Stakeholder comments
Confirmation that the CPA is not part of another CDM project or POA

5

CDM project for land rehabilitation

- Often community based, scattered, small scale
- Modest carbon content , <20 t CO2e/ha/yr, on account of low land productivity
- Additionality easier to prove
- Low leakage risk if currently these lands are not providing much
- Presents monitoring difficulties

6

CDM project for plantation

- Commercial enterprises, large sizes
- Often high rates of sequestration (e.g. 40+ t CO2e/ha/yr) as lands chosen are more productive and investment and species choice is appropriate
- Additionality could pose problem
- Leakage likely through displaced land use since these lands are usually more productive and under current use

7

CDM agroforestry and urban forestry projects

Agroforestry

- Income from wood, carbon and under-crops & returns from soil and moisture conservation
- Should convert non-forest lands to forest as per definition
- Additionality problematic in places farmers have been long practicing it, usually based on barrier tests

Urban forestry

- Should convert non-forest lands to forest as per definition
- Land availability small in urban areas, high opportunity cost
- Additionality could be an issue in most urban areas that have avenue tree schemes but it could provide opportunities in towns that have not been able to raise trees on account of lack of finances

8

CDM silvi-pastoral and non-renewable biomass projects

Silvi-pastoral

- Credits from carbon sequestered in trees and methane emission reduction from cattle
- Complex projects with two distinct activities
- Tree species should sequester good amount of carbon and also provide fodder

Non-renewable biomass projects that replace unsustainable use of fuel woods with alternatives like methane digestors, sustainably managed fuel wood plantations

9

CDM project on replacement of non-renewable biomass use

- *Biomass is "renewable" if one of the following five conditions applies:*
- 1. It originates from **forests which remain forests under** sustainable management so that the level of carbon stocks does not systematically decrease over time and forestry regulations are complied with.
- 2. The biomass is **woody biomass originating from croplands and/or grasslands** where land area remains cropland and/or grasslands or is reverted to forest; and sustainable management ensures that the level of carbon stocks does not systematically decrease and forestry regulations are complied with.
- 3. The biomass is **non-woody biomass and originates from croplands and/or grasslands** where land area remains cropland and/or grasslands or is reverted to forest; and sustainable management ensures that the level of carbon stocks does not systematically decrease and forestry and agriculture regulations are complied with.

10

Non-renewable biomass

- 4.The biomass is a **biomass residue and its use in the project** activity does not involve a decrease of carbon pools, in particular dead wood, litter or soil organic carbon on the land from where the residues originate
- 5.The biomass is the non-fossil fraction of an industrial or municipal waste.
- Otherwise, where none of these conditions applies, the biomass is considered as "nonrenewable"

11

Additionality

- central condition
- The emission reduction, or carbon sequestration, should be additional to that in the absence of the project
- Basically, a proof that in the absence of the CDM this project was unlikely to have been taken up
- Barriers to the project – economic, technological,

12

Leakage

- Basic principle of leakage prevention: baseline scenario and project scenario should deliver the same amount of goods and services.
- Leakage is carbon stock changes from activity displacement like shifts in the agricultural and animal production from project land to outside boundary and from
- Collection of fuel wood, fodder, NTFP
- Grazing
- Increased emissions due to transport of products and personnel to areas outside the project: CO2, (CH4, N2O)

13

PDD

- Format
- whether approved methodology applicable
- Clarification/ revision of methodology
- New methodology
- Baseline Information
- Monitoring Plan
- Ex ante estimation of ERs
- Stakeholder consultations and quality control
- PDD submitted for DOE validation

14

Baseline approach

- "Existing or historical, as applicable, changes in carbon stocks in the carbon pools within the project boundary"
- "Changes in C stocks in the pools within the project boundary from a land use that represents an economically attractive course of action, taking into account barriers to investment"
- "Changes in carbon stocks in the pools within the project boundary from the most likely land use at the time the project starts"

15

CER & Crediting Period

CER

- temporary CERs (tCERs) valid for 1 commitment period.
- long-term CERs (lCERs) valid for the crediting period.
- On expiry of credits from A&R activities, they
- have to be replaced by an equal number of credits.

Crediting period

- Renewable – 20 year period, twice renewable.
- Fixed - 30 year period.

16

Monitoring & risks

- Project participants to ensure implementation as per monitoring plan
- Collection of information on the project activities
- Focus on the specific risks of the AR projects - risks from natural events fire, Pest outbreaks, Floods, droughts
- Risks from anthropogenic events, human caused fires, illegal harvest
- Project to assess and record the events as part of monitoring

17

Validation

- DOE is contracted for validation
- DOE reviews PDD, including baseline study and monitoring plan
- PDD and other project documents are posted for public comments for 30-days
- DOE issues a preliminary report outlining the corrective action requests and clarification requests
- Project participants reply and clarify to the DOE
- DOE issues the final validation report

18

Quality assurance

- Data collected and archived as per monitoring & operational plans
- Data archival in electronic & print formats
- Quality assurance and quality control to follow standard operating procedures outlined in the monitoring plan
- Periodic checks of archived data to ensure the consistency in the data being collected and that archived.

19

Verification and CER issue

- First verification as per the choice of project participants
- Subsequent verifications at five year intervals
- Project entity conducts measurement of permanent sample plots and other data relevant for verification
- DOE undertakes verification and issues verification reports
- Project participants submit verification report for CER issuance
- t CERs valid for compliance during the commitment period and expire at the end of subsequent commitment period for the purpose of their replacement

20

Available Approved Methodologies

21

Issues Covered in Methodologies (Source: WB Biocarbon Fund)

- **Land use**: Degraded lands, grasslands, crop lands, wetlands, settlements
- Carbon Pools – above ground, below ground, soil organic carbon, dead wood and litter
- **End use**: Restoration of land productivity, fuelwood production, commercial timber production, biomass for industrial use
- **Baseline A/R**: Pre-project afforestation implemented prior to project
- **Project emissions**: Fossil fuel use, site preparation, biomass burning, natural fires, fertilizer application, N_2O emissions from planting of legume shrubs
- **Leakage**: clearance for agriculture, grazing, fuelwood collection, transport of project products, GHG (non-CO_2) emissions from increases in livestock and manure management activities
- **Aerial/satellite methods**: for carbon stock estimation

22

Simplified baseline and monitoring methodologies AR-AMS0001

Applicable for small-scale A/R project activities on grasslands or croplands

- implemented on lands where the area of the cropland displaced due to the project activity is less than 50 per cent of the total project area
- on lands where the number of displaced grazing animals is less than 50 per cent of the average grazing capacity of the project area
- on lands where ≤ 10% of the total surface project area is disturbed as result of soil preparation for planting

23

Simplified baseline and monitoring methodologies AR-AMS0002

Applicable for small-scale A/R project activities under CDM implemented on *settlements like*

- Transportation infrastructure: Land strips along streets, country roads, highways, railways, waterways, overhead power cables, gas pipelines, provided such land is functionally or administratively associated with the transportation infrastructure and is not accounted for in another land-use category
- Human settlements: Residential and commercial lawns (rural and urban), gardens, golf courses, athletic fields, parks, provided such land is functionally or administratively associated with particular cities, villages or other settlement types and is not accounted for in another land-use category

24

AR-AMS0002 (contd)

- Project activities implemented on lands where agricultural lands displaced due to the project activity < 50% of total project area;
- Project activities implemented on lands where ≤ 10% of the total surface project area is disturbed as result of soil preparation for planting

25

AR-AMS0003
Simplified Baseline and Monitoring Methodology for Small Scale CDM A/R Project Activities Implemented on Wetlands

Applicable for degraded and degrading wetlands that is subject to further degradation and have tree / non tree component that is in declining / a low carbon steady-state.

- Project activities implemented through assisted natural regeneration or seeding or tree planting and should not lead to any changes in hydrology of the land under the control of the project participants.
- Some activities not permitted include drainage, flooding, digging or ditch blocking.
- Not applicable on wetlands with predominant vegetation comprising of herbaceous species in its natural state.
- Applicable over the following wetland categories.
  - Degraded intertidal wetlands (e.g. mangroves);
  - Undrained peat swamps with degraded vegetation cover.
  - Degraded flood plain areas on inorganic soils.
  - Seasonally flooded areas on the margin of water bodies/reservoirs.

26

AR-AMS0003 (contd)

- Project activities implemented on lands where agricultural activities cover ≤ 10% of total project area
- and where displacement of grazing animals does not result in leakage
- The project activity should not lead to shift of pre-project activities outside the project boundary - lands under the proposed A/R CDM project activity should continue to provide at least the same amount of goods and services as in the absence of the project activity
- Lands severely degraded with the tree crown cover and height below forest thresholds and the lands are still degrading
- Environmental conditions and human-caused degradation do not permit the encroachment of natural forest vegetation
- Site preparation should not cause significant longer term net emissions from soil carbon

27

Methodology	Applicability	Coverage	Remarks	
AR AM0001	A/R on degraded lands	Two pools	No leakage from activity displacement	*Source: WB Biocarbon Fund*
AR AM0002	A/R on degraded lands	All (Five) pools; CO2 Fix model; Baseline A/R	No leakage from activity displacement	
AR AM0003	A/R on degraded lands; assisted NR	Two pools; assisted NR	Activity displacement leakage due to grazing	
AR AM0004	A/R on agricultural lands	Two pools	Activity displacement leakage - agri.conv, grazing and fuelwood	
AR AM0005	A/R on grasslands for commercial/industrial use	Two pools; Baseline A/R	Activity displacement leakage - agri.conv. & Fuelwood	

28

Meth.	Applicability	Coverage	Remarks	
AR AM0006	Degraded lands; nitrogen fixing species; and forage	Three pools	Covers leakage from transport, forage fed to livestock	Source: WB Biocarbon Fund
AR AM0007	Pasture & agricultural land,	Four pools	Covers leakage from transport, displacement of employees, fuelwood collection & fence posts	
AR AM0008	Degraded lands, remote sensing for monitoring	Two pools	Covers leakage from transport	
AR AM0009	Degraded lands	Four pools	Covers leakage from transport & wood for fence posts	
AR AM0010	Unmanaged grasslands	Two pools	Covers leakage from transport	

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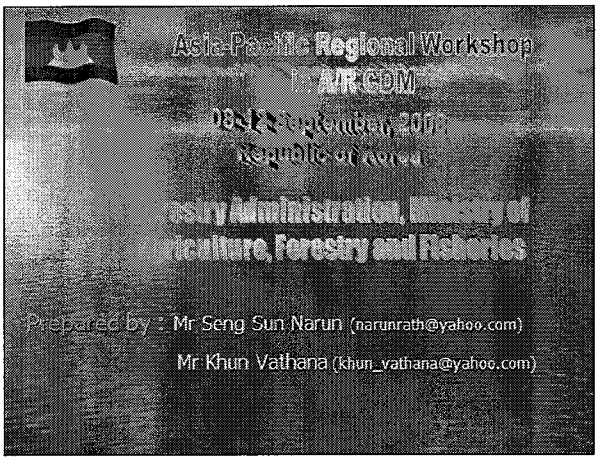
Session 1. Overview of AR/CDM Opportunities and constraints

1. Country Presentations

① Cambodia



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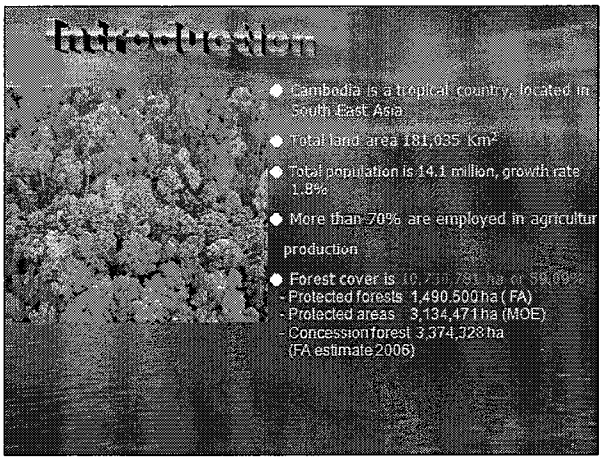

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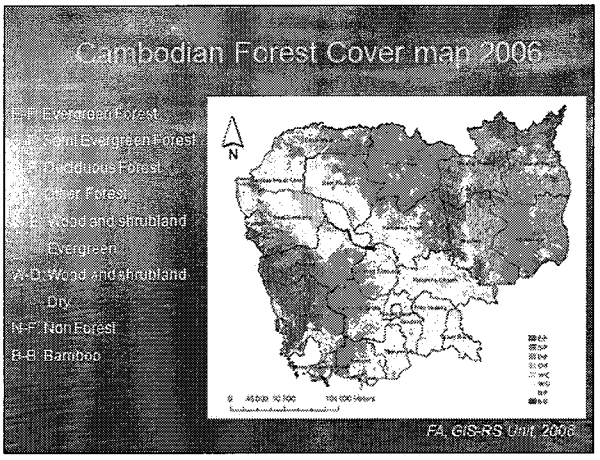

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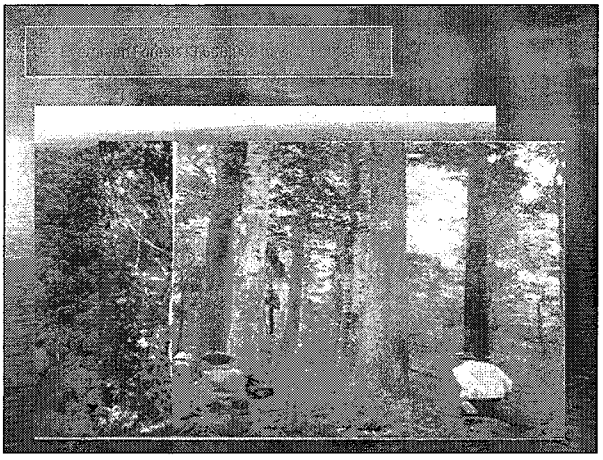

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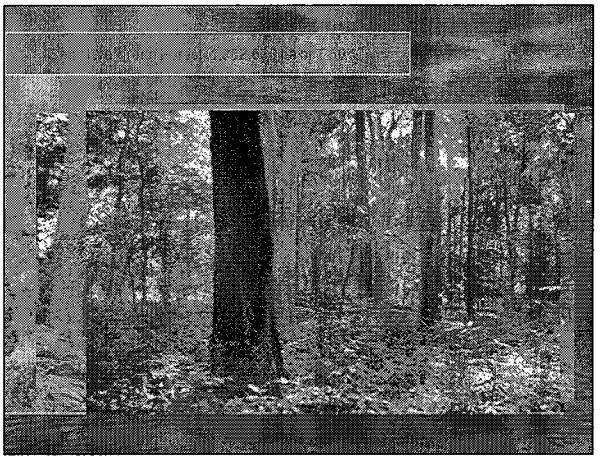

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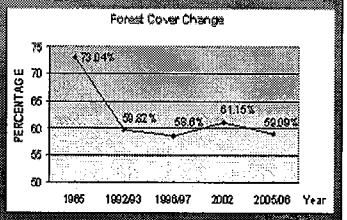
7

Forest Cover Change

- Forest cover area in 1965 was 73.04% of the total land area
- In 1993 was 59.82%
- In 1997 was 58.60%
- In 2002, forest area was 61.15%
- In 2006 decreased to 59.09%



FA, GIS-RS Unit 2008

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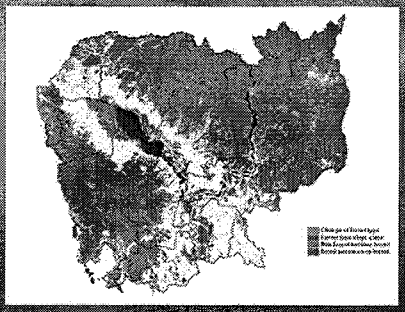
Forest Cover Change 2002- 2006



Forestry Administration (2008). *Cambodian Forest Cover, Forest cover map change 2002-2006*. GIS/RS unit.

9

Cambodia and the Kyoto Protocol

- The Royal Government is committed at national and international levels to address the challenges of climate change. Cambodia ratified the UNFCCC on 15 December 1995, and the UNFCCC entered into forced on 17 March 1996, acceded to its Kyoto Protocol in August 2002 and established its Climate Change Office(CCCO) in the Ministry of Environement (MoE) in June 2003. The MoE serves as interim Designated National Authority(DNA) by degree of July 2008.
- The Royal Government issued letter No 699 dated 26-May-2008 decided to support the forest carbon credit projects in Cambodia that designates the FA as the representative of RGC to execute the sale of Cambodia forest carbon with consultation within the Technical Working Group on the Forestry and Environment (TWG-FXE).
- The Ministry of Agriculture, Forestry and Fisheries issued a letter No 4580 dated 02-09-2008 recognized the Forest Definition, which specified Tree cover from 10% up, minimum land area from 0.5ha up and tree height from 5m up.

10

CDM Constitutions

DNA Board ← Representatives of MoE, MAFF, MIME, MoP, CDC, MPWT

DNA Secretariat (Climate Change Office-MoE)

Technical Inter-Ministerial Working Groups (TWG)

- Energy TWG
- Forestry TWG
- Others (if necessary)

11

Chi Phat small scale reforestation CDM project activity

A reforestation project of non -forest areas

- To reduce greenhouse gas emissions by sinks of less than 8 kilotons of CO_2 per year
- To promote the involvement of the low income community to preserve natural forest resources and biodiversity.
- To increase the standard of living of the rural population living in the project area, through a community based sustainable management of the planted forest and of the other natural resources.

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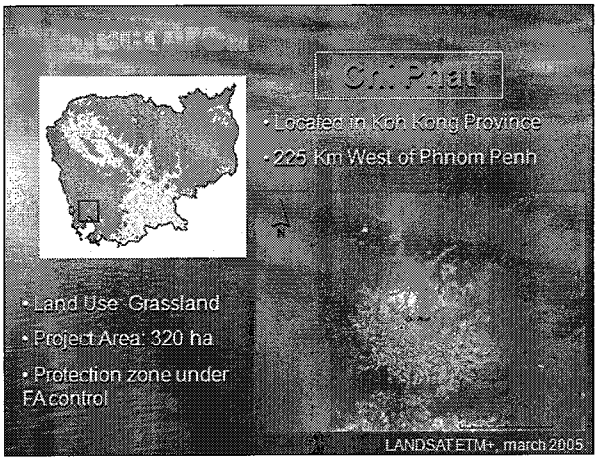

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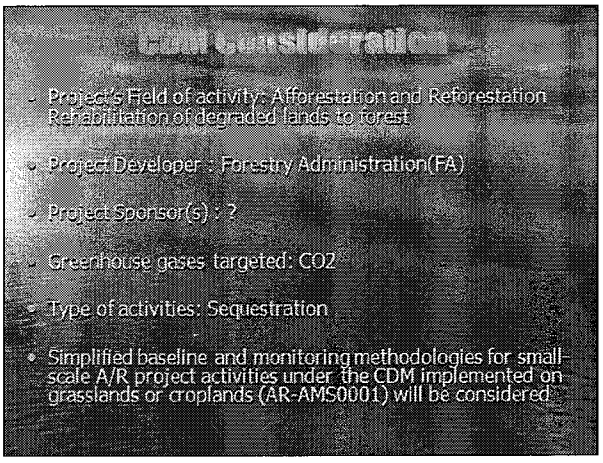

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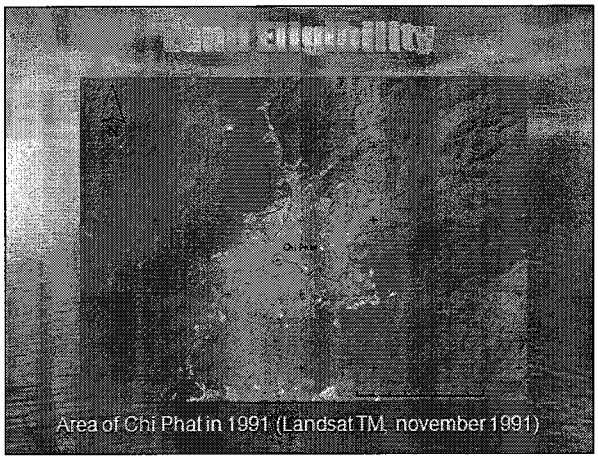

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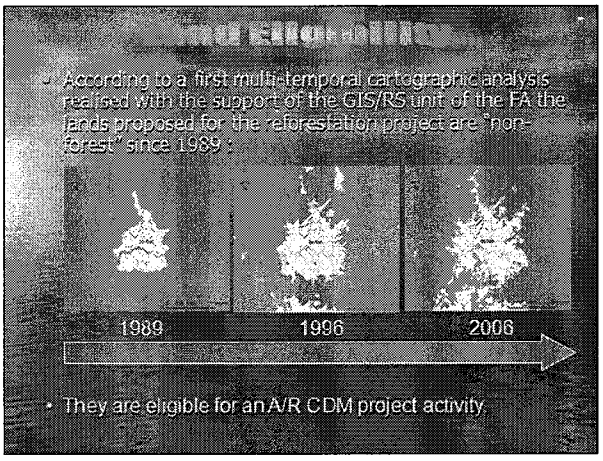

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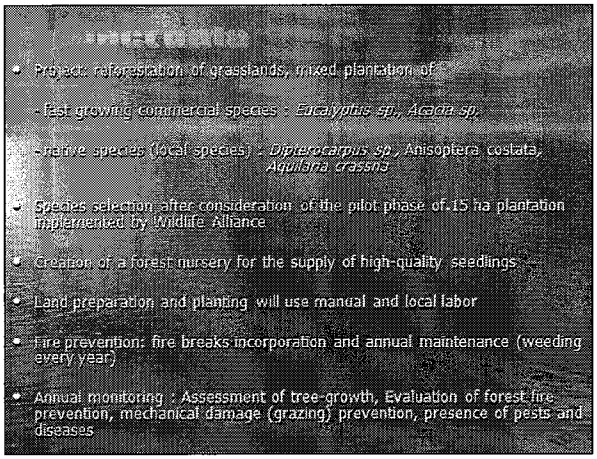

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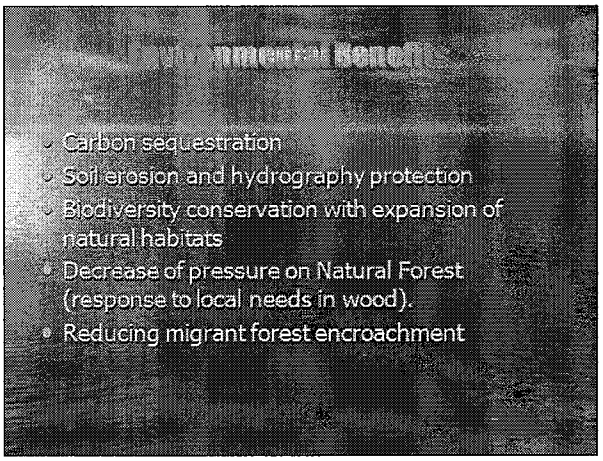

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CO_2 sequestered approximation (I)

- If we consider commercial volumes of 170 m^3/ha for Eucalyptus sp. and 280 m^3/ha for native species with production cycle of 12 years and 40 years respectively, estimated commercial volume per ha and per year are 14,2 and 7 m^3/ha/yr
- We can calculate the Carbon sequestered:
  - 14,2 x 1,65 = 23,43 tonnes of CO_2/ha/yr for Eucalyptus sp.
  - 7 x 1,65 = 11,55 tonnes of CO_2/ha/yr for native species.
- We can consider a mean sequestration of 17 tonnes of CO_2/ha/yr
- Within the framework of this reforestation project (project area's 220 ha), a carbon sequestered approximation can be estimate as 5,5 ktonnes/ha/yr

19

CO_2 sequestered approximation (I)

From Commercial Volume to Biomass

- No specific data related to the project
- Using IPCC default values of Biomass Expansion Factor for Above Ground Biomass and Below Ground Biomass
- 1 m^3 of commercial wood = BEF_{AGB} x BEF_{BGB} = 1,5 x 1,2 = 1,8 m^3 of biomass

From Biomass to Carbon

- Using a default IPCC wood density value of 0,5 to convert m^3 of biomass to tonnes of biomass

1,8 m^3 of biomass x 0,5 = 0,9 tonnes of biomass

- Considering the IPCC default value of 0,5 for Carbon Fraction and 44/12 as conversion factor from C to CO_2

0,9 tonnes of biomass x 0,5 x 3,67 = 1,65 tonnes of CO_2

20

CO_2 sequestered approximation (I)

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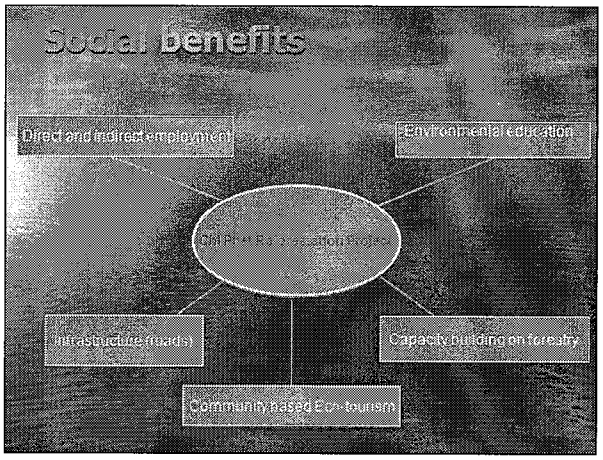
Social benefits



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Potential risks and barriers

- Forest fires
- Activity shifting (forest encroachments and speculation)
- Lack of experience related to native species plantations and linked technical protocol

23

- REDD project Cambodia is 62,477 ha, 12 community, 59 villages in Oddar Meanchey Province. The project is expected to sequester 3,7 million metric tons of CO_2 over 30 years.
- In May 2008, the project was officially endorsed by Prime Minister, Hun Sen, and the guiding principles ensure that carbon revenues are used to:
  - Improve the forest quality
  - Provide maximum benefits to local communities which participate in the project activities.
  - Study the potential area for new REDD projects in Cambodia.

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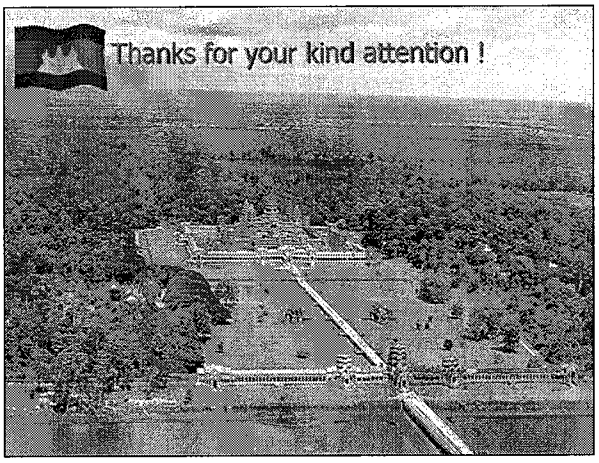

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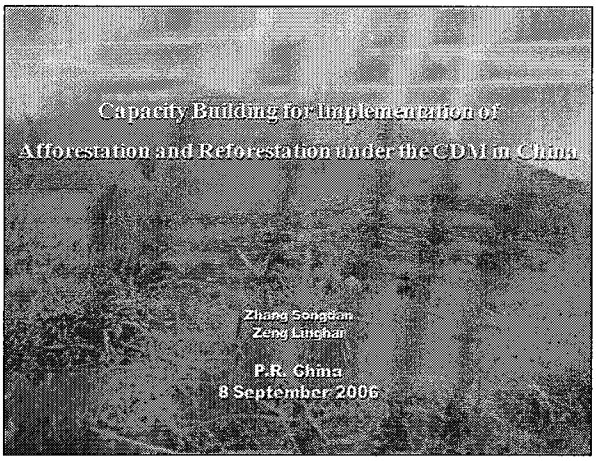
② China



1

contents

- Tropical Forests in China
- Development of AR under the CDM in China
- Project Idea for A&R CDM Project Activities

2

Tropical Forests in China

The total land area of tropical forest is 11.256 6 million ha. The are a of tropical forest is 10.744 9 million ha. in which the area of natur al forest is 6.073 8 million ha (5.44 million. ha. of secondary forest s) and that of tropical plantation is 4.671 1 million. ha. The total sto ck volume is 660 million cubic meters.

The area of tropical forests arranges the 18th of world.

3

Development of AR under the CDM in China

- Integrated Capacity Strengthening (ICS)-CDM of China: Started sin ce 2005
- The fields of fast development:
  - Improve energy efficiency
  - Develop and utilize new energy and regenerated energy
  - Methane and coal gas layer recycled
- Moved slowly in the field of A&R

  Only one formal AR-CDM project "Reforestation along pearl river of Guangxi" had been approved in 2004.

4

The Main problems of AR CDM implementation in China

- **Lack of basic experience**
- **Lack of technical support organization and expert s of PDD**

5

Project Idea for A&R CDM Project Activities

Title: Capacity Building for Implementation of A&R under the CDM in China

The goals of the project activities

The primary goal is environmental impact, but economic benefits should b e fully considered.

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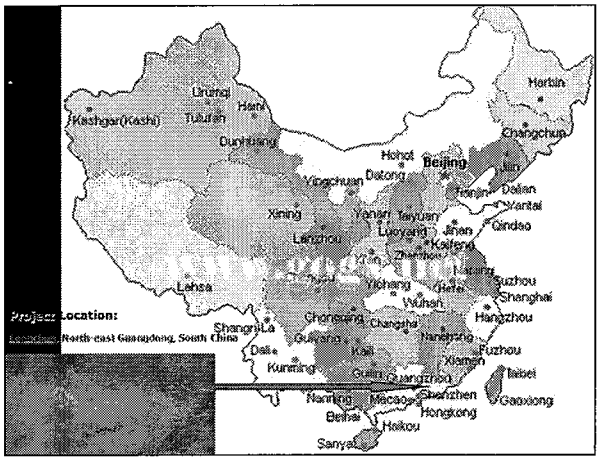

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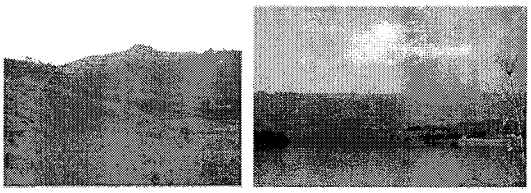
Longchun County is located at North-east Guangdong province, latitud e 24.101°, longitude 115.2539°, 370 meters above sea level. Total area i s 3089 Sq. km; 315 of villages; and 900 thousands of population; 106.7 th ousands ha. of forest land. Annual rainfall is about 1,500 mm.

8

- Where is a most important region of the source for water supply to the cities of G uangzhou and Hongkong.
- Where also is a poor region, annual income of farmer is only about 750 US $ in 2 007.

⊙ Environmental benefits should be maximized
⊙ economic benefits are also very important

- Two large scale deforestations was happened, one in 1958 to 1959 (for national st eel and iron-making movement), other in 1983 (caused by the changing of land o wnership).



9

Demonstration of the land eligibility and additionality of the project

- The lands to be planted in the project activities have been non-f orested barren lands since at least 1989.
- The forest definition complies with the UNFCCC definition.
- Nonperformance afforestation activities, land not likely to beco me forest.
- Eligibility of land proven by using land cover maps and intervie ws with land owners.

10

Main Activities:

Establishment of SSC-AR-CDM Demonstration District (100 ha)

Use AR-AMS0001——Simplified baseline and monitoring methodologies for selected small-scale afforestation and reforestation project activities under the clean development mechanism

Training of Implementation of A&R CDM (100 Gov. and Non-Gov. Foresters)

11

Land Tenure and project management models

- Lands are owned by the local villages/communities. And wil l be subcontracted to farmers for plantation establishment management.
- Model 1: farmers/communities and forest
- Model 2: Farmers groups

12

Objectives

- i) To sequester CO2 through forest restoration in small watershed ar eas;
- ii) To enhance biodiversity conservation;
- iii) To improve soil and water erosion control;
- iv) To generate income (non-timber products) for local communities;
- v) Training forester to implement AR-CDM projects.

13

Technology to be employed in plantation

The achievements of ITTO PD 294/04 "The study and demonstration of the management of secondary forests in tropical regions for the purpose of enhancing economic and ecological benefits " will be used in reforestation of the project.

And, Good practice guidance and successful national and international technologies, as well as experiences gained from the relative projects will also be adopted.

Non-timber product species

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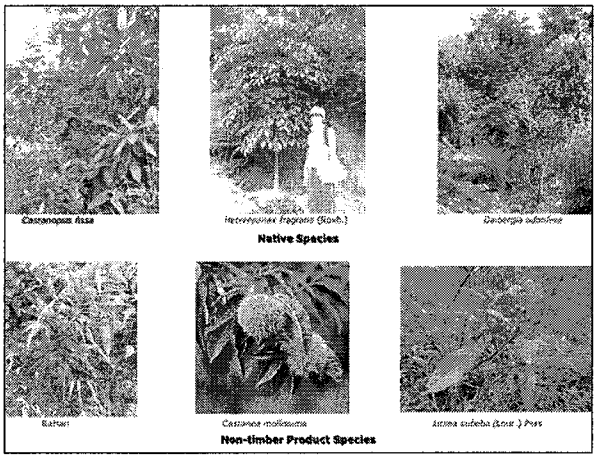

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Application of a methodology

The methodology (AR-AM50001) will be applied. The project activities comply wit h the conditions

- The project activities will not lead to a shift of pre-project activities outside the p roject boundary.
- Lands to be reforested have been severely degrading over the last decades.
- The environmental conditions do not permit the encroachment of natural forest v egetation.
- Lands will be reforested by direct planting in the project activities.
- The site preparation will not cause significant long-term net emissions from soil c arbon.
- Carbon stocks in soil organic matter, litter and deadwood will decrease more or in crease less in the absence of the project activities, relative to the project scenario.
- Due to the degraded feature of the lands, economical unattractiveness, identifiabl e barriers and remote feature of the lands, investors or local communities are pre vented from using the land for economic revenue. Without the proposed A/R CD M project activities, the lands will continue to degrade. Therefore the baseline ap proach of the methodology is the most appropriate choice for determination of t he baseline scenario.

16

GIS and GPS will be employed in the verification and monitoring of the implementation of the project activity. The local forestry agencies will conduct quality control to the preparation and implementation of the project activities.

17

Monitoring plan

Monitoring the overall performance of the project activities, Inclu ding:

- Actual project boundary.
- The areas and qualities of forest establishment to ensure the tech nical design.
- Described in section A is well-implemented.
- Forest management.

18

Monitoring the actual net GHG removals by sinks data

- Permanent sampling plots will be used for sampling over time to measure and monitor changes in carbon stocks of the relevant carbon pools.
- Systematic sampling with a random start position.
- The total sum of samples (n) are estimated as per a criterion of Neyman of fixed levels of accuracy, according to Wenger (1984).
- The growth (DBH and H) of individual trees on plots shall be measured at each time interval of monitoring.
- The carbon stock changes in above- and below-ground biomass of living trees on each plot are estimated through Biomass Expansion Factors (BEF) method.

19

Monitoring GHG emissions by sources as the results of the project activities, including:

- Decrease in carbon stock in living biomass of existing non-tree vegetation.
- N_2O emissions caused by nitrogen fertilization application.

20

Monitoring the leakage

Fossil fuel combustion from vehicles using for transporting seedling, labors, fertilizer, harvest products, etc., to and/or from project sites, as a result of the project activity, will emit greenhouse gases.

21

Benefits of the Project

Socio-economic benefits

- Demonstration for the implementation of forest carbon sequestration project in China.
- Income generation, local farmers will benefit from the project (non-wood Products).
- Creating employment.
- Strengthening social cohesion.
- Technical training

22

Environmental benefits

- Enhancing biodiversity and ecosystem integrity;
- Controlling soil erosion;
- Regulating hydrological flows which in turn alleviates drought risk and reduces flooding risks, Improving environmental services;
- Building incentives to people to invest in sustainable land use;
- Improving watershed management and contributing to the outside of the project boundary.

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Thank you

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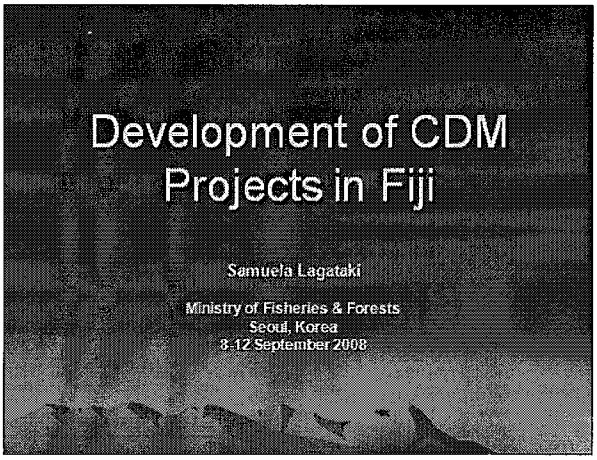
③ Fiji



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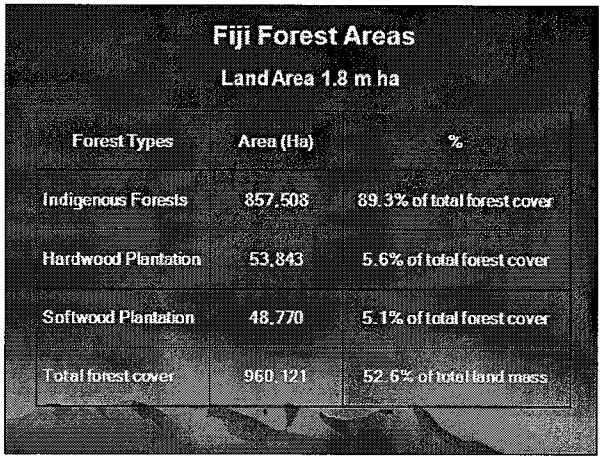

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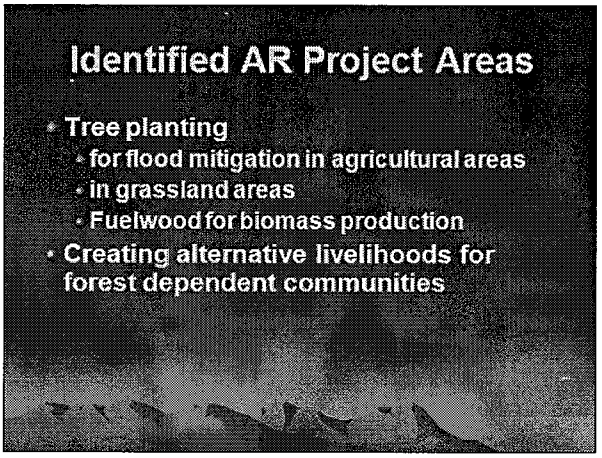

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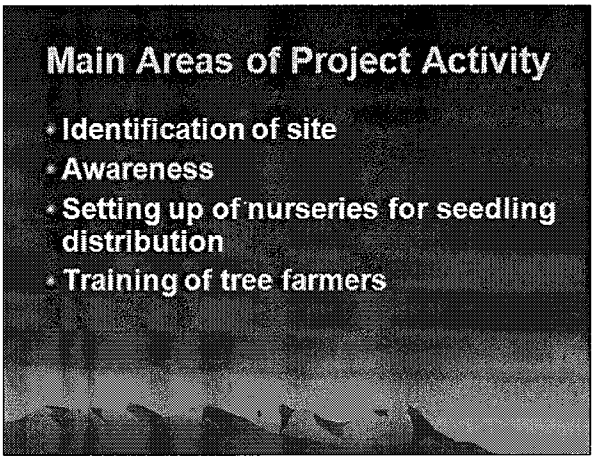

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④ Indonesia

Project Idea of A/R CDM Project in Indonesia

Kadim Martana
Bureau of International Affairs
Ministry of Forestry, Indonesia

1

FORESTS IN INDONESIA

- Total area of Indonesian Forests : 120,3 million ha
- Comprises:
  - Protected forests 33,5 million ha (27.85%)
  - Production forests 58,2 million ha (48.40%)
  - Conservation forests 20,5 million ha (17.03 %)
  - Conversable forests 8,0 million ha (6.71%)

2

Degradation & Deforestation in Indonesia

- Recent rate of deforestation/degradation - 1.08 million/ha/year.
- Rate of rehabilitation only 0.6 million ha/year can not pace with the rate of deforestation & degradation due to insufficient fund.
- A total of 184.0 million ha of deforested & degraded land (inside and outside forest area) (MOF, 2006).
- Rehabilitation programme target 6 million ha (2003-2009),
- So, there is potencies for A/R CDM there

3

Eligible Land for Small Scale A/R CDM in Sidenreng Rappang (Sidrap)

- Proposed area for small scale A/R CDM Sidrap Disctrict, the Province of South Sulawesi.
- Total area within the project boundaries are 1,033 ha, but the total area being planted will be about 652 ha (the ones that meets Kyoto definition).
- The purpose of the proposed A/R CDM project activity is to reforest grasslands, which have become a climax landcover due to tolerance of the wildfires that occur every 1-2 years.

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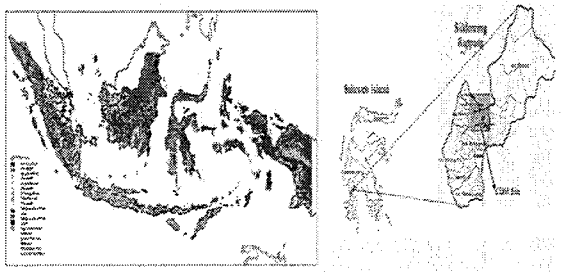
Location of proposed small scale A/R CDM at Sidrap District, South Sulawesi



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Eligible Land for Small Scale A/R CDM.. (continued)

- To date most reforestation efforts, both public and private, have fallen short of their objectives due to reoccurring fires and a lack of clear land/tree tenure.
- It qualifies as a Small Scale AR CDM Project as it is estimated to produce net green house gas (GHG) removal by sink of not more than 8 kton of CO_2-equivalent per year and will be implemented by low income community.

6

Challenges

- Lack of capitals to start up with the projects due to complicated modalities, rules and procedures, High transaction costs.
- Problems to be addressed (land tenure, participation, incentive distribution, socioeconomic impacts, costs), also difficult to find eligible land : definition of forest, reforestation (base-year 1990)
- Commitment of potential investors.
- To gain high CER, projects directed to good land (difficult to compete with other land uses..) – research on fast growing species??
- Further negotiation process on A/R CDM (simplifying procedure, re-definitions, etc)

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Thank you

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⑤ Malaysia

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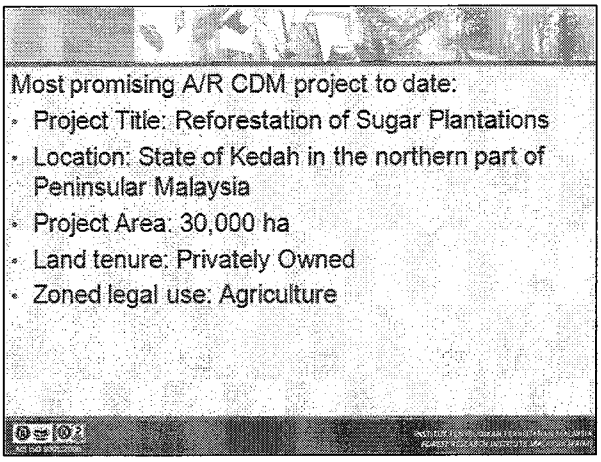

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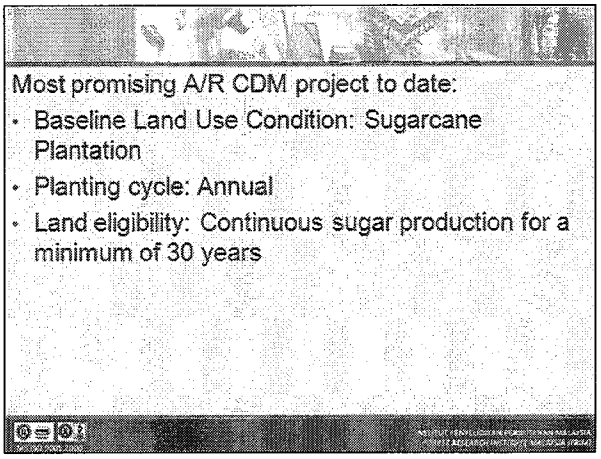

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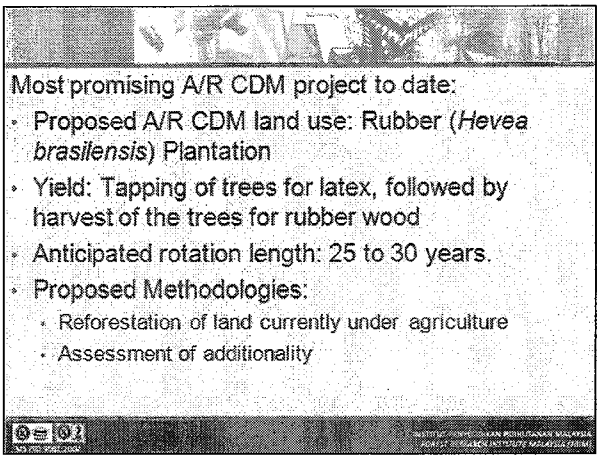

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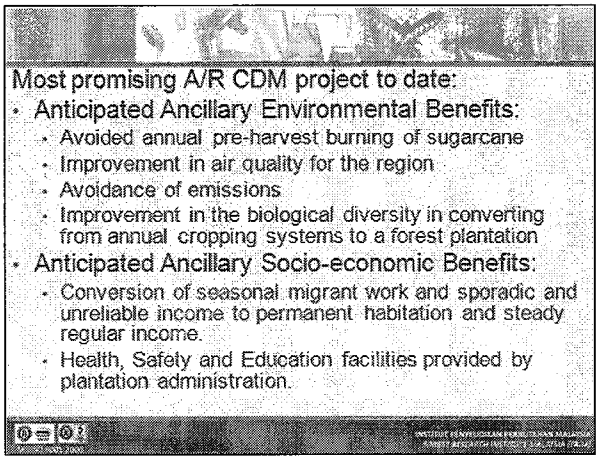

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6

⑥ Myanmar

Project Idea Note for

Community Small Scale Reforestation Project under the CDM in the Degraded Mangrove Forest of *Ayeyawady Delta*

1

BACKGROUND

- Myanmar's coast line is 2832 km in length
- Mangrove forests exist in
  - Yakhine State
  - Ayeyawady Delta
  - Tanintheryi Division
- Provide goods and services
  - Timber, fuel wood, medicinal plants
  - Spawning ground
  - Disaster prevention

2

BACKGROUND -2

- The Ayeyawady delta is one of the areas where the most serious deforestation taken place.
- All the reserved forests in the areas were established originally in the early 20th centuries
- due to various historical anthropogenic modification of the mangrove forests such as inter alia
  - charcoal production and fuel wood extraction,
  - agricultural and aquaculture encroachment
- the area of mangrove forest cover has decreased to less than 40% of than recorded in the 1920s.

3

Project Title

Community Small Scale Reforestation Project in the Mangrove Forest of the Ayeyawady Delta

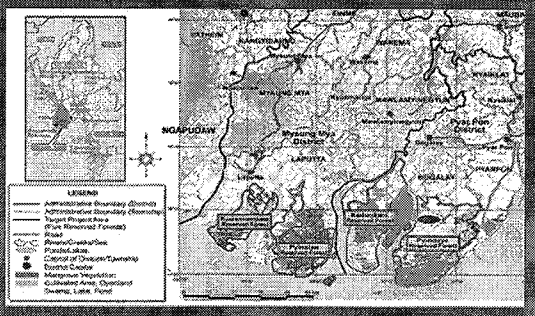
4

PRIMARY OBJECTIVE

- To improve socio-economic situation of local people while protecting the river banks from erosion, through Small-scale Community AR CDM Project in the Degraded Mangrove Reversed Forest.

5

Project Location



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Project area Accessment

- large network of creeks, streams and rivers
- Due to low altitude (maximum 3 meter above sea level), frequently flooded by tides and rains
- During the high tides most of the low lying and middle ground areas inundated by saline and brackish water.
- As for the climatic condition, the recorded
  - mean maximum temperature is 35-37 c in the summer
  - the mean maximum temperature in the cold season is 11-15
  - Humidity remains between 60% and 100% throughout the year
  - mean annual rainfalls is 2477 mm.
- The tidal action together with various other conditions constitutes an ideal ecological environment for mangrove vegetation.

7

Project area Accessment

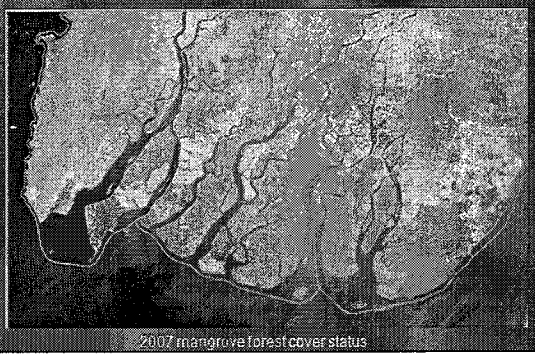
1990 mangrove forest cover status

8

Project area Assessment

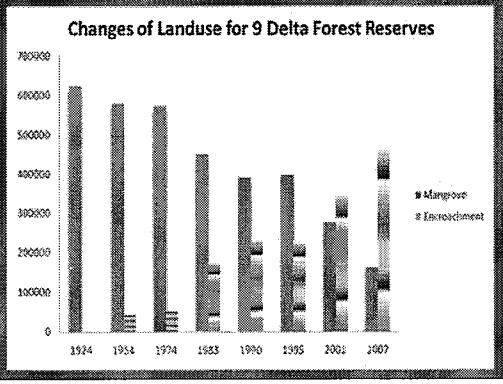
2005 mangrove forest cover status

9



2007 mangrove forest cover status

10



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Land tenure and eligibility for SSC AR CDM

- Project area exists in the reserved forest area on which Forestry Law prevail
- Under the direct administration of Forest Department.
- The area was severely degraded for decades: it means no forests since the end of 1989
- The selected area confined to the rivers and/or creeks banks, in average 100 meters from the banks to inland.
- The idea of river bank plantation awakens after struck of killer tropical storm Nargis.

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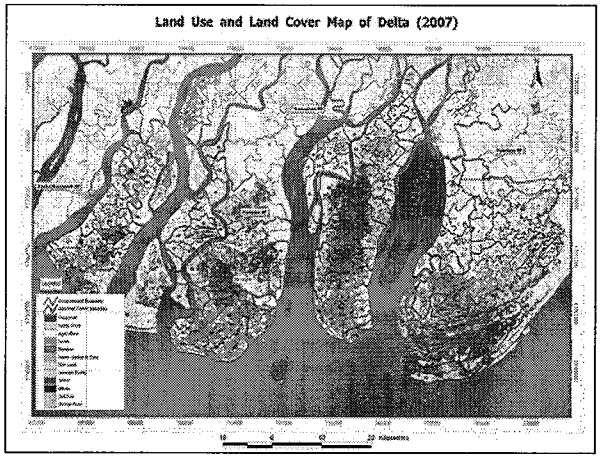

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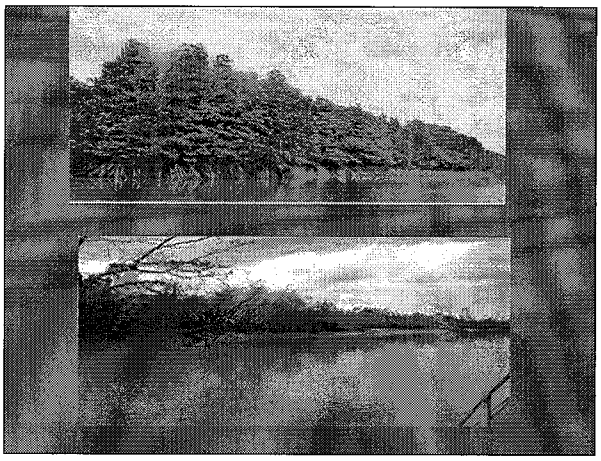
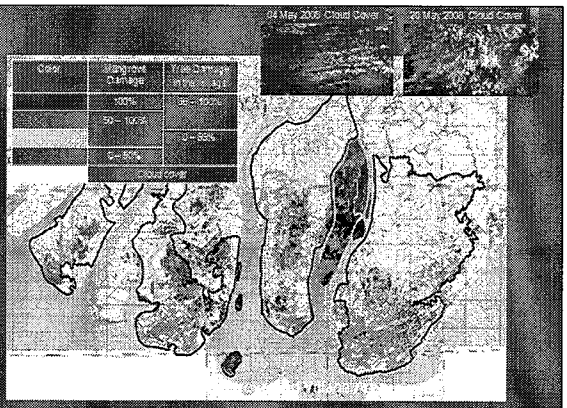


14

Project Participants

- Local Participants: 10 local communities residing in the *Pyindaye* Reserved Forest showed interesting in project activities
  - Targeted communities severely suffered from rage of Cyclone Nargis as a result of no protection forest barrier along riverbanks where their villages exist.
  - Aftermath of Nargis, with their own experiences people realized that the mangrove along river banks could protect their life and properties.
  - They also have long been facing shortage of fuel wood and other goods and services supported by mangrove.
- Forest Department, Ministry of Forestry will support in terms of technology and expertise for the establishment, cultural operations and management of the proposed project.

15



Damage assessment map after *Cyclone Nargis*

16

Expected Outcomes

- Various socio-economic and ecological benefits are expected from the proposed Project as follows:
  - employment and income generation
  - poverty alleviation
  - development of community forestry
  - carbon sequestration
  - mangrove ecosystem restoration

17

Methodology to be used

- **AR-AMS 003 – Simplified baseline and monitoring methodology for SSC AR CDM project activities implemented in wetlands.**

1. The project will be established in the mangrove areas and the DNA of Myanmar will confirm that the project is in accord with the national policy and legislation that is applicable to wetlands.
2. The project activities will be established on the degraded mangrove land and it is strongly envisaged that the land will be degrading for coming years because of population pressure and growing demand of forest produces.
3. No activities changing the land formation are necessary to implement the project activities, because the plantation is going to be created in the abandoned shrimp pond and neglected paddy fields.

18

Methodology to be used

4. The area is occupied by grass and weeds.
5. Within the project boundary the agricultural area is not more than the 10% of total project area.
6. In the proposed project area, except buffalos using for plowing, there is almost no grazing animals.
7. No land preparation work is envisaged for plantation activities.

19

- **GHG Reduction**
  - Annual net anthropogenic GHG removal from 500 ha of plantation will not be more than 8,000 metric tons CO2 equivalent
- **Crediting Period**
  - Renewable crediting period of 20 years (3 times 20 years)

20

- **Project Training**
  - For the successful implementation of the reforestation activities, it is essential to train local people in nursery practices, planting techniques and techniques for tending of planted areas.
  - Capacity development of local people in implementation of Small Scale A/R CDM project and Community Forestry Activities are also great needs for achievement of the project objectives.
  - Local Forest Department staffs are also trained to attain knowledge in preparation of PDD and development of AR CDM projects.

21

Species selection

Considering commercial importance, enrichment of species diversity, maintenance of ecological balance and simplification of assessment of carbon sequestration, species selection will be done. All species chosen to be planted are all indigenous species except *Melaleuca leucadendra*,

- *Rhizophora mucronata*
- *Rhizophora appiculata*
- *Avecenia officinalis*
- *Heritiera fomes*
- *Melaleuca leucadendra*

22

Additionality of the project .1

The project activity is additional due to the following identified barriers:

- ***Financial barriers***
  - Lack of access to credit
  - There is no opportunity for getting loans from banks to support such project activities due to high market risk and economically unattractive.

23

Additionality of the project .2

- ***Barriers due to local ecological conditions***

degraded soil

  - The project area is mostly covered with grass and fern showing the sign of infertility of the land on which the tree species cannot naturally grow or viable agricultural activities cannot be exercised.
- ***Barriers due to social conditions***

lack of organization of local communities

  - There are no organized communities to solve socio-economic and environmental problems among villagers in the project area.

24

Planned project activities

- The proposed project will bundle some discrete areas located in the northern part of *Pyindaye* reserved forest
- The land is eligible and selected accessible to implement the SSC AR-CDM Project by the local villagers.
- Forest Department will provide tree seedlings and technical assistance to establish river bank plantations
- while Local people must contribute their time and labor voluntarily for plantation activities and long term management

25

Work plan

	Activities/schedule	1	2	3	4	5	6	7	8	9	10	11	12
1	CF Users group formulation												
2	Registration												
3	Land area selection												
4	Land allotment for each households												
5	Demarcation												
6	Seed collection												
7	Nursery works												
8	Land preparation for planting												
9	Planting												
10	Weeding												
11	Fire protection												

26

27

⑦ Papua New Guinea

ASIA PACIFIC REGIONAL WORKSHOP ON AFFORESTATION & REFORESTATION PROJECTS UNDER THE CDM – 8 – 12 SEPTEMBER 2008

PNG PRESENTATION – PROJECT IDEA, PNG FPREST AUTHORITY.

Mr. Tom Bukon
Gewa Gamoga

1

Presentation outline

- CDM Status in PNG
- Draft Forestry & Climate Change Policy Framework for Action – 2008 - 2015
- Project Idea
- Remarks

2

CDM PROJECT STATUS – PNG

- National Policy on Climate Change not in place as yet
- Policies of other sectors / Agencies on climate change not place
- Forestry & climate change policy frame work for action 2008-2015 – sectoral policy on forestry.
- Identification of CDM sites
- CDM project proposals / DNA / Certification?

3

Preliminary CDM Project idea

- The focus of the pre-project that will be identify a site under customary ownership for ARCDM project.
- The idea is to assess baseline information on carbon pools, land tenure and commercial arrangement.
-
- Based on the data collected a full project proposal will be formulated base on ARCDM guidelines.

4

REMARKS

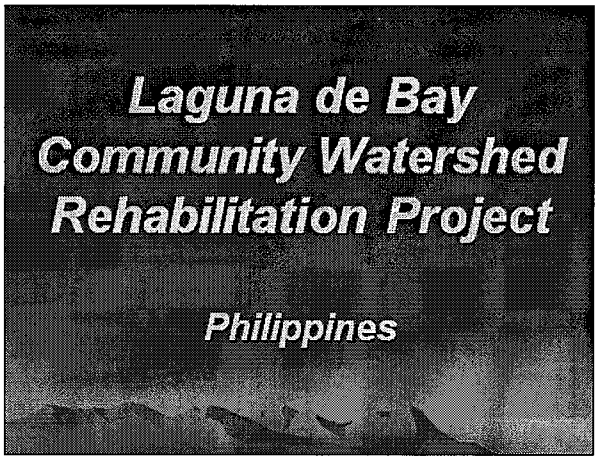
- ARCDM concept yet to be fully understood at country level.
- Process may be cumbersome for developing countries.
- Way Forward - *Need for establishment of Pilot projects for our understanding of the rules and procedures on ARCDM.*

5

Thank You...

6

⑧ Philippines



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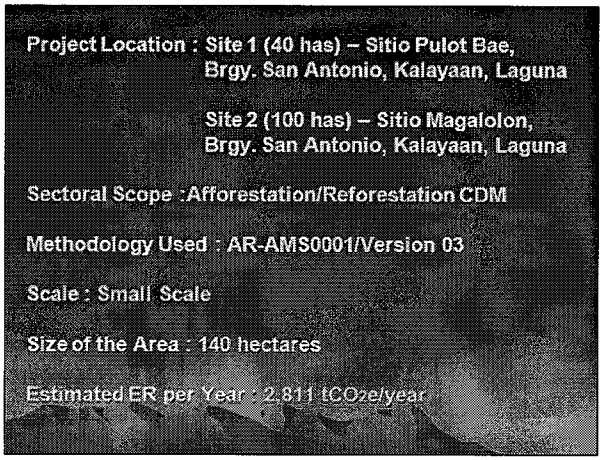

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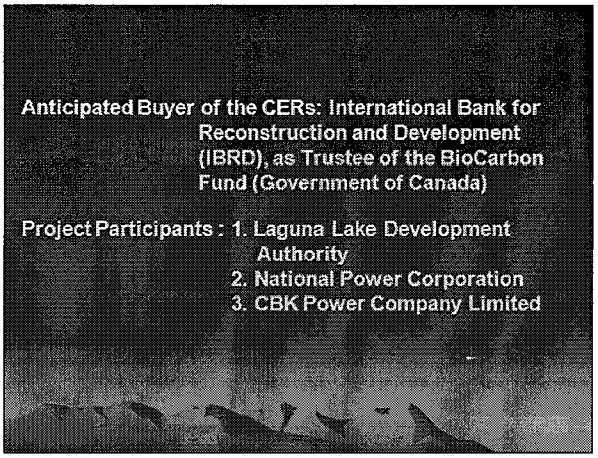

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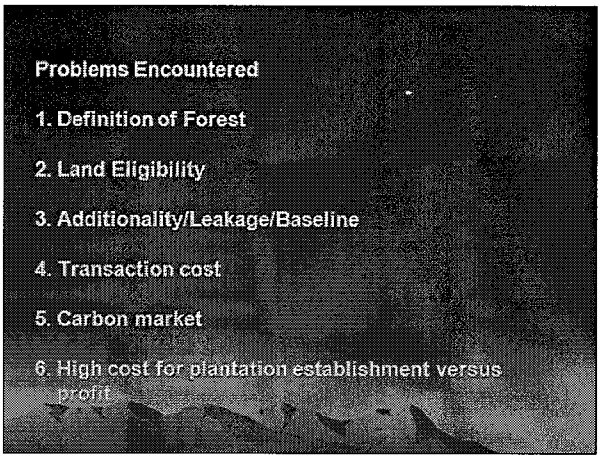

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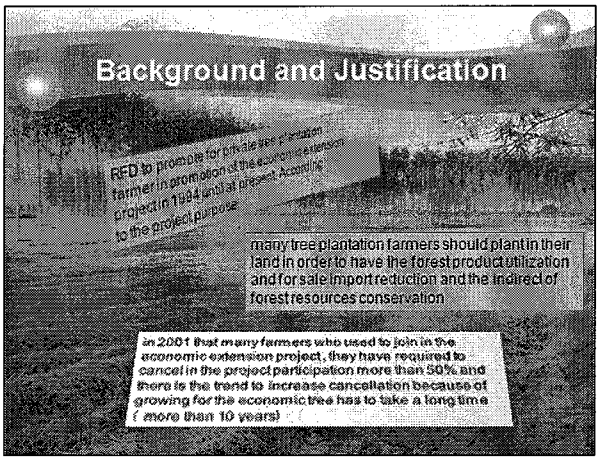
⑨ Thailand

1



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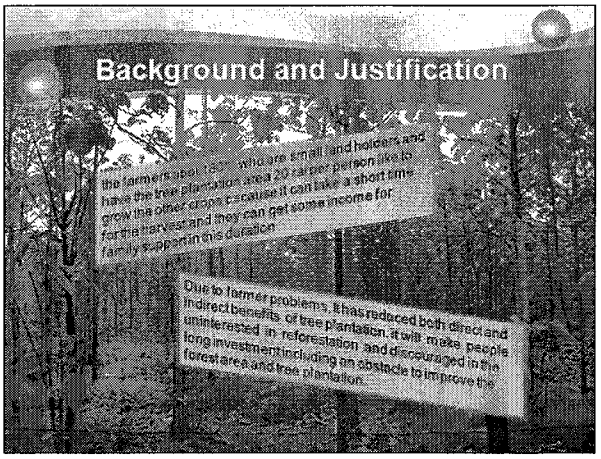

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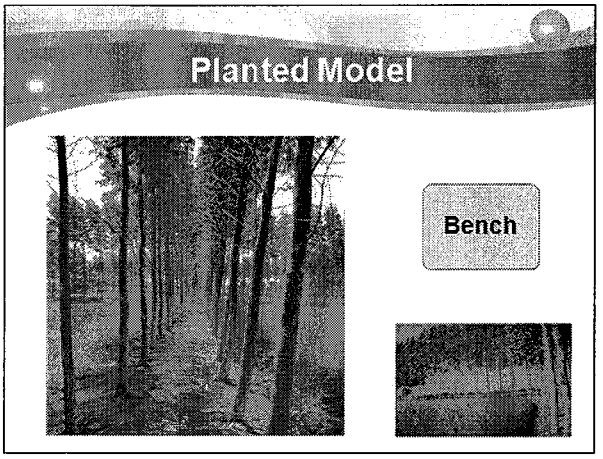

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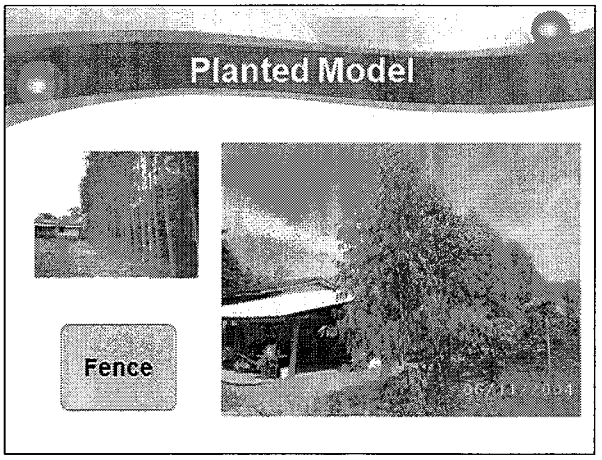

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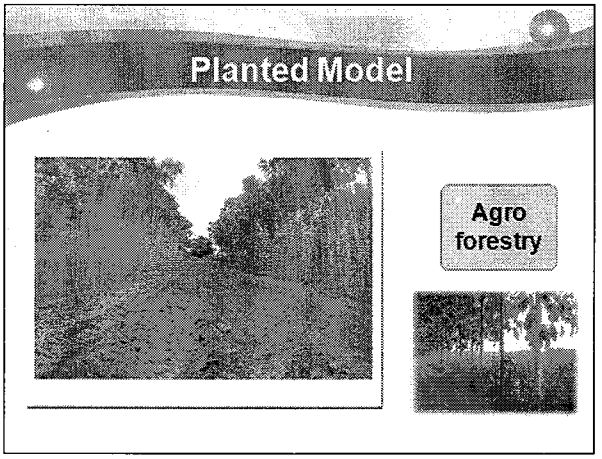

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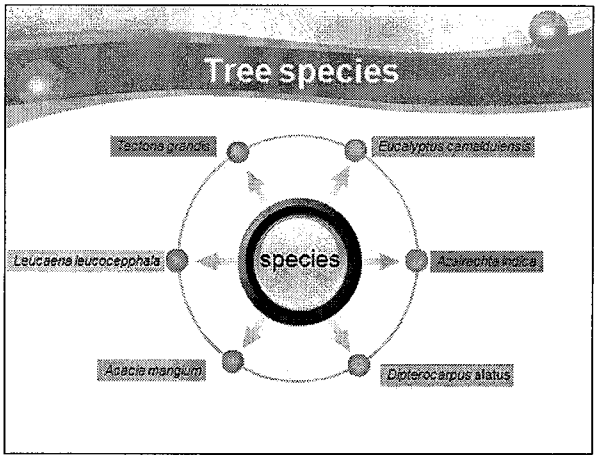
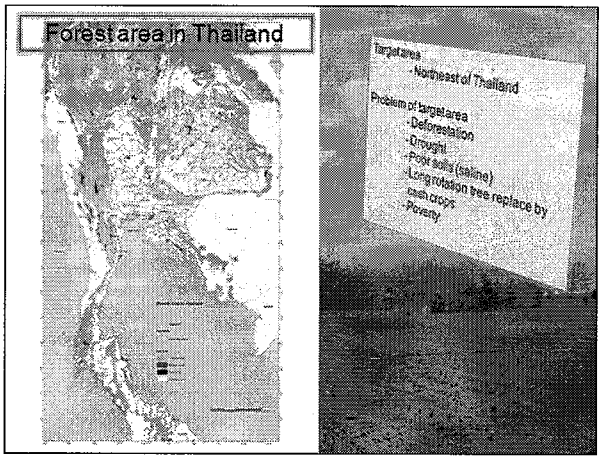
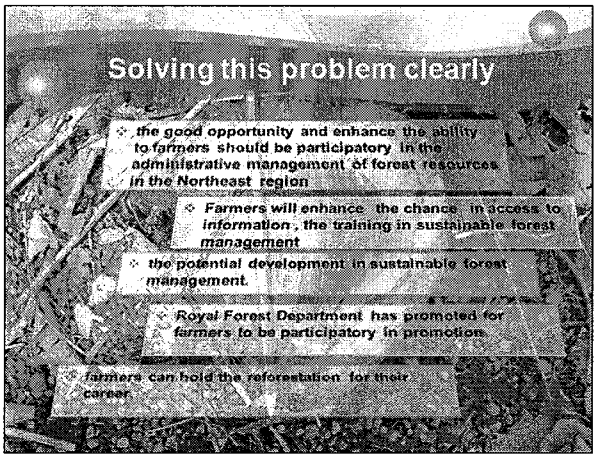

Tree species
Tectona grandis
Eucalyptus camaldulensis
Leucaena leucocephala
species
Acanthia indica
Acacia mangium
Dipterocarpus alatus

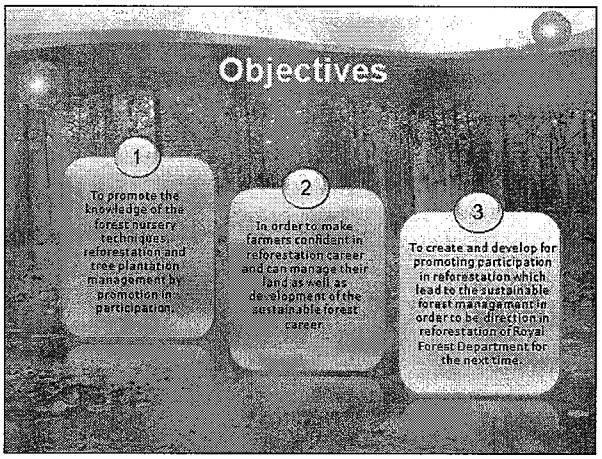
7


Forest area in Thailand
Target area
- Northeast of Thailand
Problem of target area
- Deforestation
- Drought
- Poor soils (saline)
- Long rotation tree replace by cash crops
- Poverty

8


Solving this problem clearly
the good opportunity and enhance the ability to farmers should be participatory in the administrative management of forest resources in the Northeast region
Farmers will enhance the chance in access to information, the training in sustainable forest management
the potential development in sustainable forest management.
Royal Forest Department has promoted for farmers to be participatory in promotion
farmers can hold the reforestation for their career

9


Objectives
1
To promote the knowledge of the forest nursery techniques reforestation and tree plantation management by promotion in participation.
2
In order to make farmers confident in reforestation career and can manage their land as well as development of the sustainable forest career.
3
To create and develop for promoting participation in reforestation which lead to the sustainable forest management in order to be direction in reforestation of Royal Forest Department for the next time.

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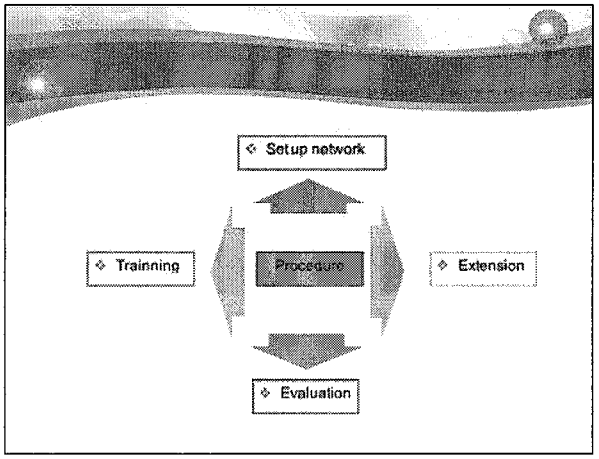
Setup network
Trainning
Procedure
Extension
Evaluation

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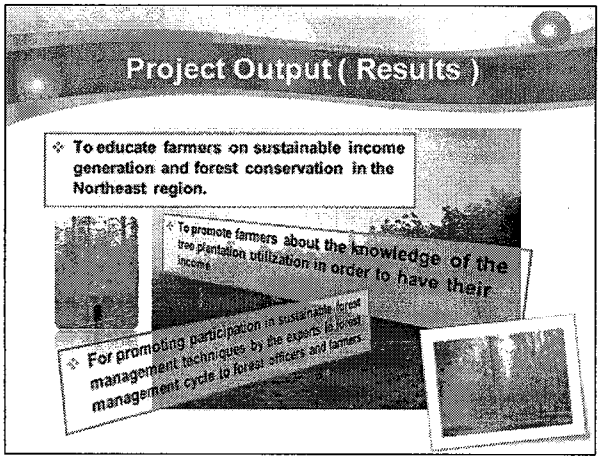
Project Output (Results)
To educate farmers on sustainable income generation and forest conservation in the Northeast region.
To promote farmers about the knowledge of the tree plantation utilization in order to have their income
For promoting participation in sustainable forest management techniques by the experts to forest management cycle to forest officers and farmers

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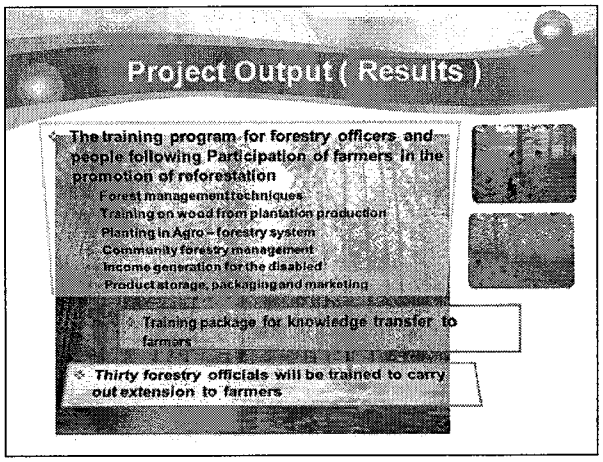

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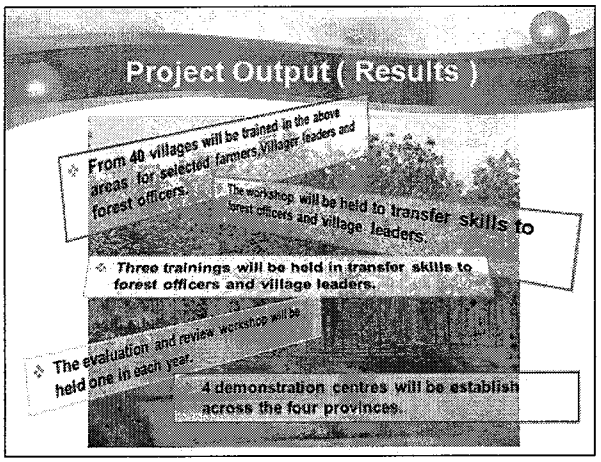

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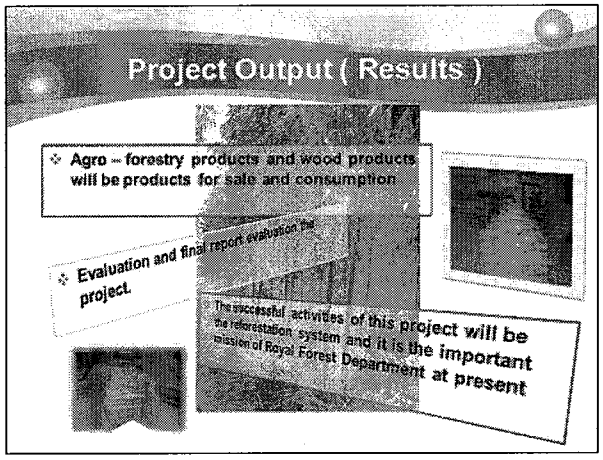

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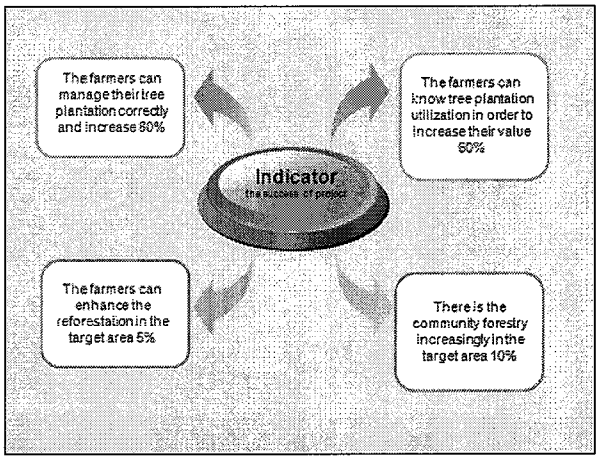

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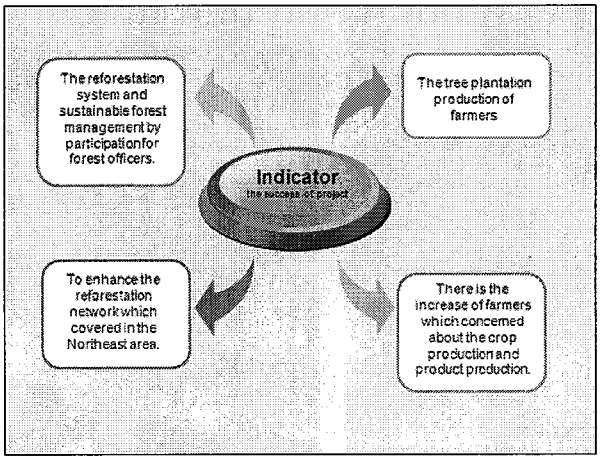

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18

2. Introduction and work on Section A of small-scale AR-CDM PDD

Mr. Tatsushi HEMMI
Pacific Consultants Co. Japan

Overview of Section A

8 Sept 2008

Tatsushi HEMMI
Pacific Consultants Co., Ltd.
tatsushi.henmi@tk.pacific.co.jp

1

Overview of PDD

2

Guides for PDD elaboration

- UNFCCC Secretariat:
  - Guidelines for the Simplified Project Design Document for Small-Scale A/R (CDM-SSC-AR-PDD)
  - Glossary of CDM terms
  - Other guidance, tools, clarifications, etc
- ITTO: A/R CDM Project Formulation Manual
- IGES: CDM in Charts
- Ministry of the Environment, Japan: CDM/JI Manual for Project Developers and Policy Makers (2007)

3

Structure of the PDD for SS AR

- PDD (Project Design Document)

Section	Title	Description
A.	General description of the proposed small-scale A/R CDM project activity	Purpose of the project, SD contribution, technical info, land tenure, eligibility of land, choice of CERs (tCERs or lCERs)
B.	Application of a baseline and monitoring methodology	Choice of methodology, GHGs, carbon pools, additionality, monitoring, leakage, QA/QC
C.	Estimation of the net anthropogenic GHG removals by sinks	net anthropogenic GHG removals = actual net GHG removals - baseline net GHG removals - Leakage
D.	Environmental impacts of the proposed small-scale A/R CDM project activity	Description of environmental impacts (if EIA is necessary, PP needs to conduct it) and remedial measures
E.	Socio-economic impacts of the proposed small-scale A/R CDM project activity	Description of socio-economic impacts and remedial measures

4

Structure of the PDD

- PDD (Project Design Document)

Section	Title	Description
F.	Stakeholders' comments	How comments were collected, summary of the comments and response to them
Annex 1	Contact information on participants	
Annex 2	Information regarding public funding	Whether the project involves public funding or not
Annex 3	Declaration on low-income communities	A written declaration that the project is developed or implemented by low-income communities and individuals as determined by the host Party

5

Section A. General description of the proposed project

6

A.2. Description of the project

■ A.2. Description of the proposed small-scale A/R CDM project activity:

◆ Purpose of the project:

- Normally, how PPs try to achieve GHG removals by the project will be discussed
  - Type of forestation
  - Participants
  - Location etc
- In addition, you will often see:
  - Total area (ha.) subject to the project
  - Average GHG removals per year or over crediting period

 6

7

A.2. Description of the project

■ Sustainable development (SD) contribution of the project:

◆ Normally, you will see points such as follows:

Aspects	Examples
Environmental aspects	✓Soil conservation ✓Biodiversity conservation ✓Landscape conservation ✓Watershed conservation
Social aspects	✓Job creation ✓Capacity building (forest management etc)
Economic aspects	✓Income for the locals

 7

8

A.3. Project participants

■ Project participants include:

◆ Host country participants and investment country participants (if any)

Name of Party involved (*) ((host) indicates a host Party)	Private and/or public entity(ies) project participants (*) (as applicable)	Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)
Republic of Korea (host)	[Example] Seoul National University	No
Japan	[Example] XXX Co., Ltd.	No

Investment countries can be more than one, while host party can only be one

 8

9

A.4. Location and boundary

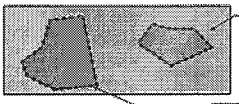
■ Location and boundary of the project:

◆ Section A.4.1.: address of the project is given

◆ Section A.4.2.: Detail of geographical location and project boundary

Definition of project boundary:

The "project boundary" geographically delineates the small-scaleA/R CDM project activity under the control of the project participants.



The project activity may contain more than one discrete area of land

Each area of land should have a unique geographical identification

 9

10

A.5. Technical description

◆ Section A.5.2.: Description of present environmental conditions of the area

Environmental conditions:

- ✓ Annual precipitation (mm);
- ✓ Mean temperature (°C);
- ✓ Drought occurrence (yes/no), if yes indicate the frequency;
- ✓ Flood occurrence (yes/no), if yes indicated the frequency;
- ✓ Frost occurrence (yes/no);
- ✓ Occurrence of other extreme events (e.g. tornados, fires, hurricanes, etc); For those events occurring please indicate the frequency;
- ✓ Indicate whether the type of soils is dominantly Clay (greater than 50% clay content) or Sandy (greater than 50% sand content);
- ✓ Name of the main watershed of the region;
- ✓ The type of ecosystem (grassland, cropland, wetland or other land);
- ✓ Indicate whether there are rare or endangered species present, and if yes, provide the names of these species.

 10

11

A.5. Technical description

◆ A.5.3. Species and varieties selected

Information to be included:

- ✓ Forest type
- ✓ Names of exotic species
- ✓ Type of mixed hardwood species
- ✓ Names of the native species
- ✓ Names of clonal offsprings
- ✓ Names of any other species

 11

12

A.6. Legal title to the land

- A.6.A description of the legal title to the land, current land tenure and land use and rights to tCERs / lCERs issue:

Information to be included:

- ✓ The name of the property;
- ✓ Information how long is the land in the hands of the current owner;
- ✓ How many people live within the boundary of the project activity;
- ✓ Whether the project includes a cooperative of small landowners;
- ✓ Whether the legal title to the land is in the name of the PP;
- ✓ Whether all carbon pools in a given piece of land are owned by the same person/institution;
- ✓ Whether carbon pools are included in the legal title or not.

For the last two elements please provide clarification according to the legislation on land tenure and land use rights applicable in the host country.

- ✓ A description of the current land use (Species of crops or trees plant, pasture, etc).

13

A.7. Eligibility of land

- DEMONSTRATE THE ELIGIBILITY OF LANDS (EB35, Annex 18)
  - 1. Evidence that the land within the project boundary is eligible for an A/R CDM project by following the steps:

(a) Demonstrate that the land at the moment the project starts does not contain forest by providing transparent information that:

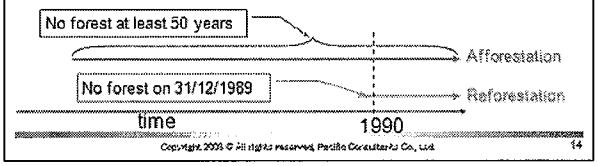
- (i) Vegetation on the land is below the forest thresholds
- (ii) All young natural stands will not reach the forest definition of the host party
- (iii) The land is not temporarily unstocked, as a result of human intervention

14

A.7. Eligibility of land

(b) Demonstrate that the activity is a reforestation or afforestation project activity:

- (i) Reforestation projects: Demonstrate that the land was not forest by demonstrating that the conditions outlined under (a) above also applied to the land on 31 December 1989
- (ii) Afforestation projects: Demonstrate that for at least 50 years, vegetation on the land has been below the thresholds adopted by the host country for definition of forest.



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A.7. Eligibility of land

- 2. In order to demonstrate steps 1 (a) and 1 (b), PPs shall provide information that reliably discriminates between forest and non-forest land, inter alia:

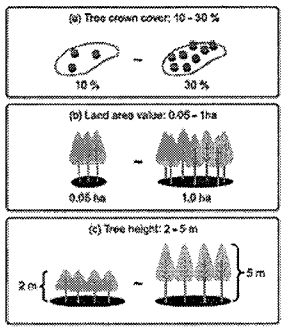
- (a) Aerial photographs or satellite imagery complemented by ground reference data;
- (b) Land use or land cover information from maps or digital spatial datasets; or
- (c) Ground based surveys (land use or land cover information from permits, plans, or information from local registers such as cadastre, owners registers, or other land registers)

If above mentioned options are not available/applicable, PPs shall submit a written testimony which was produced by following a Participatory Rural Appraisal (PRA)

16

A.7. Eligibility of land

- What is forest definition?



In order to host an A/R CDM project, a host Party needs to determine thresholds for forest definition, and report to the EB through its DNA.

Source: CDM/JI Manual for Project Developers and Policy Makers (2007)

17

A.8. Approach for non-permanence

- A.8. Approach for addressing non-permanence:
  - Issuance of tCERs: temporary CERs
  - Issuance of lCERs: long-term CERs
  - In both cases, tCERs and lCERs used for meeting a Party's commitment need to be replaced
    - If Japanese gov. uses those CERs for achieving its emission reduction target, it needs to replace the same amount of carbon credits used at:
      - the end of the 2nd Commitment Period (for tCERs) or
      - the end of crediting period (for lCERs))
  - The choice of CERs would depend on the strategy of the PPs and credit buyers preference

18

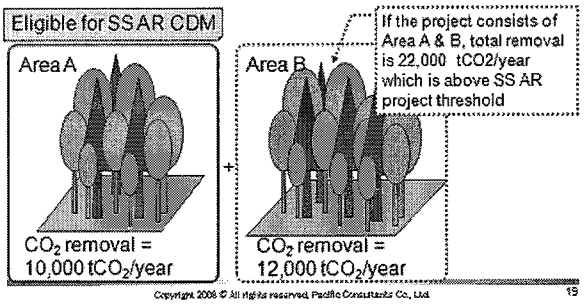
A.9. Duration of the project

- A.9.1. Starting date of the project and of the (first) crediting period, including a justification:
  - The crediting period shall begin at the start of the project activity.
  - The starting date of a project is the date on which the implementation or real action of a small-scale A/R CDM project activity begins, resulting in actual net GHG removals by sinks.
- A.9.3. Choice of crediting period and related information:
  - Fixed crediting period: 30 years
  - Renewable crediting period: 20 years (2 renewal possible)

19

A.11. + 12. Other points

- A.11. Public funding of the project:
- A.12. Confirmation that the project is not a debundled component of a larger project activity:



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5.2 Presentation materials of Day 2

Work on Sections B & C of PDD

Sessions 2,3. Work on Sections B and C of PDD

1. Introduction and work on Section C (ex-ante estimation of carbon sequestration under project scenario) of small-scale AR-CDM PDD

Dr. Promode Kant
Director, Institute of Climate Change and Ecology

ORGANIZING LANDOWNERS FOR A/R CDM PROJECT

1

Need for Organizing the community

- CDM AR projects has high transaction cost- individual landowners can't bear
- Pofitable only if taken up collectively at a community level
- This calls for organization of people
- Willing project participants can form a society that can initiate and execute such project.

2

How to organize

- Conceptualizing the possible project activity
- Meeting of the stakeholders
- Formulation of Byelaws of the society
- Registration of the Society

3

The Haryana small scale CDM project

- 227 farmers from 8 villages in Ellenabad Block of Sirsa district in Haryana formed a society
- They contributed 370 hectares of land collectively for a period of 20 years
- These lands were degraded due to sand dunes and very low in productivity due to less rainfall
- Now they are planting those degraded lands with trees that are native and tolerant to such conditions
- This project is expected to earn a net revenue of INR 475 million over 20 years

4

Byelaws

- Society Byelaws are very important, they are the soul of societies
- Contain the basic rules and regulation of the society and its constitution
- Have to be drafted very carefully to keep the members together for a long time
- Must provide opportunities for all sections of society including women and minorities
- Should not allow a small number of people to monopolize the society as it will weaken the interest of others

5

Important articles that the byelaws should cover

- Rules and regulations for day to day affairs
- Terms and conditions of membership
- Voting rights
- Agreement on benefit sharing
- Quorum for meetings
- Scope for amendment of the rules

6

Characters of a good Society

General and Executive body

- All participants who have contributed their land in the project becomes its general members
- The general members elects their representative for the Executive body through voting
- The executive body shall be responsible for day to day affairs of the society

7

Meetings of the Society

- The society should ideally meet every month on a predetermined date which has been communicated to all its members
- Various issues of the project shall be discussed in such meetings

Decision making

- Decision making should be in accordance to the byelaws
- Any decision has to be supported by a minimum number of members to be passed (as decided by the Byelaws)

8

Quorum

- Meetings of the society should be attended by a minimum number of member in order to take any decision

Representation of Women

- Representation of women should be ensured in the society to achieve social equitability and justice

Financial accountability and benefit sharing

- A fair and accountable mechanism has to be devised for any transaction made by the society
- A fair mechanism for sharing of benefits should be developed for any benefits accruing from the project
- The benefit sharing should be on the basis of proportion of stake in the project(Area of land contributed, resource etc)

9

Role of Forest department

- Organize landowners
- provide technical and legal know how
- help in selling the credits generated from the project
- provide planting stock
- But the basic responsibility for management lies with the people

10

Use of GPS and Satellite Data in CDM AR PDD

11

Why GPS?

- As per UNFCCC format for any AR CDM project, location of the project areas / strata and permanent sample plots can be marked on map using GPS
- GPS is used for measuring area in ha and defining coordinates (latitude and longitude) which is repeated every 5 years (for monitoring)
- A GPS code allotted to participant helps in storing information's like name of the participant, location of his land with defined boundaries, the area of the land and the species selected for planting in this parcel (eg D1 means Name, Land id, Area committed, species planned)

12

How it is done?

- Farmer has to identify his land committed for AR CDM project
- Then coordinates of all the corners of his land boundary are marked using GPS
- when distance between two corners > 100m, do atleast one GPS marking for every 100m interval to collect denser data, to minimize errors while calculating area and drawing polygon maps

13

How it is done?

- Existing trees are marked using GPS for baseline information
- GPS should store information like height of the tree and DBH of the baseline trees, which can be numbered according to species
- GPS marking of trees is important because if trees are found to be in dense numbers providing >30% crown cover within any given 0.05 ha area, these parcels have to be excluded from forest area
- Features like roads, canals etc also GPS marked

14

Why Satellite imagery ?

For ascertaining the land eligibility criteria of the CDM project site as per the procedures to demonstrate the eligibility of lands for Afforestation and Reforestation CDM project activities

15

Importance of satellite data for CDM

- Satellite data or aerial photographs are usually selected to prove (in absence of other authentic land records):
  - that the project area was not having forest as on 31.12.1989 (for Reforestation project activity)
  - or demonstrate that for the last 50 years, vegetation on the project land has been below the forest thresholds values
  - Alternately, done through PRA in case satellite data/ aerial photographs do not exist

16

Example from Haryana CDM Project

17

Steps followed for GPS & GIS assessment in Haryana CDM project

- Step 1: Farmer's identified their sand-dune affected land for the CDM project activity, which was authenticated through land record office
- Step 2: From the identified project area, parcels of lands were identified and given ID for defining their boundaries and calculation of area
- Step 3: GPS team and landowners jointly marked boundaries of identified parcels of lands using GPS

18

Steps followed for GPS & GIS assessment in Haryana CDM project

- Step 4: Road or canal are also GPS marked
- Step 5: Finally a CDM project boundary map on 15"x15" grid as base map is ready and baseline information for existing trees is marked onto this
- Step 6: This CDM project boundary map is prepared separately for each village and later, a merged map for all the villages prepared

19

Steps followed for GPS & GIS assessment in Haryana CDM project

- Step 7: Since there was no authentic land record to prove land eligibility that the selected area was not a forest as on 31.12.1989, satellite imagery for that year for IRS-LISS 3 was considered for analysis
- Step 8: The satellite data was procured from NRSA and subjected to radiometric /geometric corrections and analysed for the project area
- Step 9: GPS data for identified parcels of land from CDM project boundary chart was overlaid onto satellite data, clearly identifying the parcels of lands / marked polygons

20

Steps followed for GPS & GIS assessment

- Step 10: Further, boundary overlay and area estimation is made for identified land-use classes like plantation, agriculture /grassland/ scrub, water bodies/canals, habitation/villages, open land / fallow / barren, road/rail network etc.
- Step 11: Finally total area (in ha) and % area for all these classes separately for each village is calculated
- Step 12: A consolidated map making use of GPS and RS data for the total project area prepared
- Step 13: This map is preserved as a proof of land eligibility for visiting DoE, CDM EB etc

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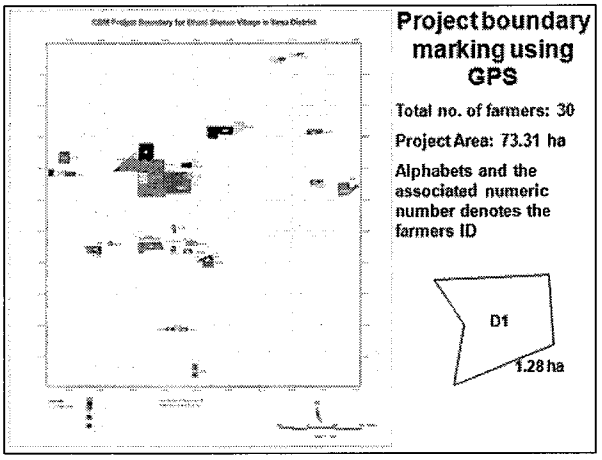

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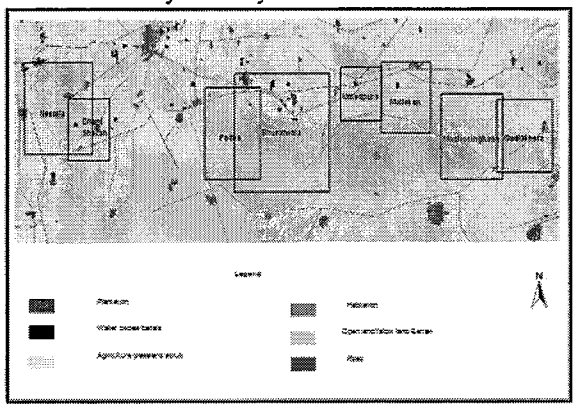
Boundary overlay and area estimation



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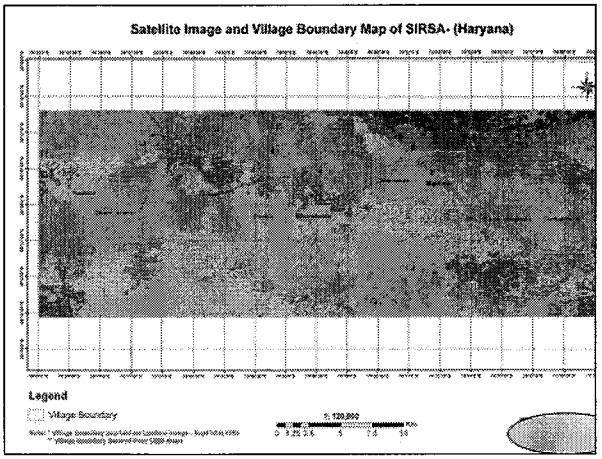


24

Exercise for baseline and project calculations

25

Project area

- **Project area** spread over 369.5 ha has 556 pre-project trees and 2093 woody perennials.
- 530 of the 556 **pre-project trees** are *Acacia nilotica*, and the rest are a mixture of different species.

26

Pre-project Trees

Diameter (cm)	A. nilotica	Miscellaneous
0-10	62	9
11-20	158	6
21-30	277	6
30 and above	33	5
Total	530	26

27

Biomass of woody perennials

- The expert panel has given the opinion that the mass of woody perennials at the start of the project is **30kg/ha**

28

Baseline calculation

- volume of each pre-project tree assessed from GBH, ht using volume tables
- Use MAI (or other growth data) from yield tables for calculating volume over 20 years
- Similarly calculate the volume and increment of the misc. trees
- If Yield Tables are not available then establish expert team for preparing them
- If not possible then use national / international tables

29

Baseline calculation (contd.)

- Find AGB and BGB of trees
- Calculate the biomass of the woody perennials for the project area at the rate of 30kg/ha.
- According to the expert panel, the GHG removal by woody perennials is less than 10% of the actual net GHG removals by the project activity.
- So according to the methodology AR-AMS0001, carbon stock change shall be assumed to be '0' for woody perennials.

30

Baseline Carbon Stock

- Sum of carbon stocks in trees and woody perennials gives the total carbon stock of the baseline.
- ($Bt_1 - Bt_0$) is the **change in the baseline carbon stock.**
- The change in the carbon stock multiplied by 44/12 would give the GHG removed by the baseline (t CO_2-e/yr)

31

Reference

- GPG-LULUCF (Chp3_2_Forest_Land.pdf)
- BEF (Biomass expansion factor) - IPCC GPG Table 3A.1.10
  - Root to shoot ratio - IPCC GPG Table 3A.1.8
  - Wood Density - IPCC GPG Table 3A.1.9-2
  - Volume tables - yield tables.word.tmp

32

GHG removal by project sinks

- Plantation of 2 species in the given area of 369.5 ha.
- *Dalbergia sissoo* and *Acacia tortilis*
- Plantation to be done at the rate of 1000 trees/ha.
- Expected mortality is 20%.
- Using yield tables calculate the volume increase over 20 years

33

Trees planted

species	*D. sissoo*	*A. tortilis*
No. of trees to be planted per ha	1000	1000
Total area to be planted (out of 369.5 ha)	200 ha	169.5

34

GHG removal by sinks: *ex ante*

- How to go ahead...
- Calculate biomass and carbon stock for for both the species for each year using yield tables
- Calculate the change in the carbon stock in both the species (Ct_1-Ct_0)
- This change in the carbon stock multiplied by 44/12 is the actual net GHG removed per year by the sinks **(tCO_2-e).**
- The **actual net GHG removals by the project (tCO_2-e)** is the sum of the GHG removals by both the species.

35

Project emissions, leakage etc.

- Leakage in an A/R project may occur due to the displacement of cropping, grazing, logging etc...
- The project area selected should cause minimum leakage so that it can be taken as '0'...
- Emissions includes all the emissions in the project boundary due to the project such as fertilizers, transportation of saplings, water pumps etc...
- Devise ways to minimize emissions to '0'
- For the case study, leakage and emissions are assumed to be '0'.

36

Net anthropogenic GHG removals

- The net anthropogenic GHG removal by the project activity = actual net GHG removals – baseline – emissions – leakage.

37

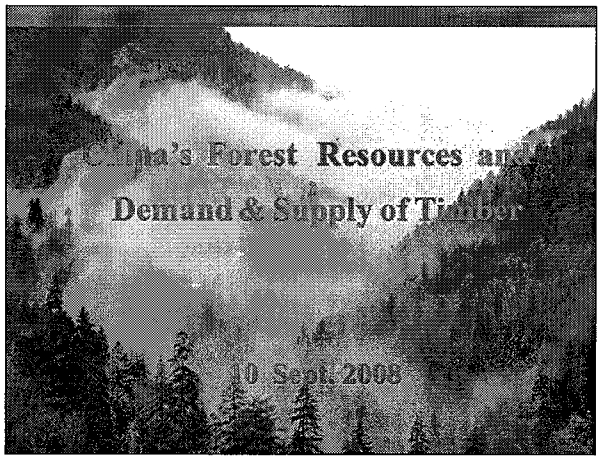
5.3 Presentation materials of Day 3

Issues of AR CDM, Forest Carbon Markets and REDD/Visit to Korea Forest Research Institute (KFRI)

Session 4. Issues of AR CDM, Forest carbon markets and REDD

1. AR CDM project activities in China

Dr. Zhang Sangdan,
State Forestry Administration, China



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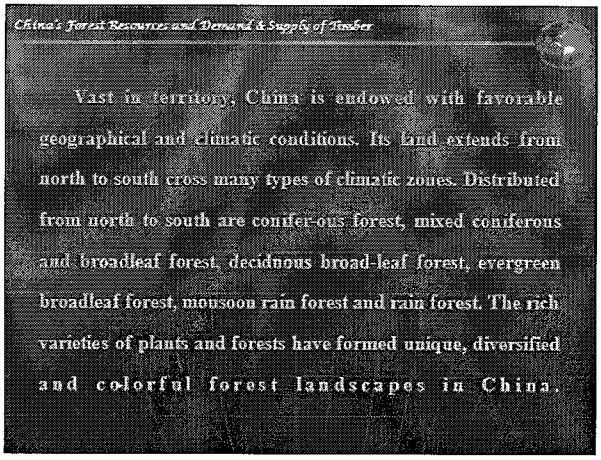

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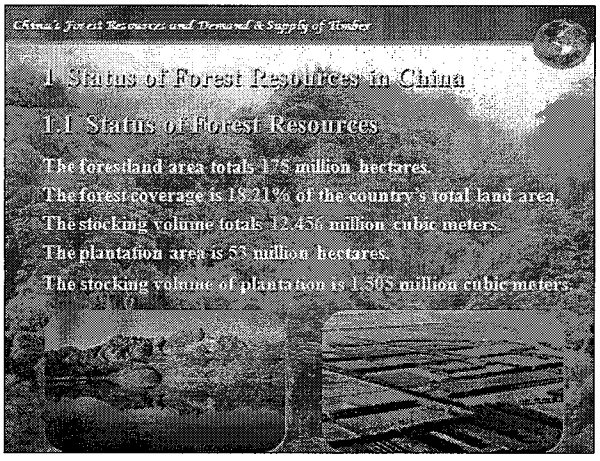

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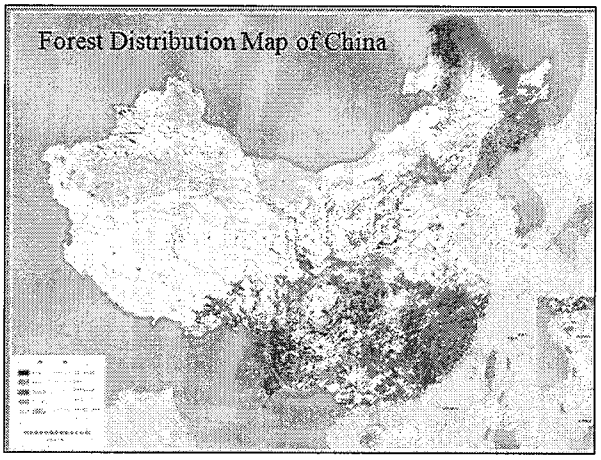

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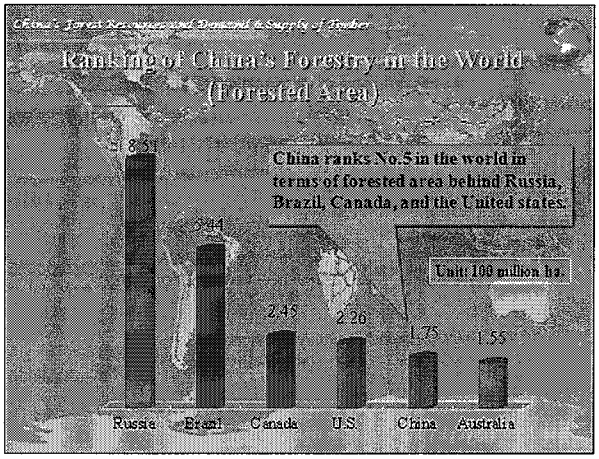

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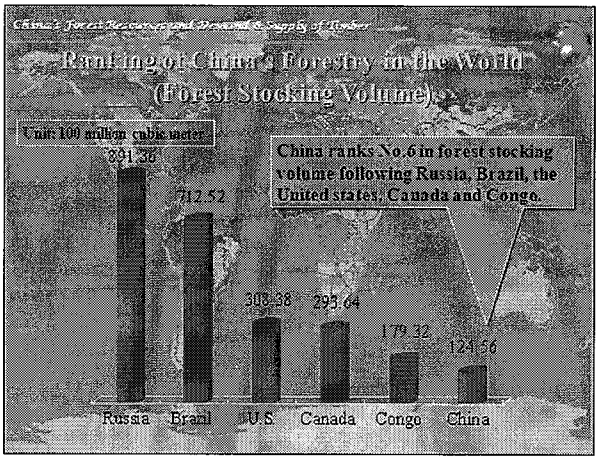

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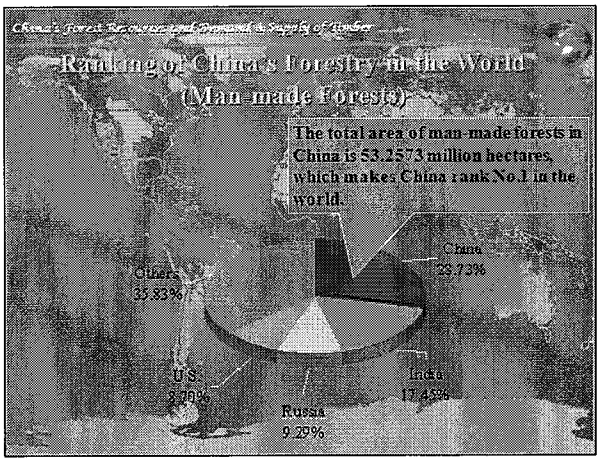
China's Forest Resources and Demand & Supply of Timber
Ranking of China's Forestry in the World
(Man-made Forests)
The total area of man-made forests in China is 53.2573 million hectares, which makes China rank No.1 in the world.
China
23.73%
Others
35.83%
U.S.
8.70%
Russia
9.29%
India
17.45%

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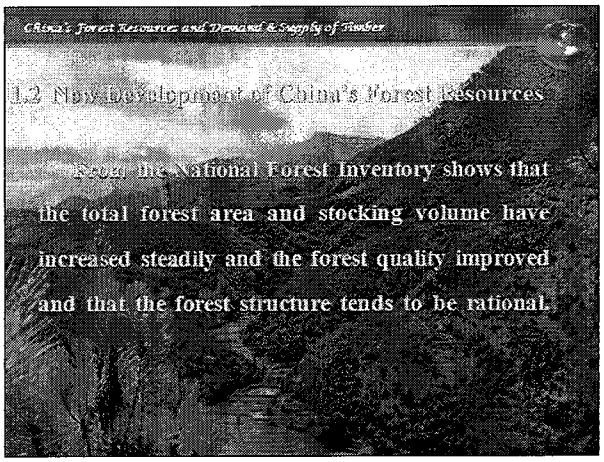
China's Forest Resources and Demand & Supply of Timber
1.2 New Development of China's Forest Resources
Results of the National Forest Inventory shows that the total forest area and stocking volume have increased steadily and the forest quality improved and that the forest structure tends to be rational.

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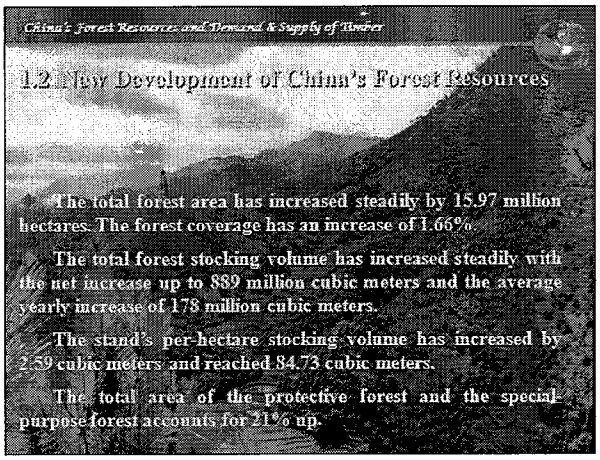
China's Forest Resources and Demand & Supply of Timber
1.2 New Development of China's Forest Resources
The total forest area has increased steadily by 15.97 million hectares. The forest coverage has an increase of 1.66%.
The total forest stocking volume has increased steadily with the net increase up to 889 million cubic meters and the average yearly increase of 178 million cubic meters.
The stand's per-hectare stocking volume has increased by 2.59 cubic meters and reached 84.73 cubic meters.
The total area of the protective forest and the special-purpose forest accounts for 21% up.

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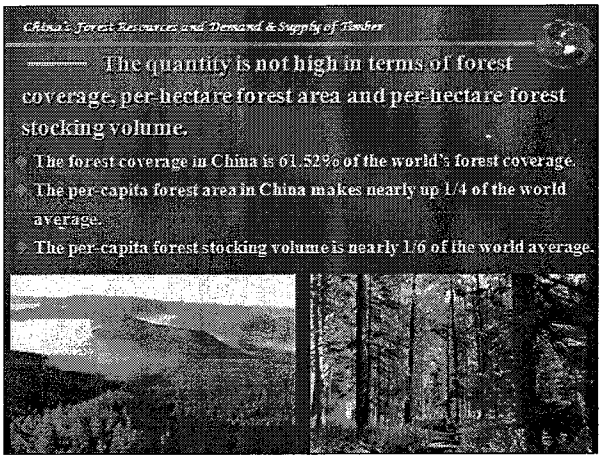
China's Forest Resources and Demand & Supply of Timber
The quantity is not high in terms of forest coverage, per-hectare forest area and per-hectare forest stocking volume.
The forest coverage in China is 61.52% of the world's forest coverage.
The per-capita forest area in China makes nearly up 1/4 of the world average.
The per-capita forest stocking volume is nearly 1/6 of the world average.

10


China's Forest Resources and Demand & Supply of Timber
The forests are distributed unevenly.
The forest coverage in the eastern part of China is relatively high, or 34.27%, while the forest coverage in the western part is comparatively low, only 12.54%.
Although the five provinces (autonomous region) in the northwest cover 32.19% of China's total land area, their forest coverage is only 5.86%.

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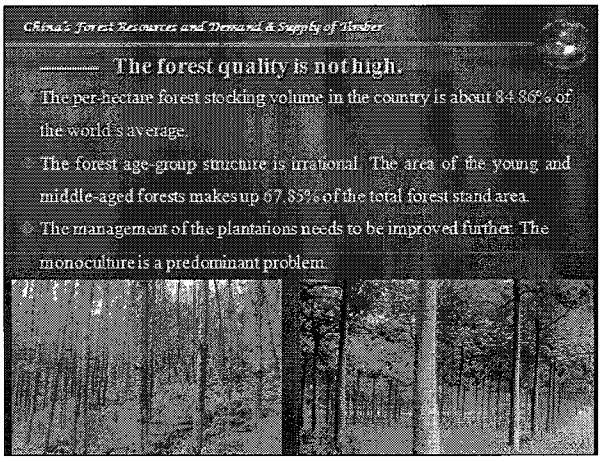
China's Forest Resources and Demand & Supply of Timber
The forest quality is not high.
The per-hectare forest stocking volume in the country is about 84.86% of the world's average.
The forest age-group structure is irrational. The area of the young and middle-aged forests makes up 67.85% of the total forest stand area.
The management of the plantations needs to be improved further. The monoculture is a predominant problem.

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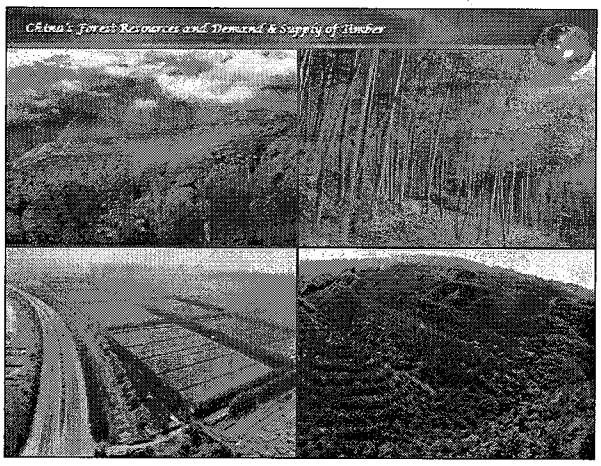

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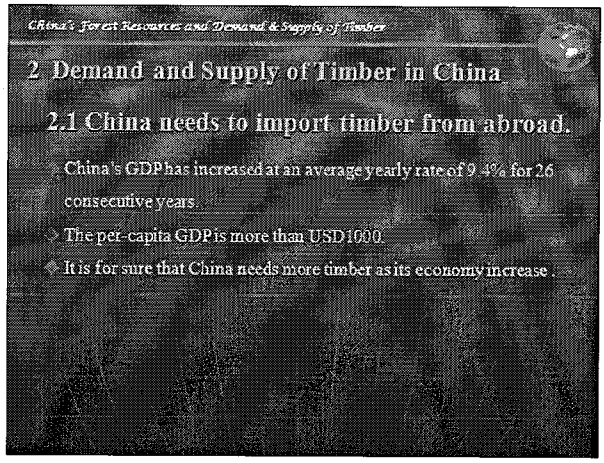

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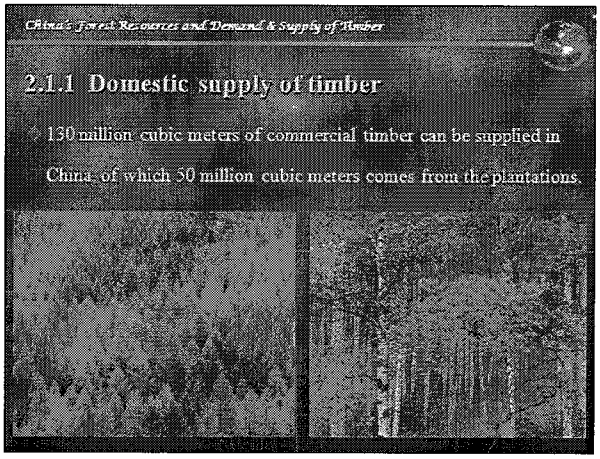

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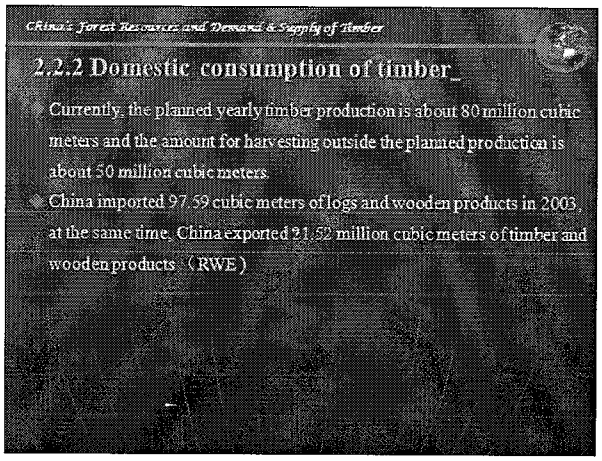

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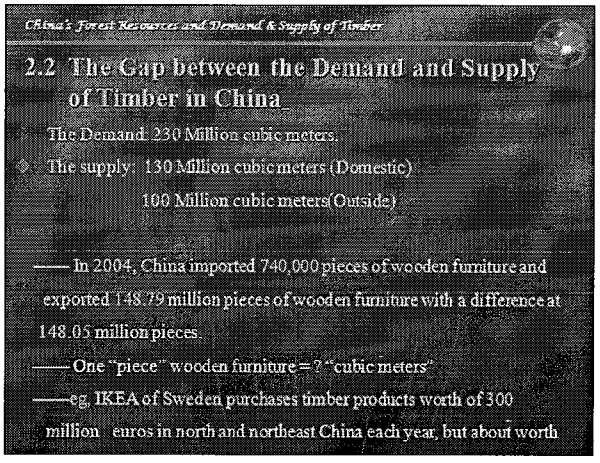

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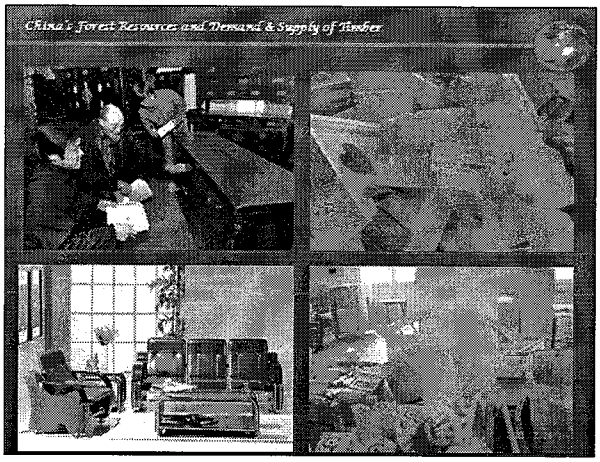

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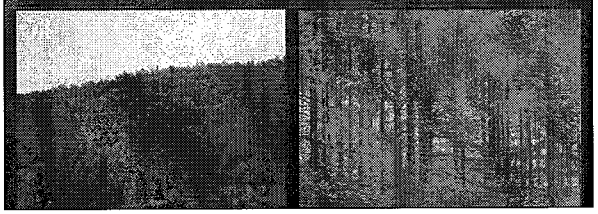
2.3 The Structure of the Gap between demand and supply of timber_

China is lack of paper products and pulp mainly.

- China is lack of large-diameter and high-quality timber coming from broadleaf trees.



19

2.4 China is capable to deal with its issues on timber supply.

Currently, China does need to import a certain quantity of timber.

- The Chinese government has adopted rigorous measures for management of its forest resources and encourage different stakeholders to invest the forest.
- The Chinese government requires that the logging companies must abide by the relevant laws and regulations of the countries where they perform harvesting operations overseas, and do business according to the laws.

20

2.4.1 Development of intensively-managed plantations is an effective way to address the issues on timber demand and supply.

- By 2010, 8.67 million hectares of intensively-managed plantations will have been established with an anticipated annual production of timber at 90 million cubic meters. By 2015, 13.33 million hectares of intensively-managed plantations will have been constructed. It is anticipated that 133.37 million cubic meters of timber will be produced each year.
- the policy encouraging the integration of cultivation of forests with production (e.g. paper making). Those companies include Taige in Hunan, Meili in Ningxia, Quanlin in Fujian and Jixiang in Sichuan and so on.
- the foreign investments in China have also contributed to the rapid development of plantations for industrial raw materials. Those companies include Storaenso of Finland, APP of Indonesia, Hahan of Canada and so on.

21

2.4.2 Enhancing integrated timber utilization rate is an effective approach to deal with the issues on supply of timber.

- At present, integrated timber utilization rate (about 40%) in China is very low.
- An increase of 1% in the utilization rate will be equivalent to an increase of 1.5 million cubic meters of timber supply.

22

2.4.3 Speeding up the cultivation of the existent forests is the long-term strategy of increasing timber supply.

- At present, China has paid more attention to the increase of forest area, but ignored the improvement of the quality of forest.
- Of the forests in China, the young and middle-aged forests make up 67.85%, the forest per-hectare stocking volume is low, only 84.73 cubic meters
  ——They show that there exists a big potential for forestry development.
- If the per-hectare stocking volume increases by 10 cubic meters, the forest stocking volume in China would increase by more than 1 billion cubic meters.
- the conversion of farmland to forestland project has accomplished 6.44 million hectares of land and a total of 6.89 million hectares of barren land has been planted, which enlarges the total forest resources reserve.

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To summarize, the forest resources is developing soundly in China. Although China still needs to import some quantity of timber, especially, large amount of paper products and pulp, it will not make any threat to the forest resources of other countries. The Chinese government is a responsible government. China has the capability to deal with its issues on timber supply.

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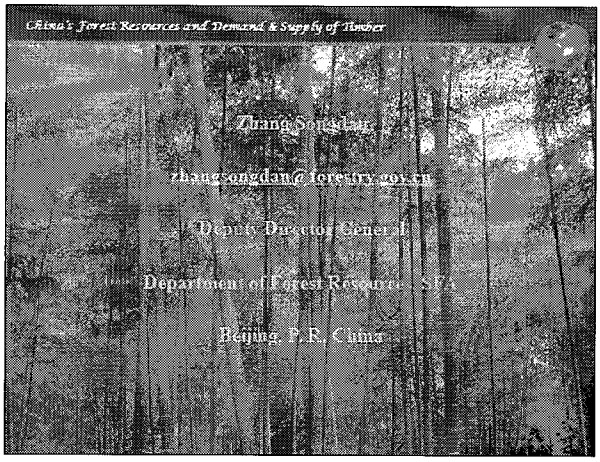
China's Forest Resources and Demand & Supply of Timber
Zhang Songdian
zhangsongdian@forestry.gov.cn
Deputy Director General
Department of Forest Resources, SFA
Beijing, P.R. China

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Thanks!

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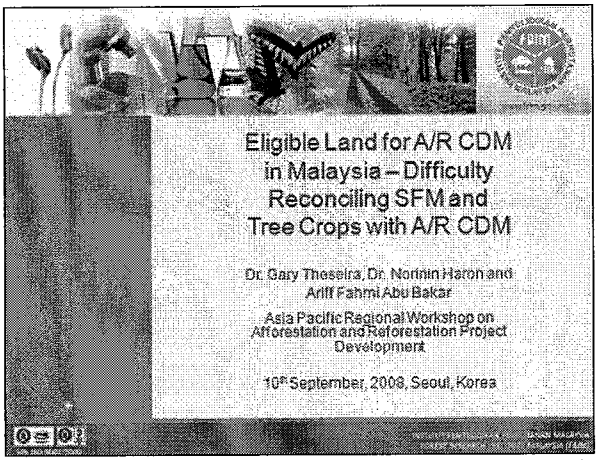
2. Challenges in reconciling AR CDM and sustainable forest management: Experiences from Malaysia

Dr. Gary W. Theseira
FRIM, Malaysia



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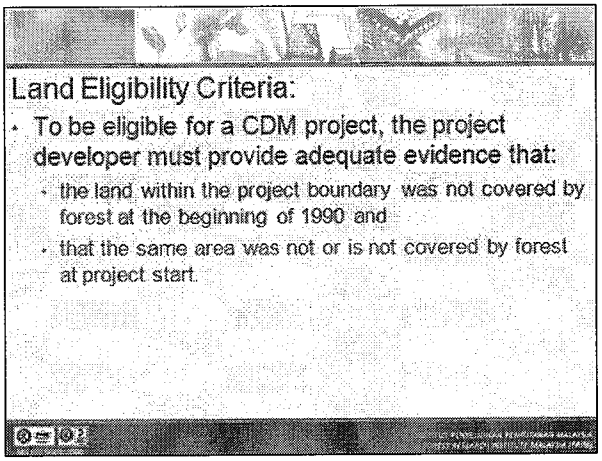

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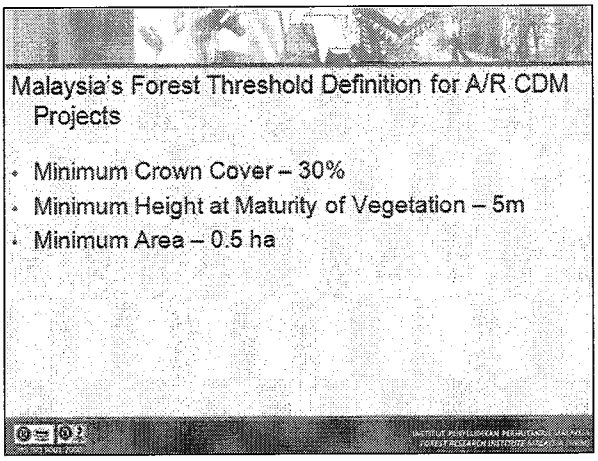

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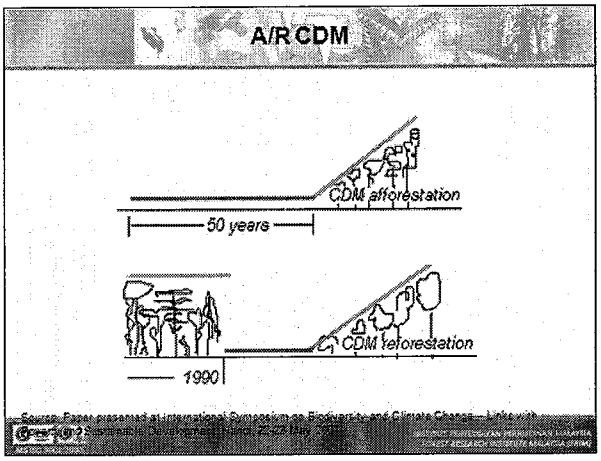

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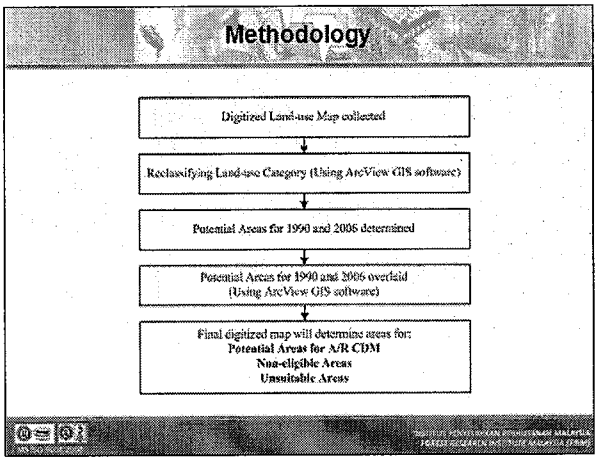

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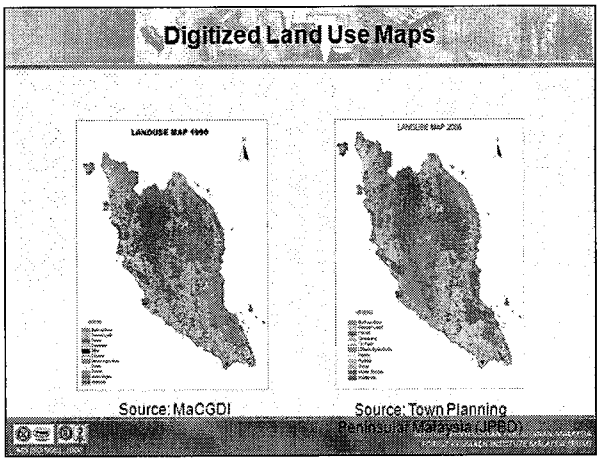

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Available Land Classification Data

Potential	Non Eligible	Unsuitable
-Cleared Land	-Forest	-Built-up Area
-Grassland	-Oil Palm	-Paddy Rice
-Other Agriculture	-Rubber	-Water Bodies
-Scrub		-Wetlands

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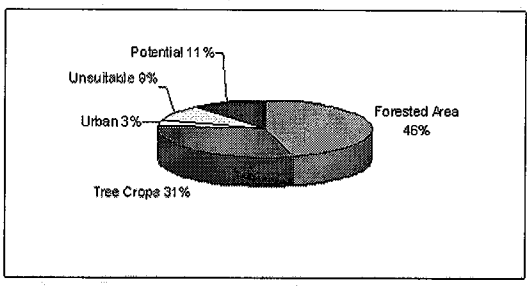
Result



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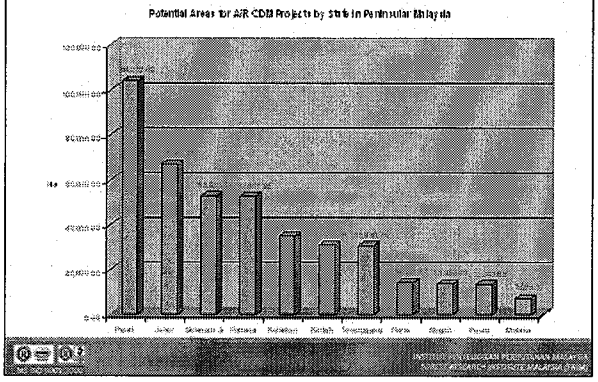

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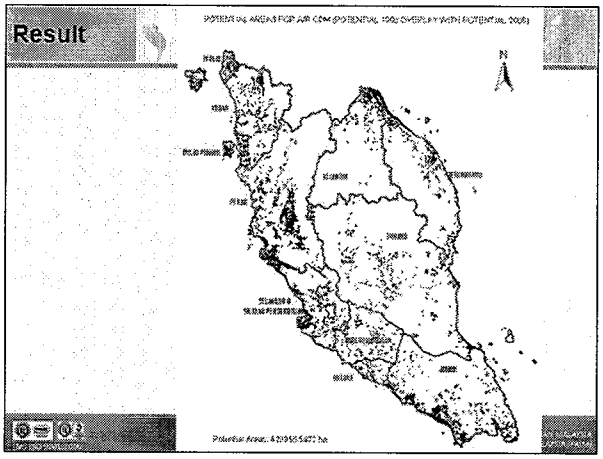
Result



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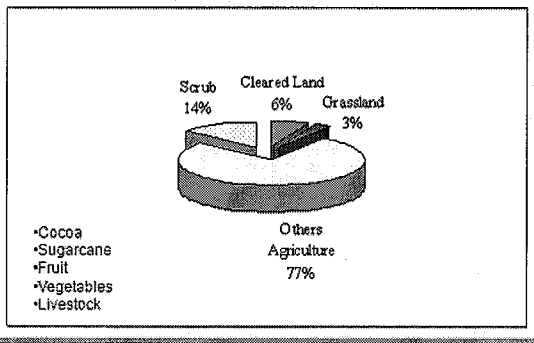

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- The 1990 criterion identified 932,589.63 ha as potentially eligible while the 2006 data identified 1,485,905.59ha as eligible under the current land use criterion.
- Only 423,955.5872 ha was estimated to be potentially eligibility when the two criteria are superimposed.
- Perak was identified as having the greatest eligibility potential with 104,212.5986 ha or 25% of total potential areas followed by Johor with 67,203.9811 ha (16%) and Selangor and Federal Territory with 53,030.8267 ha (13%).
- Land classified under other agriculture contributed the most eligible land at 326,262.7203 ha or 77% of total potentially eligible areas followed by scrub land at 59,260.4506 ha or 14% while cleared land and grassland only contributed around 9% of the total potential eligible land areas for A/R CDM.
- Land classification data is subject to a high degree of uncertainty and ground truthing is necessary to confirm land use.

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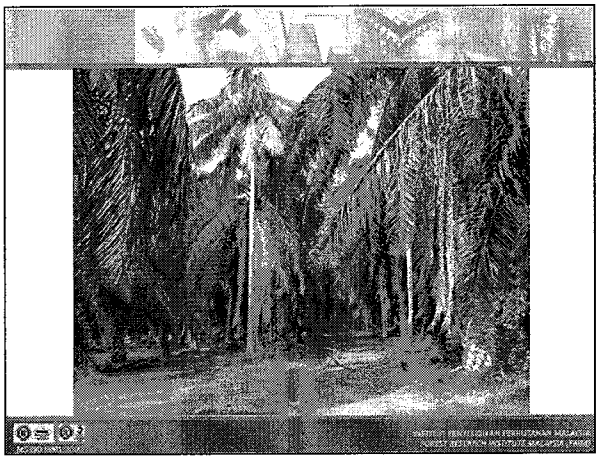

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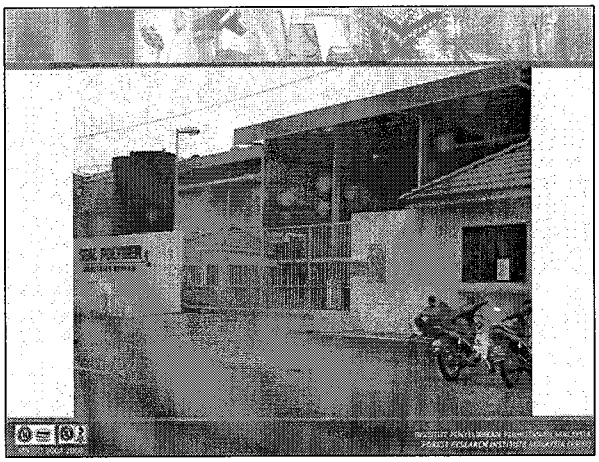

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Summary

- A total of 95 locations were ground truthed.
  - Cleared land - 13
  - Scrub - 29
  - Grassland - 3
  - Other Agriculture – 67
- Ten sites were not accessible
- Of the 85 that were accessible, a total of 42 sites or approximately half were mismatched.
- Notably, seven of the of the 'other agriculture' and one of the 'cleared land' sites had been planted to oil palms.
- A quick check using Google Earth revealed that some of the ground truthing could be avoided depending on the age of the Google Earth image used

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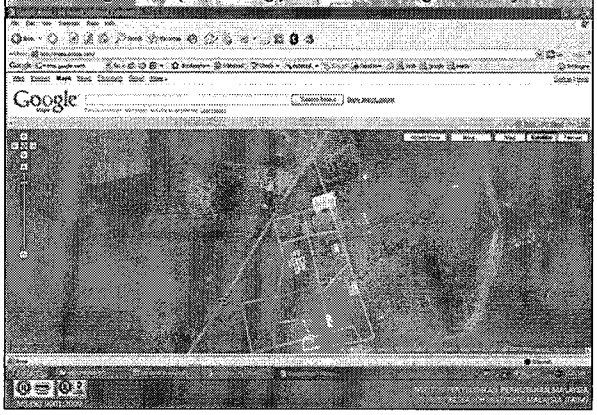
Sugarcane processing plant and raw sugar refinery



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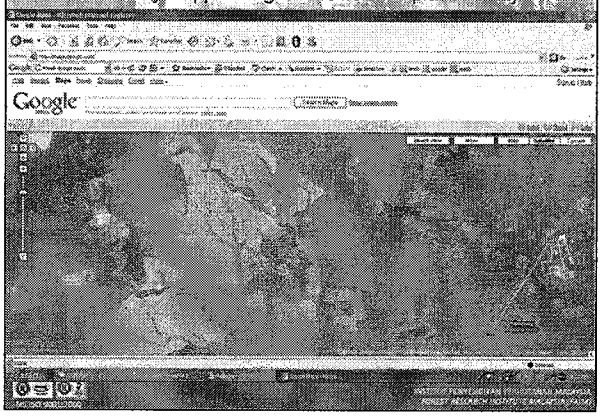
Annually cropped sugarcane fields in plant vicinity



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Conclusions

- Remote sensing and existing GIS data have significant limitations in their application in the estimation of potentially eligible land areas for A/R CDM
- The lag-time of two years has allowed land use to change significantly
- In some cases potentially eligible land is not usable due to current use obligations
- Other tools have proved useful for more speedy assessment
- Ultimately land has to be assessed on a case by case basis to confirm eligibility

23

Where to from here?

- VERs present some interesting possibilities without some of the limiting criteria of A/R CDM
- From COP 6 II - LULUCF activities under the CDM in future commitment periods are to be decided in negotiations on the second and future commitment periods
  - Address the myths surrounding the concept of permanence
  - tCER/lCER fungibility and buyer preferences, and access to markets
  - 'buffer' approach of VER
  - Assess the implications of the forest threshold definition and amend as necessary
  - Assess the implications of the cutoff dates and amend as necessary
  - Internal competition – leveling the playing field
- All the while keeping in mind the true purpose of the Kyoto Protocol and the CDM, and,
- Internally preparing for the domestic emissions reductions necessary under a future compliance regime.
- Ultimately land has to be assessed on a case by case basis to confirm eligibility

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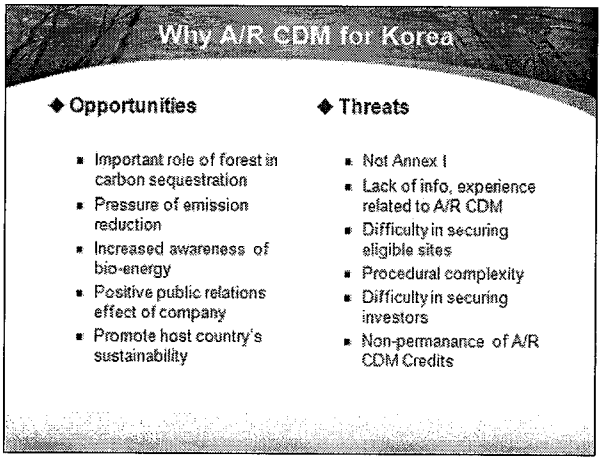
3. Investment in AR CDM project activities: An experience from a private company in Korea

Dr. Jae-Hyup Lee
Seoul National University, Korea

1



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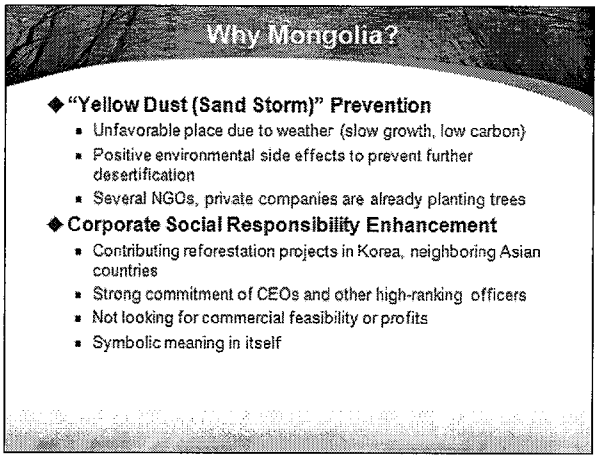

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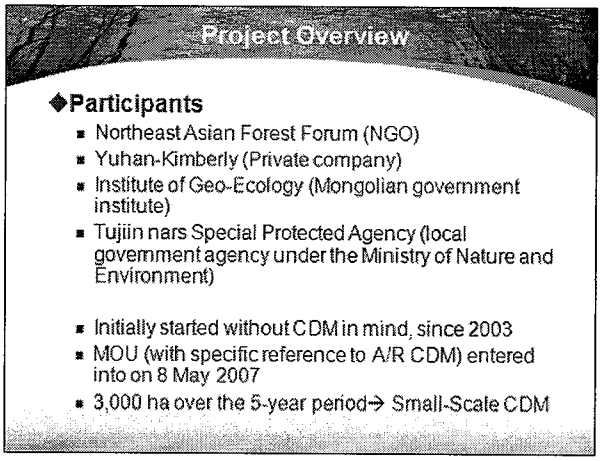

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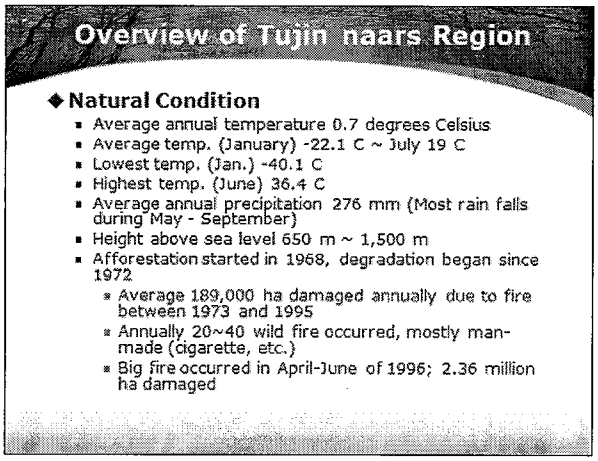

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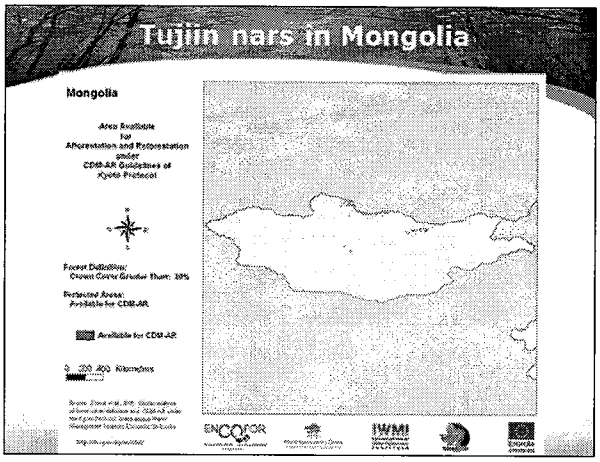

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Forest Management in Mongolia

◆**Forest is state-owned**

- But individuals, companies, local governments can be granted possessive rights (for a limited period or for payment) with special arrangement with the State
- Limited privatization (tree nursury)

◆**Forest Law (Amended in 1995)**

- Protection of Forest Resources
- Payment system for lumbering

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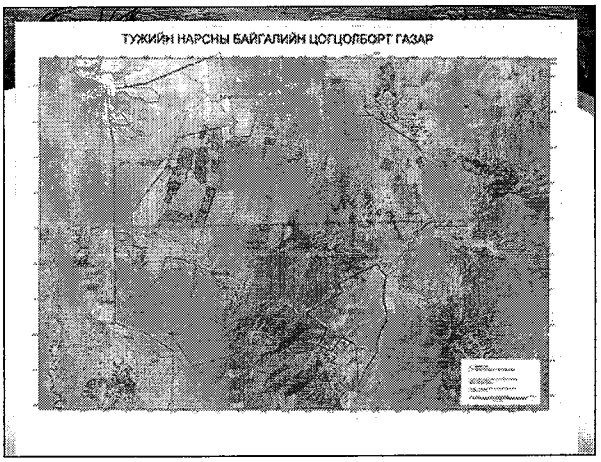

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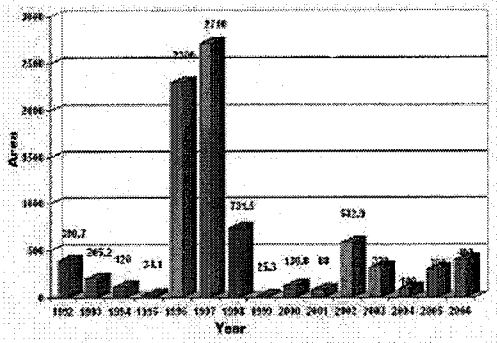
Forest Fire in Mongolia



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Forest Degradation due to Fire

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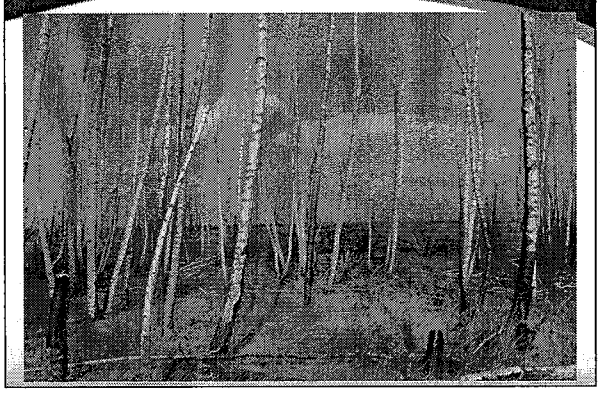
Forest Degradation due to Fire



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Reforestation Site

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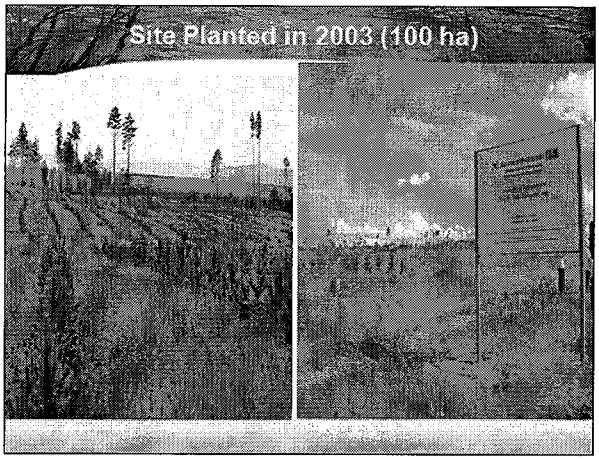

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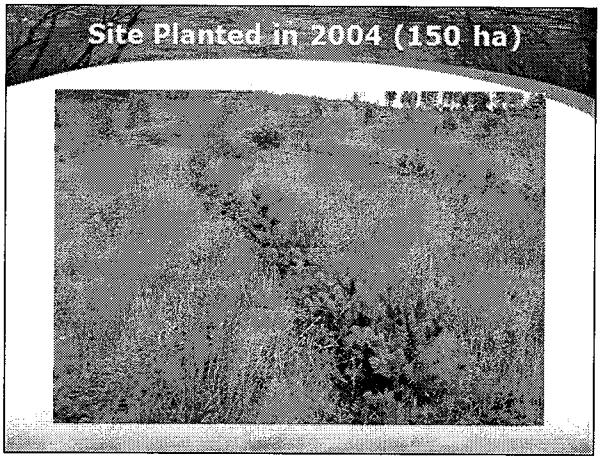

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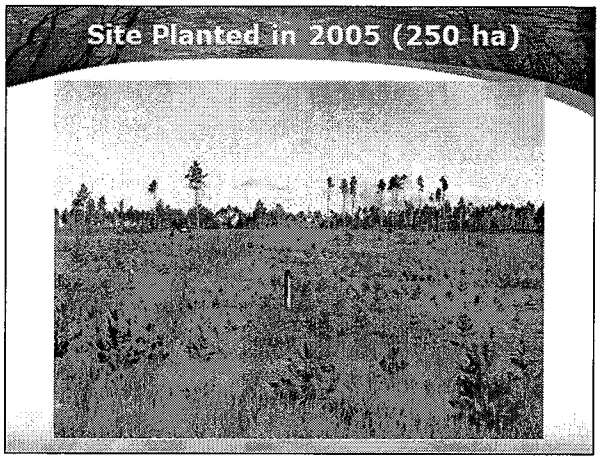

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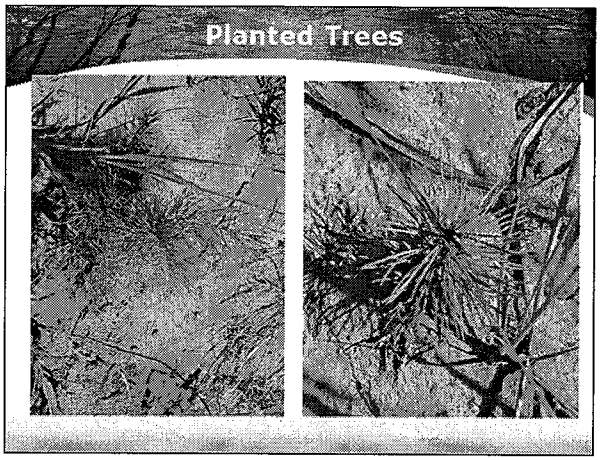

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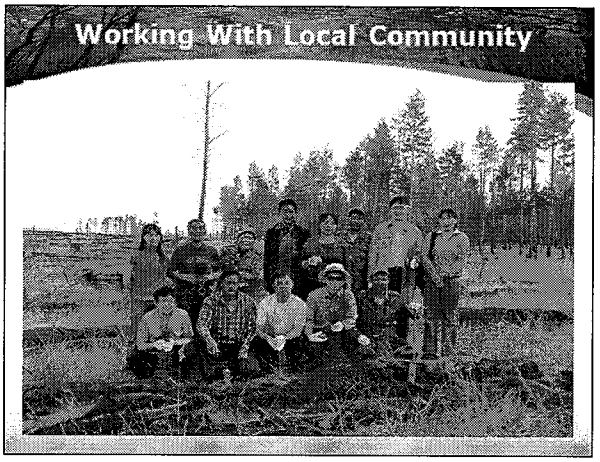

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Considerations (Phase I)

- **Selecting Eligible Lands**
  - Upon recommendation by Institute of Eco-Geology
  - Afforestation or Reforestation?
    - Reforestation:
      - Most sites were damaged due to fire
      - Not exactly know whether they were forests before 1990
  - DNA already established:
    - Focal points in Ministry of Nature and Environment
  - National definition of forest not established
    - Tree crown cover (%), tree height level (m)
  - Very difficult to obtain land use information
    - Lack of systematic forest studies undertaken
    - Lack of adequate administrative information

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Considerations (Phase II)

- **Field Study**
  - Need to set up team of experts
  - Environmental & Socio-economic impact assessments
  - Difficult to find technical experts experienced in A/R CDM
  - Previous Pilot Field Study undertaken in 1999 (by a Japanese organization)
- **Collaboration with host country & local community**
  - Projects located in long-distance ineffective in getting timely assistance from the host government
  - Local presence or agents necessary
  - Legal rights of CER need to be agreed in advance (Agreements with DNA preferred)

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Considerations (Phase III)

- **Drafting Project Design Document**
  - Forming drafting team or appointing consultants
  - Service Agreement with DOE for validation
- **Securing potential buyer of CER of Seeking Joint Partnership**
  - May pursue partnering with the Japanese organization that conducted the field study
  - Emission Reduction Purchase Agreement with potential buyer

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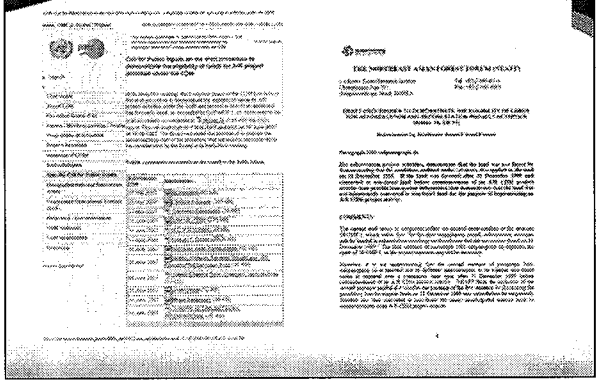
Lessons Learned

- **International channel (Persistence!)**
  - Monitor Post-Kyoto negotiations and possible regulatory changes
  - Participating public input in CDM Executive Board
- **Government channel (Patience, patience, patience!)**
  - Co-hosting events with Mongolian government and local communities
  - Requesting assistance to Korean government and related organizations
  - Increasing awareness through participating in government-funded research projects
- **Parallel projects or Sharing experiences (Learning by Doing)**
  - Collaboration with the Japanese organization
  - Reforestation projects in North Korea & Reforestation projects in Seoul Metropolitan City

22

Active Participation in Public Input



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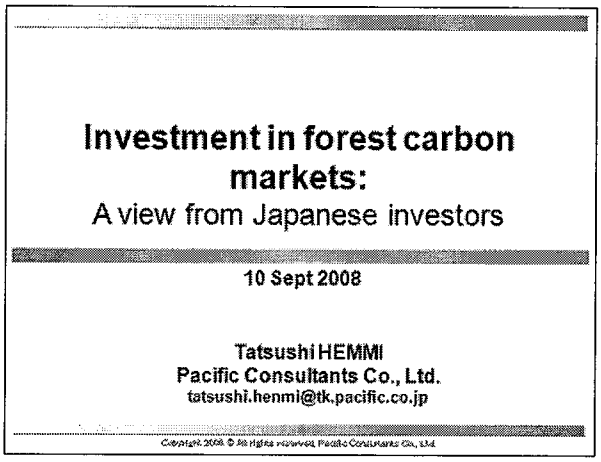
4. Investment in forest carbon markets: A view from Japanese investors

Mr. Tatsushi HEMMI
Pacific Consultants Co. Japan



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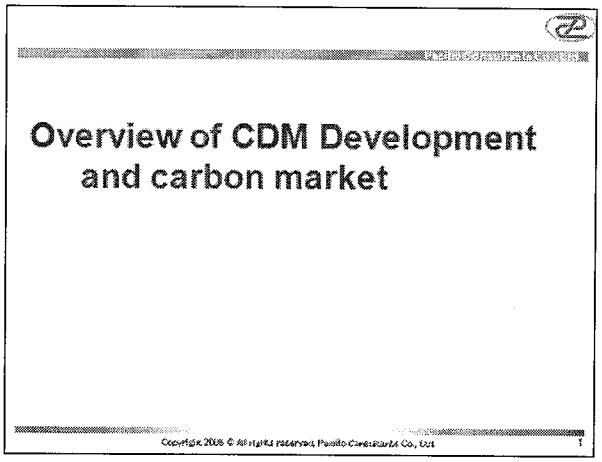

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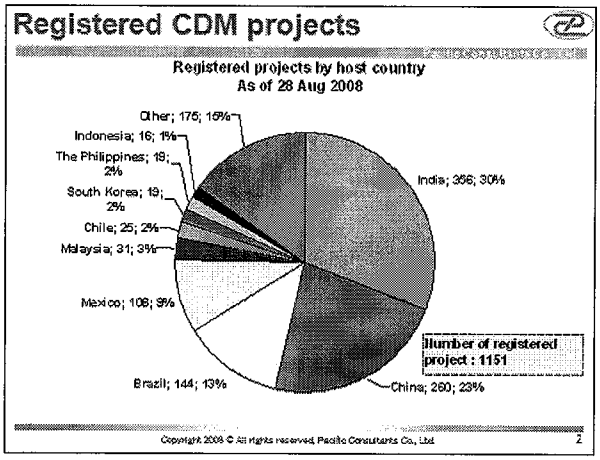

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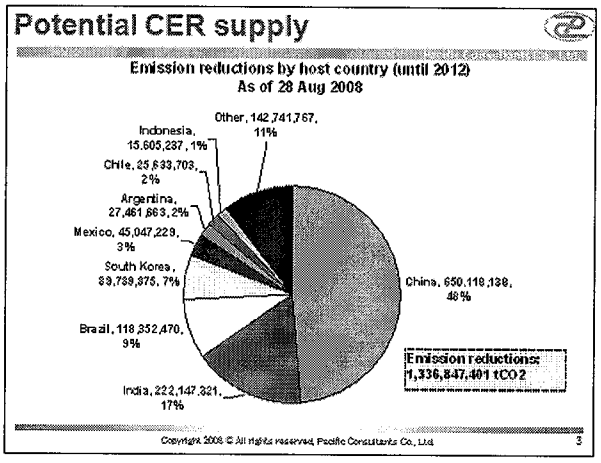

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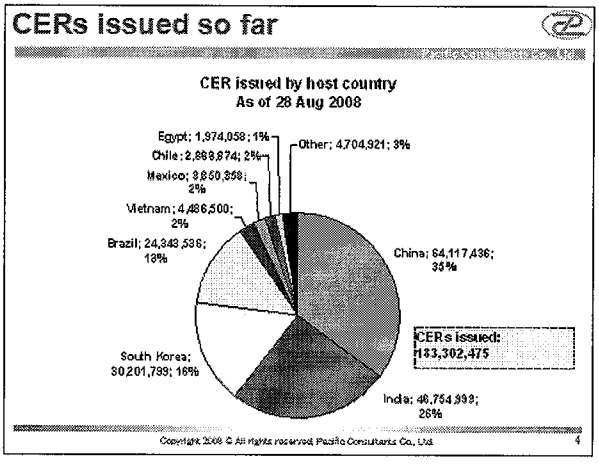

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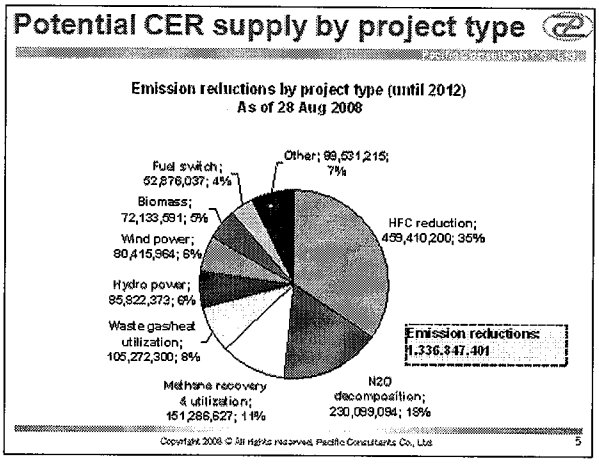

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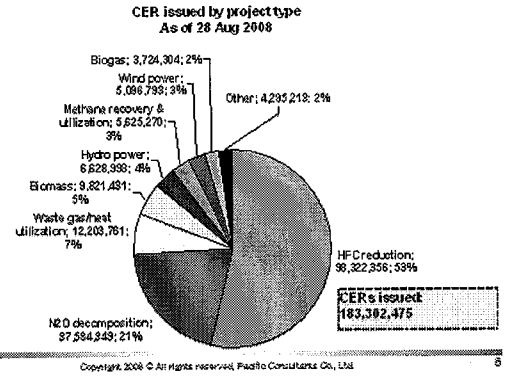
CERs issued by project type



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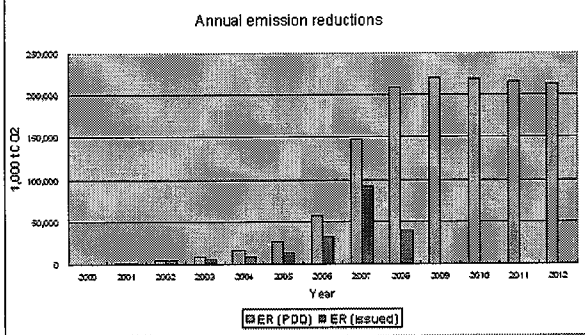
Gap between projection and issuance



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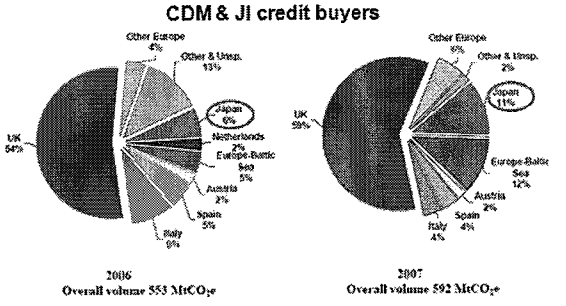
Who is buying in the market?



Source: State and Trends of the Carbon Market 2008

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Japanese market for AR projects and difficulties

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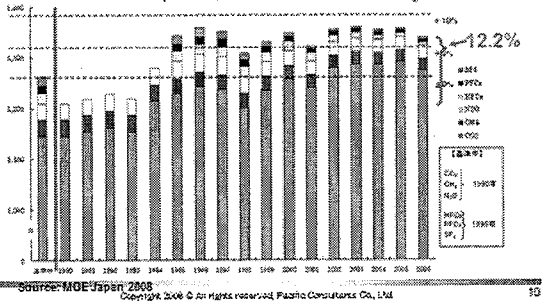
GHG emissions in 2006 (1,340MtCO2e)

- Japanese GHG emissions and the Kyoto target:
  - +6.2% from the base year emissions
  - The target is -6% from the base year
  - In other words, 12.2% reduction is necessary



Source: MOE Japan 2008

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Japanese Market for AR projects

- Demand in Japan
  - For business oppt.
    - Pulp & paper
    - Timber
  - For CSR
    - Contribution to society, env. etc
    - Publicity

t/lCERs ⇄ t/lCERs

Offsetting their emissions, reselling to others, opportunity for investment, etc

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Japanese Market for AR projects

- Japanese involvement in AR projects
  - Investment in project for CSR purposes
  - Investment in credits for Compliance purposes

Investment in projects
- Ricoh: Project in Ecuador
- Oji Paper: Madagascar

Potential projects
- Oji Paper: F/S in Laos
- TEPCO: F/S in Vietnam
- Sumitomo Forestry: F/S in Indonesia
- Oisca (NGO): F/S in the Philippines
- Conservation Int'l: F/S in the Philippines
- Taishi Design: F/S in Fiji

Investment in credits
- BioCarbon Fund
- IDEMITSU KOSAN CO., LTD. (Oil)
- JAPAN PETROLEUM EXPLORATION CO., LTD. (Oil)
- JAPAN IRON & STEEL FEDERATION (Steel)
- THE OKINAWA ELECTRIC POWER COMPANY, INC. (Power)
- TOKYO ELECTRIC POWER COMPANY (Power)
- SUMITOMO CHEMICALS CO., LTD. (Chemical), etc

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Difficulties with t/lCERs

- Uncertainty is relatively high
  - Offset: GoJ is unlikely to buy t/lCERs?
    - → However, GoJ started to allow t/lCERs to be retired (used for achieving the Kyoto target)
  - Resell: Buyers of t/lCERs limited → BioCF, CDCF, Italy? and Spain?
    - → Currently, Honda Motor (Viet Nam AR project), Retailing (ITTO project) and others support AR projects. Power, insurance, securities companies showed interest
  - Investment: Replacement hampers it
    - For a company, t/lCERs may be perceived as debt for the future
    - Measures against replacement may be necessary for further investment

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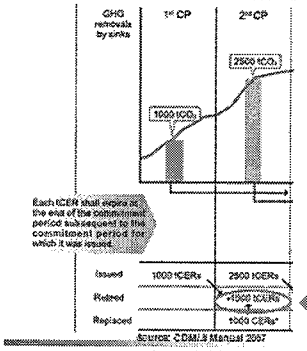
Measures against replacement ?

- Structure to overcome replacement issue



- Acquire CERs from emission reduction projects beyond 2013 now
- Use CERs of vintages of 2013 and onwards to Replace retired tCERs
  - Avoid risk of non-permanence
  - Prices are lower

Replace with CERs from 2013 and onwards

Source: CDM1.0 Manual 2007

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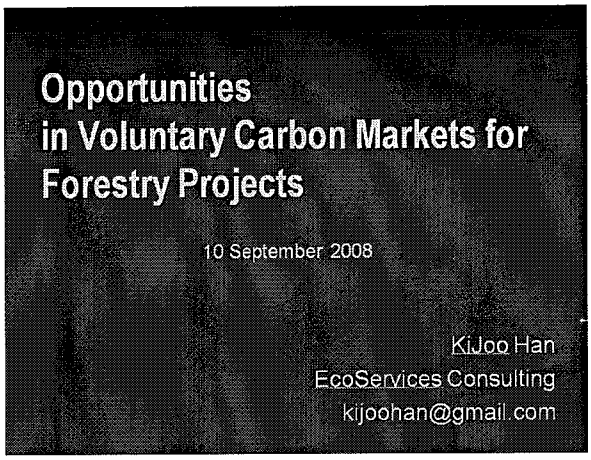
5. Opportunities in voluntary carbon markets for forestry projects

Mr. Kijoo Han
EcoServices Consulting



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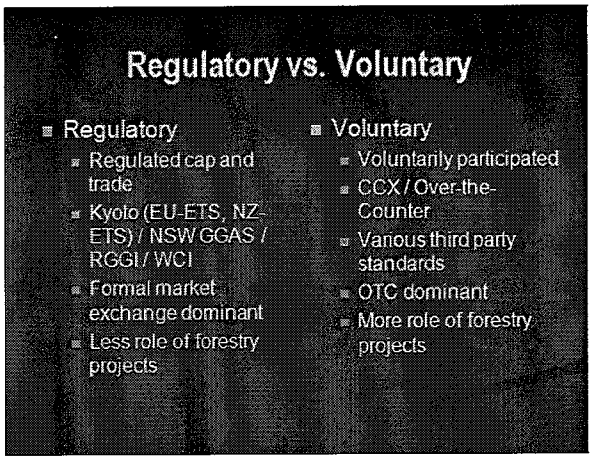

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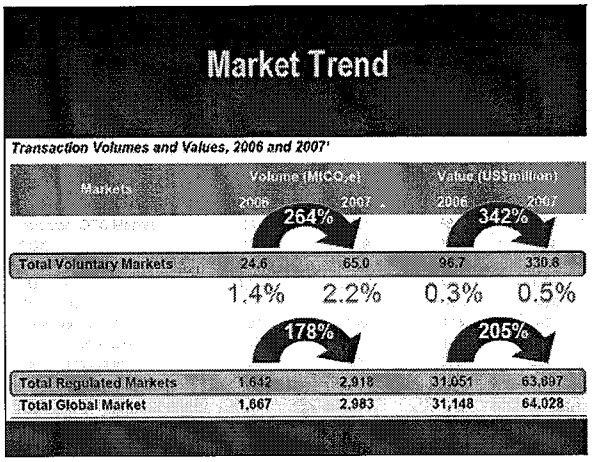

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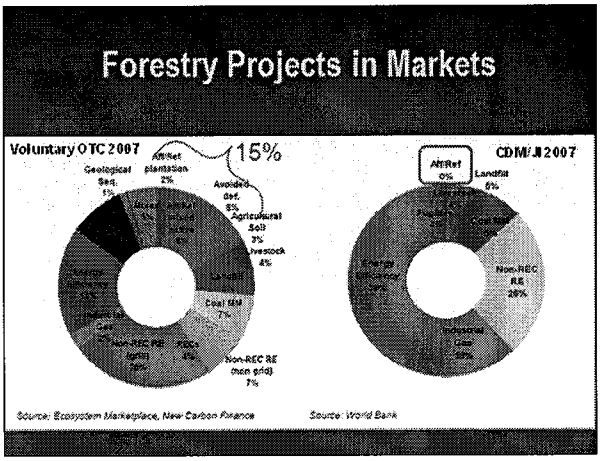

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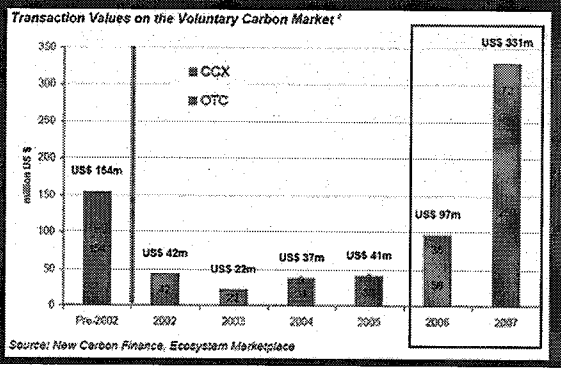
Forestry Projects in Markets

Exclusion	Inclusion		Location
	Regulated	Offsets	
EUETS	NSW RGGI NZETS		Limit
		CCX	No limit

Any alternative for now? Voluntary markets?

7

Voluntary Market Trend



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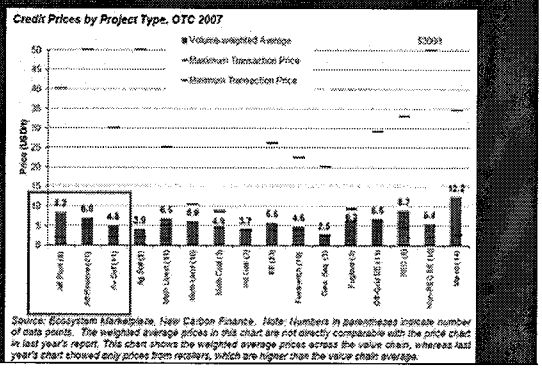
Price



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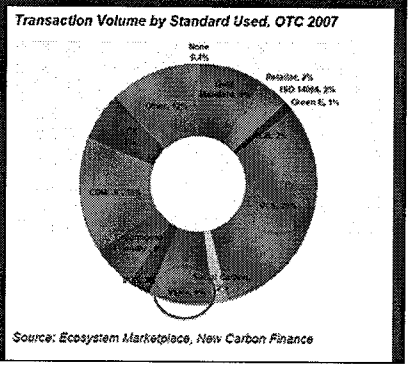
Third Party Standards

"OTC markets are heavily dependent on third party standards"



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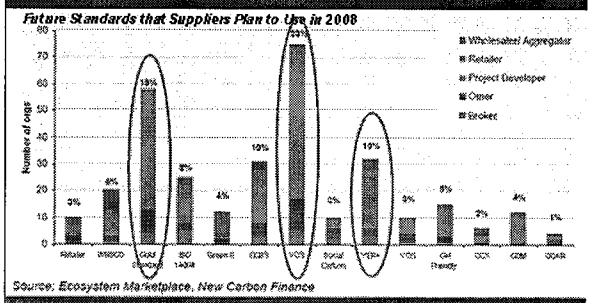
Standard Preference



So, what standards for forestry projects?

11

Standards for Forestry Projects

- VCS
- VER+
- CCB Standard
- Plan Vivo
- CCAR
- CarbonFix Standard
- Others

What differences among them?

12

Standards – Comparison

Standard	Project type	Start date
VCS	AR, IFM, RED	Mid 2007
CCBS**	AR, IFM, RED, AGF	No limit
VER+	CDM/JI	Mid 2007
Plan Vivo**	AR, RED	2000
CarbonFix**	Except AGF	1997

Source: New Carbon Finance, EcosystemMarketPlace, Standard's website

Most standards have wider scope of forestry activities than CDM

You can choose a standard suitable for your project

13

Chicago Climate Exchange: CCX

- Started in 2003, First carbon market ever
- Voluntary but legally binding
- Forestry offsets: 5%
- AR, FM, AGF, Urban, HWP, etc.
- 5 forestry projects registered: 2 US, 3 Latin America
- Offset Aggregator: under 10,000 tCO2/y

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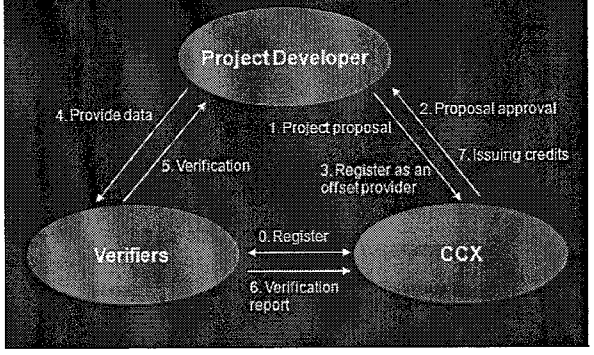
Procedure – CCX



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Strategic Market Participation

What implications? What strategies?

- Opportunities
  - Greater scope of project types than CDM
  - Learning by doing – strategy for Post-Kyoto regime (REDD, HWP)
  - Different level of quality and requirements
- Risks
  - Small markets
  - Low liquidity

16

Thank you

EcoServices Consulting
kijoohan@gmail.com

17

6. Issues of Reducing Emissions from Deforestation and Forest Degradation (REDD)

Dr. Hwan Ok Ma
Projects Manager of International Tropical Timber Organization (ITTO)

Issues of Reducing Emissions from Deforestation Forest Degraration (REDD)

Ma Hwan Ok
Projects Manager, Reforestation and Forest Management, ITTO

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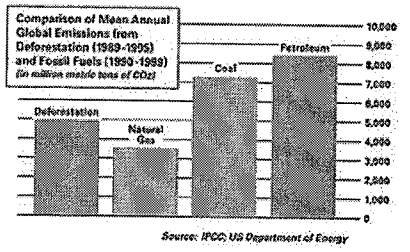

The Stern Review on the economics of Climate Change (2006)
IPCC report (2007): Mitigation of Climate Change, Working Group III

Land use, land use change and forestry (LULUCF), mainly tropical deforestation, are responsible for about 20% of global GHG emissions

2

Drivers of Deforestation

- Complex issues
- national and international factors/ influences
- regional differences
- competing land use: forests vs oil palm plantations

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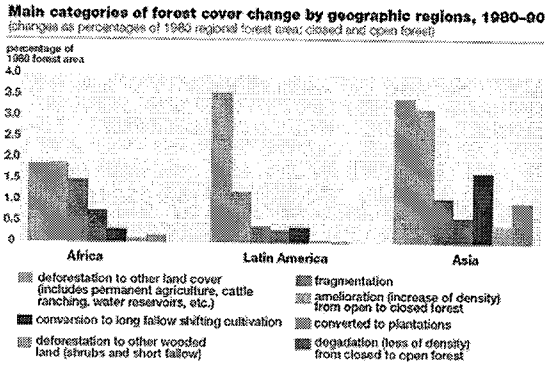

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Elements of Capacity building and technical assistance

- Data collection
- Estimation of emissions from deforestation and forest degradation
- Monitoring and reporting
- Addressing the institutional needs of developing countries

5

Technological/Methodological Issues

- How to set Reference Scenario (Baseline) ?
  - ✓ Inadequate Reference Scenario would produce "Hot Air"
  - ✓ Reference Scenario set only by historical trends, or future prospect also considered
- How to prevent leakage ?
  - ✓ Whether sub-national approach also allowed, and if so how to prevent leakage (increase of emissions outside the project boundary)
  - ✓ Leakage to non-participating countries if participation is voluntary
- How to secure permanence
  - ✓ Permanence issue after "payment", risk of forest fire, natural death, human-induced logging activities
- How to monitor the deforestation accurately and cost-effectively ?
  - ✓ Accurate, fair and cost-effective monitoring, through use of satellite images ?
- How to deal with degradation of forest ?
  - ✓ Deforestation is the decrease of area, while degradation is the decrease of volume
  - ✓ How to monitor the degradation ?

11

6

Policy approaches and positive incentives issues

- Mechanisms
  - ✓ Market mechanisms (credit) or non-market (fund), or both
  - ✓ Source of funding: Taxing for carbon trading, high emissions lead commodities, etc. or ODA
- Incentives vs. competing land use
- Timing of payment
  - ✓ Payment before commencement of project, or after issuance of emission reduction
- Implication to emission reduction target
  - ✓ "Deeper cut" to emission reduction target of developed countries under the Protocol
  - ✓ Integration into emission trading system: balance and demand vs. price

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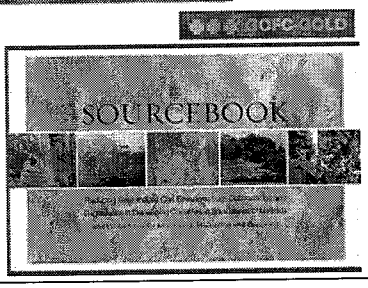
7

Guidance on Methods and Procedures for Monitoring, Measuring and Reporting on REDD

Current draft available online:
➢ www.gofc-gold.uni-jena.de/redd
(Registration required)



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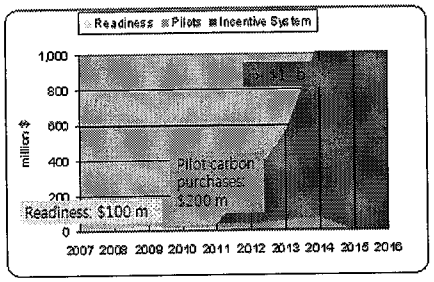
Forest Carbon Partnership Fund of World Bank

- www.carbonfinance.org



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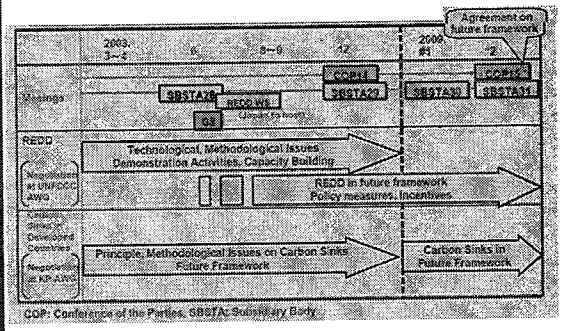
Way Forward



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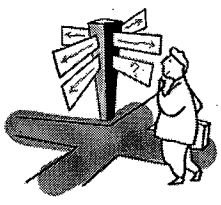
Expectations of tropical countries ?

Submission by Papua New Guinea, Costa Rica and others at COP 11

Bali Action Plan at COP 13

Copenhagen at COP 15 ?

Your expectations?



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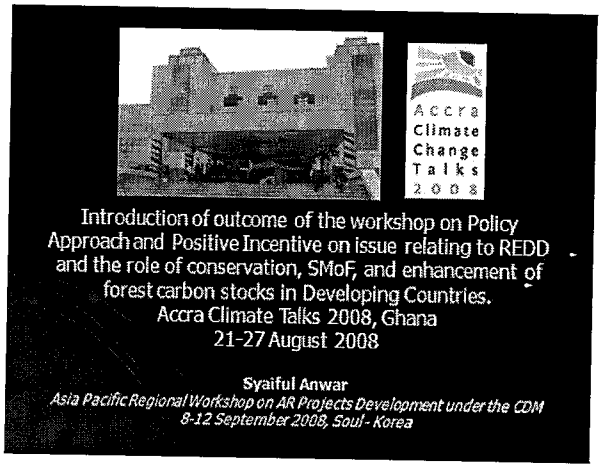
Thank You!

- Acknowledge:
  Reinhard Wolf, GTZ
  Atsushi Sato, Mitsubishi UFJ Research & Consulting

12

7. Introduction to outcomes of the workshop on policy incentives on issues related to REDD and the role of conservation, SFM and enhancement of forest carbon stocks in developing countries which held in Accra, Ghana in August 2008

Dr. Syaiful Anwar
Ministry of Forestry, Indonesia



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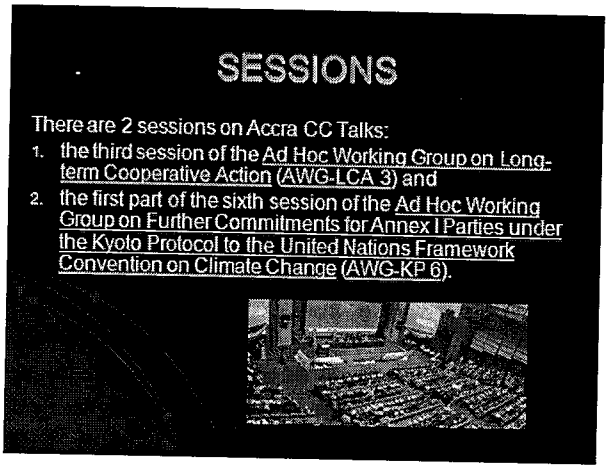

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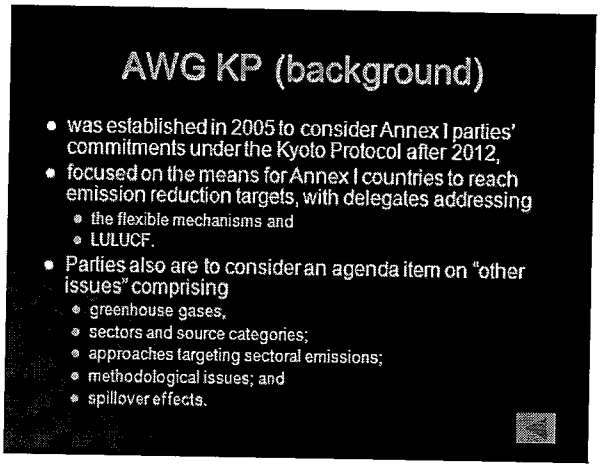

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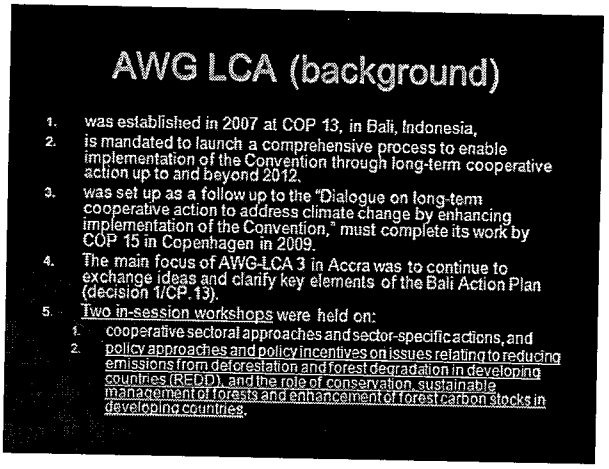

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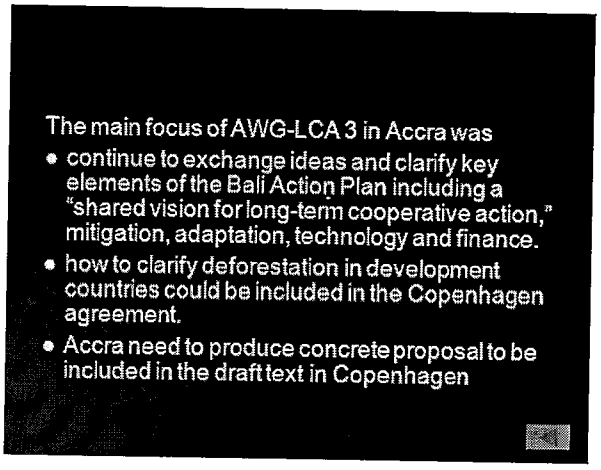

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6

Outcome Summary

IN GENERAL,

there was a common understanding that

- The current knowledge of methodological issues was sufficient to initiate discussions on policy approach and positive incentives.
- Robust methodologies are important to ensure that emission reduction are real, measurable, reportable, and verifiable

7

POLICY APPROACH

1. When planning mitigation action in the forest sector, it is important to address reducing emissions from deforestation and forest degradation, conservation, sustainable management of forests and enhancement of forest carbon stocks.
2. the importance of adopting fair and cost-effective means to reduce emission from deforestation and forest degradation while ensuring environmental integrity.
3. forestry mitigation should be additional, not to meet emission reduction commitments of industrialized countries.
4. Policy approach should take into account national circumstances.

8

POSITIVE INCENTIVES

1. Any financial mechanism should be effective, sustainable and predictable.
2. should be performance-based, and be supported by diversified funding sources
3. funding would be required for capacity building, technology transfer, strengthening governance and enforcement, relevant economic development programme and demonstration activities.
4. should be based on national reference emission levels, which should be revised periodically and take into account national circumstances.

9

OTHERS

1. National approaches should be aimed for, whereas some recognised that subnational approach could be a step towards these national approaches.
2. Need for immediate support for capacity-building at individual, institutional and systemic level in developing countries.
3. Need for relevant international organization, donors and recipient countries to combine efforts, avoid duplication in their work, ensure consistency and enhance cooperation among themselves.
4. Need for policy discussion to take into account experience and lessons learned from on going activities, earlier efforts and demonstration activities.

10

OBSERVATION

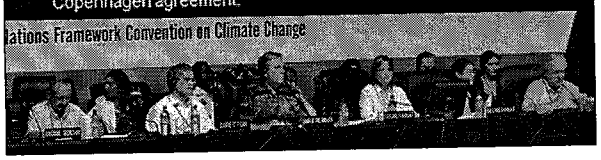
- Presentation and interventions by parties reflected areas of convergence as well as differences in view
- The workshop was characterized as having moved away from procedural to substantive issues.
- Many were upset that the presentations started late, leaving precious little time for interventions,
- one report suggested that progress had been somewhat limited, and some environmental groups urged a faster pace to future discussions

11

CLOSING

Stated by Executive secretary

- Encouraging meeting
- Still on track and
- The process has speeded up
- Important debate on whole issues of deforestation and forest conservation (20% of GHG contribution that human being responsible for).
- Including deforestation issues in mitigation action is meaningful solution on climate change; therefore, have to be part of Copenhagen agreement.



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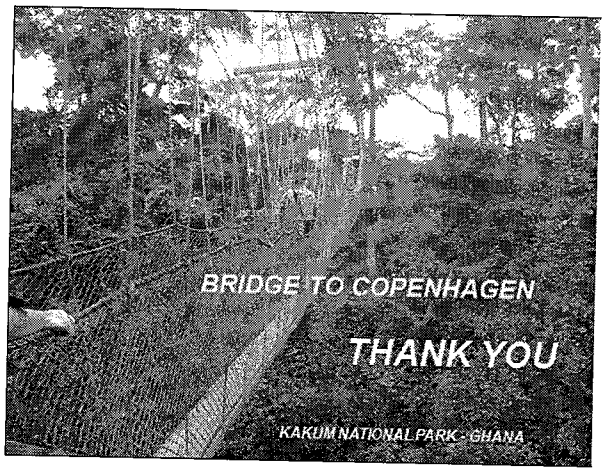

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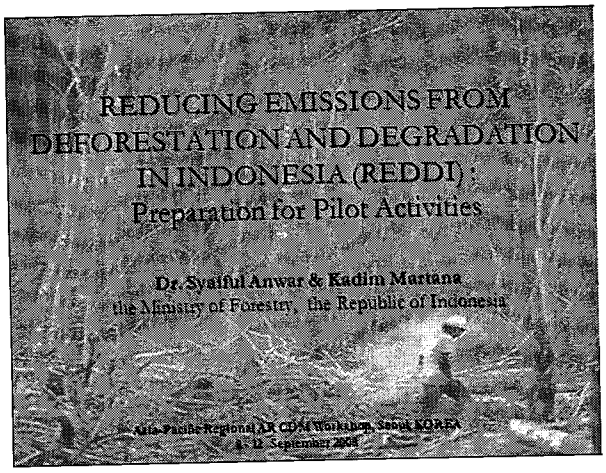
8. REDD pilot activities in Indonesia

Mr. Kadim Martana
Ministry of Forestry, Indonesia



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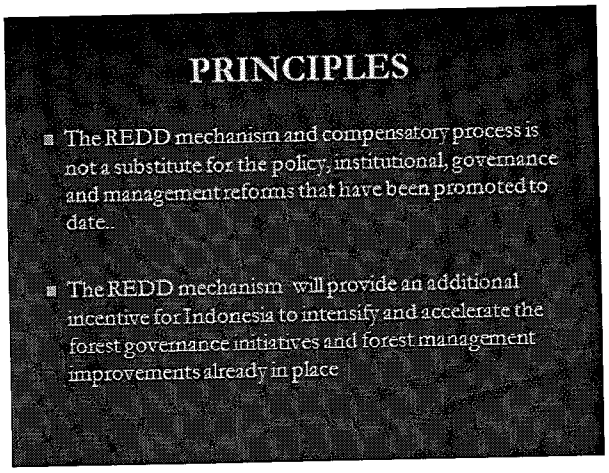

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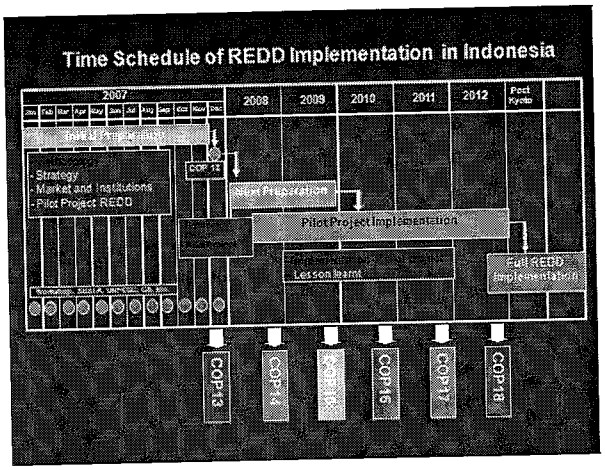

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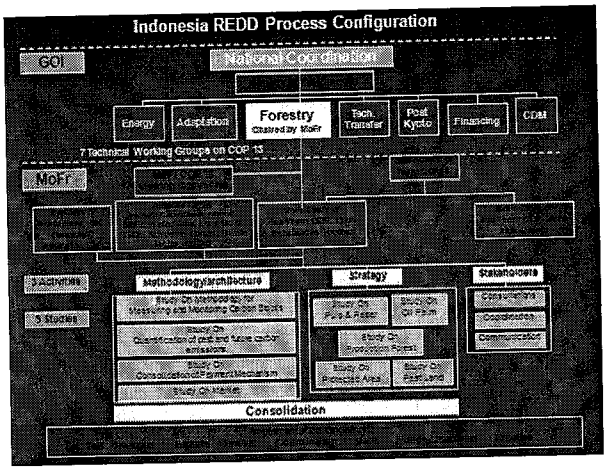

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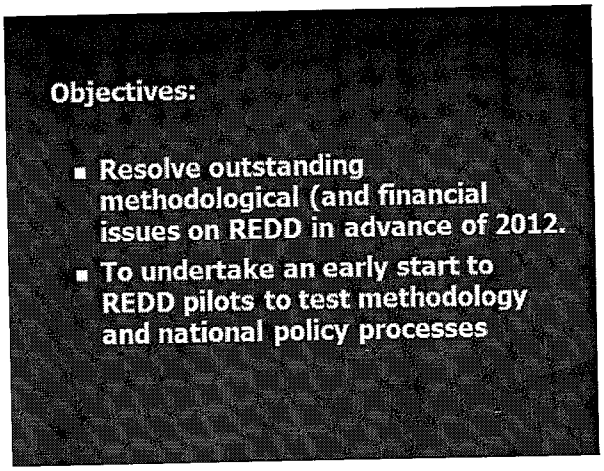

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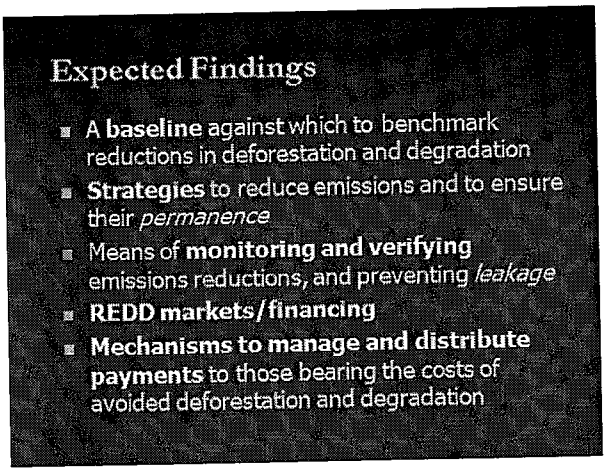

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FOLLOW UP ACTION

Key objectives of pilot activities are:

1. Build trust and confidence
2. Investigate opportunities for REDD
3. Validate existing carbon stock estimates
4. Test approaches to baseline setting and monitoring
5. Trial institutional structures
6. Examine the practicality of emissions reduction Strategies
7. Test the quality and permanence of the carbon credits

7

Types of pilot activity supported

- Oil palm plantation development
- Pulp and paper plantation development
- Production forest management
- Conservation and Protected Area management
- Forest on peatlands

8

Strengthening the enabling conditions for REDD investment

- Consolidation and gazettement of forest areas
- effective forest law enforcement and governance
- efforts to clarify rights, roles and responsibilities in respect of REDD implementation

9

Criteria and variables for the selection and development of pilots

- **Availability of information**
- **Biophysical variation**
- **Level of threat**
- **Social equity**
- **Economic viability**
- **Tenure**
- **Governance**

10

Preparing Regulations

- Draft of Ministerial Decree on Designated National Authority on REDD..
- Draft of Ministerial Regulation on REDD Mechanism (regulate how to propose project activities, carbon measurement/monitoring technique, incentive distribution, etc.)
- In the process of stakeholders consultation…

11

What Next ?

- Expected those regulations are signed soon..
- Commence the pilot activities in 2009..

12

13

5.4 Presentation materials of Day 4

Work on Sections D, E & F of PDD/Work on PDD and
Discussion on Forestry CDM Activities

Session 6. Work on Sections D,E & F of PDD

1. Introduction and work on Sections D (environmental impacts) of small-scale AR-CDM PDD

Mr. Tatsushi HEMMI
Pacific Consultants Co. Japan

Overview of Section D

11 Sept 2008

Tatsushi HEMMI
Pacific Consultants Co., Ltd.
tatsushi.henmi@tk.pacific.co.jp

1

Overview of PDD

 1

2

Structure of the PDD for SS AR

■ PDD (Project Design Document)

Section	Title	Description
A.	General description of the proposed small-scale A/R CDM project activity	Purpose of the project, SD contribution, technical info, land tenure, eligibility of land, choice of CERs (tCERs or lCERs)
B.	Application of a baseline and monitoring methodology	Choice of methodology, GHGs, carbon pools, additionality, monitoring, leakage, QA/QC
C.	Estimation of the net anthropogenic GHG removals by sinks	net anthropogenic GHG removals = actual net GHG removals - baseline net GHG removals - Leakage
D.	Environmental impacts of the proposed small-scale A/R CDM project activity	Description of environmental impacts (if EIA is necessary, PP needs to conduct it) and remedial measures
E.	Socio-economic impacts of the proposed small-scale A/R CDM project activity	Description of socio-economic impacts and remedial measures

 2

3

Section D. Environmental impacts of the proposed project

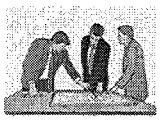
 3

4

Environmental impacts

■ The section has mainly 2 purposes:

- ◆ Environmental due diligence of the proposed project
  - Negative impacts? → EIA may be necessary
- ◆ Analysis of environmental impacts
  - Even if you do not need to conduct EIA, you still need to analyze impacts



■ Gov can check validity of PPs statements

 4

5

Environmental impacts - DD

- ◆ Environmental due diligence of the proposed project
  - PPs need to check that their project complies with national laws and regulations
  - If negative impacts are considered to be significant by PPs or the host party

→ Environmental impact assessment has to be conducted according to the requirements by the host party

- The results of the EIA and its approval by a relevant authority (if available) need to be presented to a DOE at the time of validation

 5

6

Environmental impacts - DD

■PPs could conduct due diligence on the following things:

✓AR CDM involves land use change
◆ Land conversion is allowed on the proposed land?
◆ Are there any sensitive areas?
◆ Are there endangered spp?

✓AR CDM involves tree planting
◆Are the spp for the project allowed to be used?
→ Some countries do not allow certain spp
◆Are there any sensitive areas?

7

Environmental impacts Analysis

■ D.1. Provide analysis of the environmental impacts, including transboundary impacts:
◆PPs can include following information
- Impacts on biodiversity and natural ecosystems
  - Hydrology,
  - Soils,
  - Risk of fires,
  - Pests and diseases
- Relevant documentation should be attached to the PDD
- Transboundary impacts: impacts outside the project boundary of the proposed project

8

D.1. Analysis of environmental impacts

■ Analysis of the environmental impacts:
◆AR CDM by nature would seldom result in negative impacts:
- PPs normally claim environmental benefits:
  - Prevention of soil erosion
  - Creating habitat for wildlife
  - Watershed conservation (could have positive transboundary effects to down stream)
  - Micro-climate stabilization, etc

9

D.1. Analysis of environmental impacts

■ Analysis of the environmental impacts:
- You could also include risks associated with the project:
  - Spp selection: if exotic spp are to be used, its impacts and counter-measures for the risk
  - Risk of fire: if the project site is near agricultural site, grazing site, certain counter-measures including capacity building, awareness raising, patrol system, fire breaks, watch tower etc can be mentioned
  - Pests and diseases: capacity building for early detection, regular patrolling, use of tolerant spp, designing diverse stand structure etc

10

D.2. Environmental Impact Assessment

■ If negative impacts are considered to be significant by PPs or the host party
→ Environmental impact assessment has to be conducted according to the requirements by the host party
- PPs need a statement that EIA has been undertaken including conclusions and all references to support documentation

11

D.3. Environmental Impact Assessment

■ Description of planned monitoring and remedial measures to address significant impacts referred to in section D.2.
◆ If risks or impacts are identified through EIA, PPs need to address monitoring of such impacts and remedial measures

12

2. Introduction and work on Section D, E &F

Dr. Promode Kant
Director, Institute of Climate Change and Ecology

Section D of PDD

Environmental impacts of the proposed small-scale A/R CDM project activity

1

D1-analysis of environmental impacts including transboundary impacts

- Both positive and negative, begin with positive
- Effect on sand dune shifting and advantage to the community
- Improving land fertility – good for the landowner himself
- Providing shelter to agri crops in vicinity
- Then possible negative effects and how project is dealing with them
- Disturbing soil – how it is proposed to be limited

2

- Fertilization – justify how it will not have significant effect – like only organic, limited in quantity, few applications etc
- Fire risk – will fire risk increase, if not how, if yes how it is reduced
- Invasives – no invasives will come thru project, if eucalyptus is being raised then what effect it might have on ground water table etc, how is the effect insignificant

3

D2 – EIA

- No EIA is required in general for SSC projects
- But if any significant effect is assessed likely by PP or DNA then EIA is required for that cause. Suppose it is assessed by PP/DNA that eucalyptus might cause water table depletion then go for EIA only for this

4

D3 – monitoring plan for likely future impacts

- If any negative effect is deemed likely by PP/DNA then a environment monitoring plan is to be provided

5

Section E of PDD

Socio-economic impacts of the proposed small-scale A/R CDM project activity

6

E1 - analysis of socio-economic impacts, including transboundary

- Both +ve & -ve, beginning with +ve
- increased incomes – better lives - +ve effect on social environment
- Sustainable firewood supply – its good social effect on women and girl child
- Social cohesion? Important to take the entire community otherwise aggrieved factions may oppose project

7

- Social well being with project bringing more facilities
- Better agri production bringing more food
- Technical training given during project to young people in community enhances their employability

Risks

- Are cultural resources threatened by project activities

8

- Will the project activities cause social imbalances as perceived by the society
- Are these temporary imbalances desirable? How? Do they help achieve gender equity, enhance education and health of women, girl child/
- How poor pest and fire control in project can cause damage to agri crops and how it is proposed to be prevented

9

E2,3 – Social Impact Assessment and Monitoring

- SIA necessary only if significant negative socio economic fallout of project assessed likely by PP/DNA
- If so then go for SIA only for those aspects that may have negative effect and a plan how it is to be addressed
- And then a monitoring plan is needed

10

Section F of PDD

Stakeholders participation

11

F1 –how stakeholders included

PRA conducted for

- To know the aspirations of the participants from AR-CDM project activities & identify project participants
- To evaluate the eligibility of the lands under the project area
- To analyze the potentiality of additionality and leakage in the project area
- To identify the discrete land parcels to be included under the project area
- To explore the crop productivity, grazing pattern, climate & other relevant points
- To know the income sources of the project participants and study the socio-economic conditions of the households and the communities
- To collect field data on individual land details and cattle holdings of the project participants

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Tools used

- A series of open meetings were conducted by using the following tools:
- • Semi-structured interviewing
- • Focus group discussions
- • Village and resource Mapping
- • Seasonal /crop cycle mapping
- • Timeline analysis
- • Transect walk

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- ***Land eligibility:*** *Villagers were asked about their proposed land status, whether it was a forest area, and if so,* since when?
- ***Grazing for leakage criteria:*** *Villagers were specifically asked about grazing of their cattle in the proposed* land and also any grazing by migratory cattle from adjoining areas.
- ***Agriculture:*** *Villagers were asked about the agriculture of crop in their proposed land, which are degraded* sand dune areas.
- ***Time line and history tracing:*** *Villagers were asked to elaborate about their areas and record any* developmental activities in their areas since 1940.
- ***Income:*** *land and cattle holding data collected by the field staff was cross-checked with the individual* participants and the participants were interviewed about the productivity and yield of their lands.
- ***Alternative to land:*** *Villagers were asked to tell whether they have any other alternatives available for the* project lands
- ***Species choice:*** *Villagers were asked to tell about the choice of tree species selected for planting*
- ***Seasonality of crops:*** *Villagers were requested to prepare a crop cycle map showing seasonality of various* crops in their area.

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F2 – summary the views

- **Farmers' understanding on CDM & its benefits**
- **Acceptance of CDM activities, byelaws**
- **Resource Inventory**
- **Land & water**
- **Vegetation Cover**
- **Crops**
- **Livestock and grazing**
- **Living standards**

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- Some key remarks of community members were quoted directly
- NGO's comments were recorded on environmental and social issues

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F3- how comments were incorporated in project

- Society byelaws and administrative structure adopted in consonance with their views
- Participation on a voluntary basis after they fully understood various aspects of the CDM project like benefits, sharing etc
- Preferences of farmers were taken into account in the selection of tree species, which are of economic and ecological importance for the local people;
- Farmers agreed to use chemical pesticides very sparingly.

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Thank you

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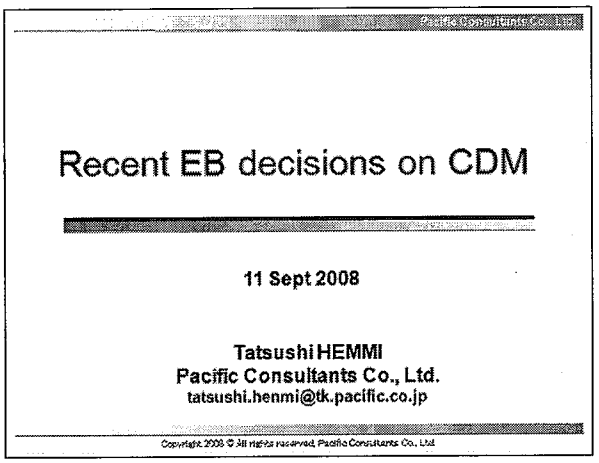
3. Recent EB decision on CDM

Mr. Tatsushi HEMMI
Pacific Consultants Co. Japan



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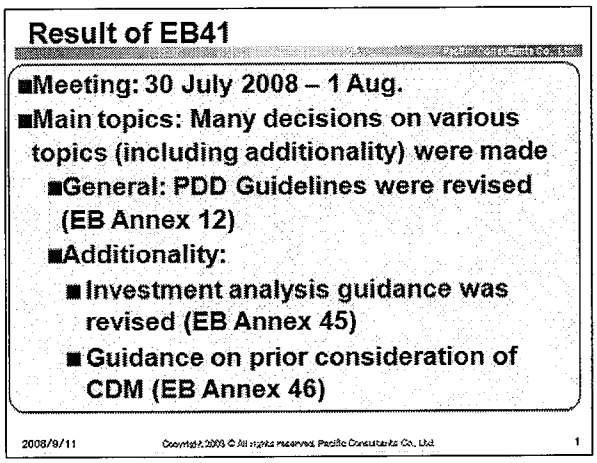

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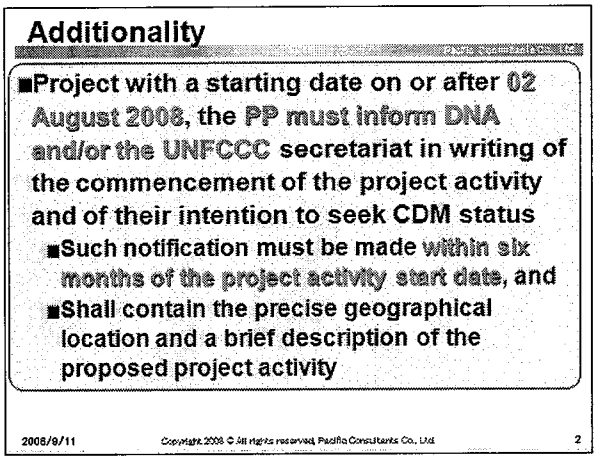

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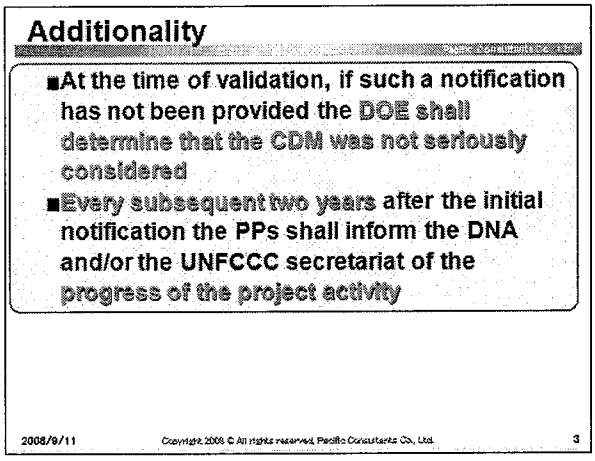

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4. Overview of Section E

Mr. Tatsushi HEMMI
Pacific Consultants Co. Japan

Overview of Section E

11 Sept 2008

Tatsushi HEMMI
Pacific Consultants Co., Ltd.
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1

Overview of PDD

2

Structure of the PDD for SS AR

■ PDD (Project Design Document)

Section	Title	Description
A.	General description of the proposed small-scale A/R CDM project activity	Purpose of the project, SD contribution, technical info, land tenure, eligibility of land, choice of CERs (tCERs or lCERs)
B.	Application of a baseline and monitoring methodology	Choice of methodology, GHGs, carbon pools, additionality, monitoring, leakage, QA/QC
C.	Estimation of the net anthropogenic GHG removals by sinks	net anthropogenic GHG removals = actual net GHG removals - baseline net GHG removals - Leakage
D.	Environmental impacts of the proposed small-scale A/R CDM project activity	Description of environmental impacts (if EIA is necessary, PP needs to conduct it) and remedial measures
E.	Socio-economic impacts of the proposed small-scale A/R CDM project activity	Description of socio-economic impacts and remedial measures

3

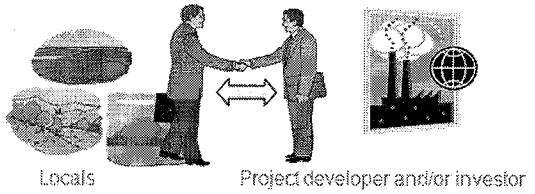
Section E. Socio-economic impacts of the proposed project

4

Socio-economic impacts

■ EB wants to make sure that the project would not cause negative socio-economic impacts

→ Land disputes and other social issues can be seen when developing plantation projects



Locals Project developer and/or investor

→ PPs should demonstrate that the project is undertaken following adequate procedures

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Socio-economic impacts

◆ PPs give analysis on Socio-economic impacts in Section E.

◆ The result of Section E. will be further checked in Section F (Stakeholders' comments) by actual input from locals

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E.1. Socio-economic impacts

- E.1. Provide analysis of the socio-economic impacts, including transboundary impacts:
  - PPs can include following information
    - local communities,
    - indigenous peoples,
    - land tenure,
    - local employment,
    - food production,
    - cultural and religious sites,
    - access to fuelwood and other forest products

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E.1. Socio-economic impacts

- Analysis of the socio-economic impacts:
  - PPs should describe socio-economic imapcts through quantitative and qualitative data taken from surveys etc. For example, PPs can include following information:
    - local employment: the project employs X number of local people

	Nursery	Site prep	Planting	Weeding	….	Total
Village A	2	10	15	5	…	…
Village B	2	5	8	4	…	…
Village C	2	8	20	8	…	…

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E.1. Socio-economic impacts

- Analysis of the socio-economic impacts:
  - Through employment
    - Income that locals receive from the project
      - Nursery: XXUSD/month
      - Field worker: XXUSD/month
      - Forest technician: XXUSD/month
  - Through timber/non-timber forest products
    - Fuelwood, fruit, fodder, etc
  - Capacity building/training for locals

 8

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E.1. Socio-economic impacts

- Analysis of the socio-economic impacts:
  - You could also include risks associated with the project :
    - Social risk
      - Land tenure
      - Land dispute
      - Minority
    - Economic risk
      - Normally implementation of the project would reduce the risk: job creation, animal fodder, fuelwood collection, etc
      - If the project displaces population, certain land use these could lead to economic risks

 9

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E.2. Socio-economic Impact Assessment

- If negative impacts are considered to be significant by PPs or the host party

→ Socio-economic impact assessment has to be conducted according to the requirements by the host party

- PPs need a statement that socio-economic impact assessment has been undertaken including conclusions and all references to support documentation

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E.3. Socio-economic impact assessment

- Description of planned monitoring and remedial measures to address significant impacts referred to in section E.2.
  - If impacts are identified through socio-economic impact assessment, PPs need to address monitoring of such impacts and remedial measures

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5.5 Presentation materials of Day 5

Presentations on Prepared PDDs

Session 8. Presentation on Prepared PDDs by country groups

1. Country Presentations

① Cambodia

CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM for SMALL-SCALE afforestation and reforestation project activities (CDM Version 02)

CONTENTS

Annexes

Section A. General description of the proposed small-scale A/R CDM project activity

A.1. Title of the proposed small-scale A/R CDM project activity

>> Small Scale Cooperative reforestation CDM Pilot Project Activity on public Lands Affected by Shifting in Chi Phat commune, Thmor Bang Distract, Koh Kong province, Cambodia.

Version 1.0 / 09-Sep-08

A.2. Description of the proposed small-scale A/R CDM project activity

>> Project provide an opportunity for the people of Chi Phat Commune (Koh Kong Province, Cambodia)to reforest and thereby to restore the ecological function of a 320 hectares grassland areas of surface area thought reforestation and community-based forest management. Planted forest will provide timber, poles, fuel wood, and wildlife's habitat, will restore hydrological function of the mountain valleys to again provide water to agriculture at domestic use in the villages. The communities will be assisted to establish and strengthen local institutions for natural resource management, within the involving framework of Cambodia law, regulation and best practice.

At the end of the project, a number of communities in the project area will have community forestry agreements in place under the community forestry Guidelines and will be managing their resources under a community forestry management plan.

Significantly, the project will promotes re-establishment of the forest ecosystem services (water resources, wildlife) which can improve the economic attractiveness of maintaining the forest resource base.

The purpose of the small-scale A/R CDM project activity in Chi Phat commune, Koh Kong province; are as follows.

- To reduce greenhouse gas emissions by sinks of CO2.
- To promote the involvement of the low income community to preserve natural forest resources and biodiversity.
- To increase the standard of living of the rural population living in the project area, through a community based sustainable management of the planted forest and of the other natural resources.

A.3. Project participants

【Table A-1】 Project participants

Name of Party involved (*) ((host) indicates a host Party)	Private and/or public entity (ies) project participants (*) (as applicable)	Indicate if the Party involved wishes to be considered as a project participant (Yes/No)
Cambodia	Chi Phat Commune, Thmor Bang Distract, Koh Kong province,	Yes
(*) At the time of making the CDM-SSC-AR-PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting registration, the approval by the Party(ies) involved is required.		

A.4. Description of location and boundary of the small-scale A/R CDM project activity

>> The location and boundary of the proposed small scale A/R CDM project activity is described in the following subsections.

A.4.1. Location of the proposed small-scale A/R CDM project activity

A.4.1.1. Host Party(ies)

>> Cambodia

A.4.1.2. Region/State/Province etc.

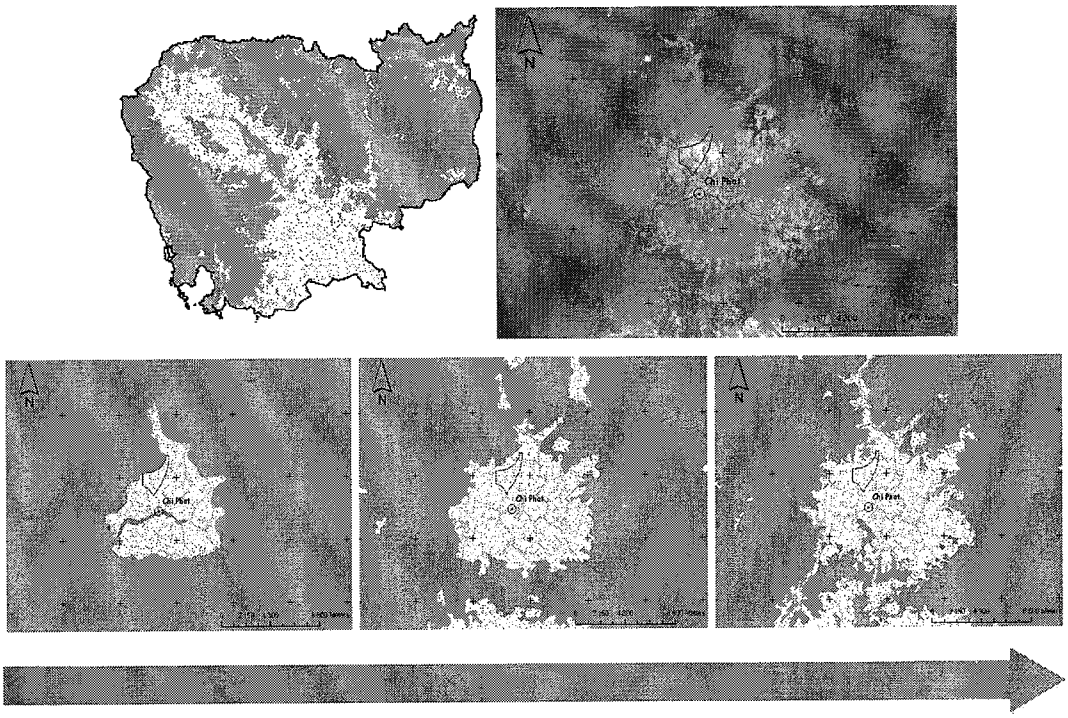
>> Koh Kong Province

A.4.1.3. City/Town/Community etc.

>> The project area covers five villages falling under Thmor Bang District, Koh kong Province.

A.4.2. Detail of geographical location and project boundary, including information allowing the unique identification(s) of the proposed small-scale A/R CDM project activity:

>> The proposed small scale A/R CDM project activity is located in Chi Phat Commune, Thmor Bang Distract, Koh Kong Province, which is 225 km, west of Phnom Penh City. The land to be planted is the proposed small scale A/R CDM project activity are comprise of 320ha of land. the geographical axis, measured using GPS. Please see the map below.



<Fig A.1> The map of project area.

A.5. Technical description of the small-scale A/R CDM project activity

>> Technical issues of the proposed small-scale A/R CDM project activity are described in detail in subsections below.

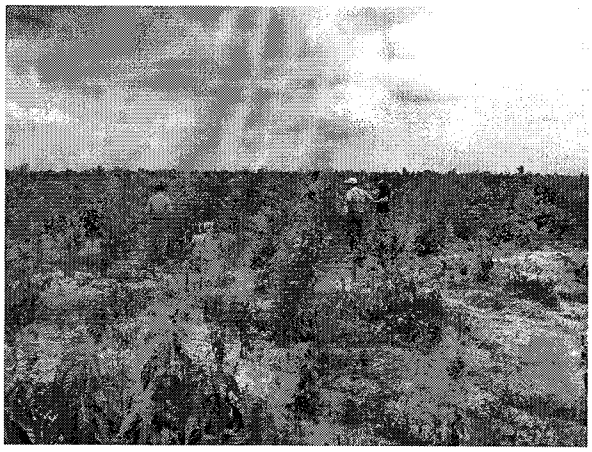
A.5.1. Type(s) of small-scale A/R CDM project activity

>> The project lands are grassland. Based on the Decision 6/CMP.1, titled "Simplified modalities and procedures for small-scale afforestation reforestation project activities under the clean development mechanism in the first commitment period of the Kyoto Protocol and measures to facilitate their implementation", the proposed small-scale A/R CDM project activity belongs to the type "grassland to forested land".

A.5.2. A concise description of present environmental conditions of the area, which include information on climate, soils, main watershed, ecosystems, and the possible presence of rare or endangered species and their habitats:

>> The project area, located in the west of Phnom Penh city. having been affected by storm, a degraded grassland. The region is affected by storm, into the atmosphere and polluting the surrounding areas. The climate is arid, characterized by dryness and extremes of temperature. The mean daily maximum temperature during May to November , which is

the rainy period, varies from 18° C to 31° C and summer temperature ranges between 27° C to 36° C. Precipitation is very low with average annual rainfall ranging between 2000-3000 mm. All these factors contribute to occurrence of flood in the area in winter.



A.5.3. Species and varieties selected

>> The chosen species are (Fast growing commercial species: Eucalyptus, Acacia sp, and native species local species: Anisoptera costata, Aquliaria crassna, and Dipterocarpus sp)

A.5.4. Technology to be employed by the proposed small-scale A/R CDM project activity

>> The technology to be employed under this pilot project is reforestation throughdirect planting of chosen species. Environment friendly technologies like use of natural fertilizer. National and international forestry experts will also be consulted for this purpose but there will be no transfer of technology from an Annex 1 country to the Host country.

To conserve the soil carbon stock and minimize the GHG emissions from the soil, zero tillage will be practiced. Existing vegetation will not be removed and small pits of size 45 cm x 45 cm x 45 cm will be dug. In the first two years castor crop etc will be grown by dibbling seeds without tilling of land thus ensuring that the land over which soil disturbance is caused due to both tree planting and castor growing will be less than 3% of the total project area. The planting material will be provided by Forestry Administration from their nurseries established in the project villages. The saplings will be raised in plastic containers, containing an appropriate mixture of soil & natural fertilizer to ensure healthy and robust initial growth. The species are divided into two categories, short rotation species and long rotation species in the ratio of 4:6. This proportion will ensure regular flow of financial benefit to the farmers.

Acacia seedlings raised in nursery, a spacing of 3 m x 2 m will be maintained in the

plantation (1,650 trees per hectare) and re-planting will be taken up to fill up casualties. Planting will be done in blocks to maximize economic benefits. The harvesting of trees shall be done at the intervals of 10 and 12 years.

The design of plantation differs from one parcel of land to other. It was selected by the individual farmers according to their choice of species at the time of committing the lands for the proposed small-scale A/R CDM project activity.

A.5.5. Transfer of technology/know-how, if applicable

>> No technology will be transferred to the host country in Cambodia.

A.5.6. Proposed measures to be implemented to minimize potential leakage as applicable

>> It has been ensured that the villagers contribute only small portions of their lands that are degraded and degrading and are unproductive and they do not rely on these lands for their livelihood; so that the leakages due to the displacement of activities are unlikely to occur. Though the simplified baseline and monitoring methodologies applied in the proposed small-scale A/R CDM project activity does not require emissions from transportation to be accounted under leakage, to minimize potential leakages bullock carts would be used to transport materials to and from the project area as much as possible.

A.6. A description of legal title to the land, current land tenure and land use and rights to tCERs / lCERs issued

>> The proposed project lands are owned by Government. Current land use is grassland. All the timber, non-wood products and carbon credits produced by the proposed small-scale A/R CDM project activity will be owned by the Forestry Administration who have the legal title to the lands.

In Cambodia, there is no specific existing regulation on the rights to carbon credits. All benefits accruing from the project including the CERs belong to the Forestry Administration of the land.

A.7. Assessment of the eligibility of land

>> The Cambodia Government defines forests as lands having trees with:

- A minimum area of 0.5 hectares up;
- A minimum tree crown cover of 10% up; and
- Trees height of minimum is 5 meters up.

A.8. Approach for addressing non-permanence

>> Please select between:

- [√] Issuance of tCERs
- [ ] Issuance of lCERs

A.9. Duration of the proposed small-scale A/R CDM project activity / Crediting period

>> The choice will depend on species rotation period. For growing species 12 years can be sufficient. For the slow growing species more time will be necessary to sequester carbon.

A.9.1. Starting date of the proposed small-scale A/R CDM project activity and of the (first) crediting period, including a justification

>> The proposed small-scale A/R CDM project activity and its crediting period would start from 01/10/2008, for which Forestry Administration would start establishing nurseries from January- February-2009. The actual plantation work will start from July 2009, because during this time, monsoon rains will increase the soil moisture content and would ensure survival of the saplings.

A.9.2. Expected operational lifetime of the proposed small-scale A/R CDM project activity

>> 40 years

A.9.3. Choice of crediting period and related information

>> Please select one of the following:

1. Renewable crediting period [√]
2. Fixed Crediting period [ ]

A.9.3.1. Duration of the first crediting period (in years and months), if a renewable crediting period is selected

>> 12 years 00 month.

A.9.3.2. Duration of the fixed crediting period (in years and months), if selected

>> N/A

A.10. Estimated amount of net anthropogenic GHG removals by sinks over the chosen crediting period

>> The net anthropogenic GHG removals by the sinks as a result of the proposed small-scale A/R CDM

- project activity are anticipated to be 1171.414 tones's of CO2 equivalent during the crediting period (from 2009 to 2020). The details are given below:
- Please provide the total estimation of net anthropogenic GHG removals by sinks as well as annual estimates for the chosen crediting period. Information on the netanthropogenic GHG removals by sinks shall be indicated using the following tabular format.

Years	Annual estimation of net anthropogenic GHG removals by sinks in tonnes of CO2 e
2009	0
2010	17748.71
2011	35497.41
2012	53246.12
2013	70994.83
2014	88743.54
2015	106492.20
2016	124241.00
2017	141989.70
2018	159738.40
2019	177487.10
2020	195235.80
Total estimated net anthropogenic GHG removals by sinks (tonnes of CO2e)	1,171,414.67
Total number of crediting years	12
Annual average over the crediting period of estimated net anthropogenic GHG removals by sinks (tonnes of CO2e)	97,617.88

A.11. Public funding of the proposed small-scale A/R CDM project activity

>> There will be no public funding in the proposed small-scale A/R CDM project activity that will result in the diversion of Official Development Assistance and financial obligations of any Parties under UNFCCC.

A.12. Confirmation that the small-scale A/R CDM project activity is not a deluded component of a larger project activity

>> There is no registered small-scale A/R CDM project activity and no application to register another small-scale CDM project activity. Therefore the proposed small-scale A/R CDM project activity is not a deluded component of a larger project activity.

Section B. Application of a baseline and monitoring methodology

B.1. Title and reference of the approved baseline and monitoring methodology applied to the proposed small-scale A/R CDM project activity

>> Simplified baseline and monitoring methodologies for small-scale afforestation and reforestation project activities under the clean development mechanism implemented on grasslands or croplands AR-AMS0001 (AR-AMS0001 / Version 04.1).

B.2. Justification of the applicability of the baseline and monitoring methodology to the proposed small-scale A/R CDM project activity

>> The applicability conditions laid down in the Simplified baseline and monitoring methodologies for small-scale afforestation and reforestation project activities under the Clean Development Mechanism implemented on grasslands (AR-AMS0001 / Version 04.1) are :

a) Project activities are implemented on grasslands;

b) Project activities are implemented on lands where the area of the grassland within the project boundary displaced due to the project activity is less than 50 per cent of the total project area;

c) Project activities are implemented on lands where the number of displaced grazing animals is less than 50 per cent of the average grazing capacity of the project area;

d) Project activities are implemented on lands where $\leq$ 10% of the total surface project area is disturbed as result of soil preparation for planting.

These applicability conditions are fulfilled as given below.

a) The project area is located in the Chit Phat commnu, Thmor Bang district, Koh Kong Province and 225km west of Phnom Penh. The area is severely affected by shifting cultivation. The project area comprises of 320 hectares of highly degraded and degrading grassland, which is generally left fallow.

b) The farmers have contributed only a small portion of their lands which is degraded and degrading and they do not rely on these lands for their livelihood since these lands are unproductive.

B.3. Specification of the greenhouse gases (GHG) whose emissions will be part of the proposed small-scale A/R CDM project activity

>> The greenhouse gases that will be a part of project emissions are CO2.These emissions are estimated to be strong based on preliminarily estimation.

B.4. Carbon pools selected

>> Based on the simplified baseline and monitoring methodology applied by the proposed small-scale A/R CDM project activity, the aboveground and belowground biomass (living biomass) are the only carbon pools to be considered.

Carbon pools	Selected(answer with yes or no)
Above ground	Yes
Below ground	Yes
Dead wood	No
Litter	No
Soil organic carbon	No

B.5. Description of strata applied for ex ante estimations

>> No stratification has been done for the ex-ante baseline estimation since the climate, landform, soil conditions influencing carbon stocks, in accordance with Section 4.3.3.2 of the IPCC GPG for LULUCF, are largely similar over the entire project area. Also the method adopted for baseline estimation is total count rather than sampling.

For the ex-ante estimation of the carbon stocks in the project area the climate, landform, soil conditions, and reforestation activity, including planting density and age, being same throughout the project area, the project lands have been stratified into seven project strata based on species alone. Each species represents one stratum.

B.6. Application of baseline methodology to the proposed small-scale A/R CDM project activity

>> The baseline approach "Existing or historical, as applicable, changes in carbon stock in the carbon pools within the project boundary", is the most appropriate approach for determination of the baseline scenario since due to the degraded and degrading nature of the project lands caused by the shifting cultivation, the poor condition of landowners and

the very high cost of raising and maintaining trees on such lands, the lands to be reforested, without the proposed small-scale A/R CDM project activity, would continue to remain in their present status. The efforts of the Forestry Administration to encourage the farmers to promote tree planting under their social forestry, farm forestry and community forestry programs over the past 40 years, generally considered successful in achieving their objectives in the neighboring lands, have not been successful inraising trees on the project lands on account of the exceptionally degraded nature of these lands. The baseline approach "The most likely land use would be continued current land use" also carries the same meanings in this context.

The baseline approach "Changes in carbon stocks in the carbon pools within the project boundary from a land use that represents an economically attractive course of action"is not appropriate because there is no economically more attractive alternative to the current status of these lands unless CDM finance is available. The carbon stock in the living biomass pools of woody perennials and grasslands is expected to decrease in the absence of the proposed small-scale A/R CDM project activity, and is conservatively assumed to be constant. However due to the continuous growth of the pre-project trees in the baseline scenario, the baseline net GHG removals by sinks is calculated as the increase in carbon stock in living biomass of the pre-project living trees even though most of these living trees are mature. In the above case, the baseline carbon stocks in the carbons pools equal to existing carbon stocks at the start of the proposed small-scale A/R CDM project activity.

B.7. Description of how the actual net GHG removals by sinks are increased above those that would have occurred in the absence of the registered small-scale A/R CDM project activity

>> The condition of additionality has been fulfilled as no tree planting activity with comparable sequestration capacity would have been taken up on the project lands in the absence of the project due to the non-viability of such an activity on account of the degraded and degrading nature of these lands. The Community Forestry Project of the Forestry Administration has been very active in this area targeting pubic lands in the past years but the lands in question were not taken up for tree plantation under the project for the same reason. Thus the project lands would not have been taken up for tree planting in the baseline scenario.

B.8. Application of monitoring methodology and monitoring plan to the small-scale A/R CDM project activity

>> In accordance with the decision 6/CMP.1, appendix B, paragraph 6, no monitoring of the

baseline is required for small-scale A/R CDM project activity. The baseline net GHG removals by sinks will be assumed to be those estimated in section C.1 below.

B.8.1. Data to be monitored: Monitoring of the actual net GHG removals by sinks and leakage.

>> No idea.

B.8.1.1. Actual net GHG removals by sinks data

B.8.1.1.1. Data to be collected or used in order to monitor the verifiable changes in carbon stock in the carbon pools within the project boundary resulting from the proposed small-scale A/R CDM project activity, and how this data will be archived

Data variable	Source of data	Data unit	Measured (m), calculated (c) or estimated (e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic / paper)	Comment
N/A	-	-	-	-	-	-	-
N/A	-	-	-	-	-	-	-

B.8.1.2. Data for monitoring of leakage (if applicable)

>> Although the leakage is unlikely to occur, leakages will still be monitored through participatory method through the assessment of displacement of people, agriculture production, fuelwood, timber and grazing.

B.8.1.2.1. If applicable, please describe the data and information that will be collected in order to monitor leakage of the proposed small-scale A/R CDM project activity

Data variable	Source of data	Data unit	Measured (m), calculated (c) or estimated (e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic / paper)	Comment
N/A	-	-	-	-	-	-	-
N/A	-	-	-	-	-	-	-

B.8.2. Describe briefly the proposed quality control (QC) and quality assurance (QA) procedures that will be applied to monitor actual GHG removals by sinks

>> A rigid quality control and quality assurance (QA/QC) method involving Standard Operating Procedures to ensure the (i) reliability of collection of field measurements, (ii) verification

of the methods used to collect field data, (iii) verification of data entry and analysis techniques, (iv) verification of data maintenance and archiving and (v) upgrading of electronic data with technological changing.

B.8.3. Please describe briefly the operational and management structure(s) that the project operator will implement in order to monitor actual GHG removals by sinks by the proposed small-scale A/R CDM project activity

>> The Society is implement the proposed small-scale A/R project, under the guidance of the Forestry administration. The Forestry administration shall provide all needed technical help including training to the persons selected by the Society and facilitate consultation with other experts wherever such consultations become necessary.

The Chief of cantonment shall also coordinate the measuring and monitoring of the actual GHG removals by sinks and any leakage generated by the proposed small-scale A/R CDM project activities. Any activity data and monitoring and measuring data will be reported to and archived in the Forestry Administration.

B.9. Date of completion of the baseline study and the name of person(s)/entity(ies) determining the baseline and the monitoring methodology:

>> Date of completion of the baseline study: 01/10/2008

- khun vathana (khun_vathana@yahoo.com) Forestry Administration, Ministry of Agriculture, Forestry and Fisheries.
- Climate change and innovation finical division.
- Ung Sam Ath (ung_samanh@yahoo.com)
- Seng Sun Narun (narunrath@yahoo.com

Section C. Estimation of ex ante net anthropogenic GHG removals by sinks

C.1. Estimated baseline net GHG removals by sinks:

>> No, idea.

C.2. Estimate of the actual net GHG removals by sinks:

>> No, idea.

C.3. Estimated leakage:

>> No, idea.

C.4. The sum of C. 2. minus C.1. minus C.3. representing the net anthropogenic GHG removals by sinks of the proposed small-scale A/R CDM project activity:

>> No, idea.

C.5. Table providing values obtained when applying equations from the approved methodology

>> No, idea.

The result of the application of equations from approved methodology above shall be indicated using the following tabular format:

Year	Estimation of baseline net GHG removals by sinks (tonnes of CO2 e)	Estimation of actual net GHG removals by sinks (tonnes of CO2 e)	Estimation of leakage (tonnes of CO2 e)	Estimation of net anthropogenic GHG removals by sinks (tonnes of CO2 e)
Year A				
Year B				
Year C				
Year ...				
Total (tonnes of CO2e)				

Section D. Environmental impacts of the proposed small-scale A/R CDM project activity

D.1. Provide analysis of the environmental impacts, including transboundary impacts (if any)

>> The proposed small-scale A/R CDM project activity is expected to have the following environmental impacts through its reforestation activities:

- Carbon sequestration
- Soil erosion and hydrographic protection
- Biodiversity conservation with expansion of natural habitats
- Decrease of pressure on Natural Forest (response to local needs in wood).
- Reducing migrant forest encroachment

D.2. If any negative impact is considered significant by the project participants or the host Party, a statement that project participants have undertaken an environmental impact assessment, in accordance with the procedures required by the host Party, including conclusions and all references to support documentation

>> Environmental Impact Assessment (EIA) is not required for the proposed small-scale A/R CDM project activity, since this project does not have any significant negative impacts on the environment.

D.3. Description of planned monitoring and remedial measures to address significant impacts referred to in section D.2. above:

>> Not applicable

Section E. Socio-economic impacts of the proposed small-scale A/R CDM project activity:

E.1. Provide analysis of the socio-economic impacts, including transboundary impacts (if any):

>> No, idea.

E.2. If any negative impact is considered significant by the project participants or the host Party, a statement that project participants have undertaken a socio-economic impact assessment, in accordance with the procedures required by the host Party, including conclusions and all references to support documentation:

>> There is no negative impact that is considered significant by the project participants or the host party.

E.3. Description of planned monitoring and remedial measures to address significant impacts referred to in section E.2. above:

>> N/A

Section F. Stakeholders' comments

F.1. Brief description of how comments by local stakeholders have been invited and compiled:

>> To collect the relevant information for the 'Small Scale Cooperative reforestation CDM Pilot Project Activity on Public Lands Affected by Shifting cultivation in Chi Phat commune, Thom bang, a series of PRA exercise was conducted. The main objectives of this PRA exercise were:

- To know the aspirations of the participants/villagers on small scale AR-CDM project activities & identify project participants
- To evaluate the eligibility of the lands under the project area
- To analyze the potentiality of additionality and leakage in the project area
- To identify the discrete parcels to be included under the project area
- To explore the crop productivity, grazing pattern, climate & other relevant points
- To know the income sources of the project participants and study the socio- economic conditions of the households and the communities in the eight villages.
- To collect field data on individual land details and cattle holdings of the project participants

F.2. Summary of the comments received:

>> Initially, a through discussion was made with the farmers on Clean Development Mechanism (CDM). It was stated that reforestation CDM project activities could be carried out if a certain amount of the land is degraded in nature or not suitable for growing profitable agricultural crops. The team stated that there could be several benefits, as given below from the proposed small-scale A/R CDM project activity -

- Growing timber or fruit crops in the degraded lands, which were otherwise, kept fallow and not utilized for agricultural practices;
- Earning Carbon Credit (CER); besides, conservation of land and environment, and development of local area.

F.3. Report on how due account was taken of any comments received:

>> No, idea.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROPOSED SMALL-SCALE A/R CDM PROJECT ACTIVITY

Organization:	Forestry Administration
Street/P.O.Box:	Preah Nrodom, Blvd
Building:	#40
City:	Phnom Penh
State/Region:	
Postfix/ZIP:	855
Country:	Cambodia
Telephone:	855-23 212201
FAX:	855-23 212201
E-Mail:	narunrath@yahoo.com
URL:	
Represented by:	H.E Ty Sokhun
Title:	Head of Forestry Administration
Salutation:	
Last Name:	Sokhun
Middle Name:	
First Name:	Ty
Department:	Forestry Administration, Ministry of Agriculture, Forestry and Fisheries
Mobile:	855-12 855777
Direct FAX:	855-23 212201
Direct tel:	855-23 212201
Personal E-Mail:	fadm20022002@yahoo.com

Annex 2. INFORMATION REGARDING PUBLIC FUNDING

Annex 3. DECLARATION ON LOW-INCOME COMMUNITIES

Please provide a written declaration that the proposed small-scale afforestation or reforestation project activity under the CDM is developed or implemented by low-income communities and individuals as determined by the host Party.

History of the document

Version	Date	Nature of revision
02	EB35, Annex19	• Sections A and B were restructured; • Requirement to repeat equations has been removed from section C; • Sections D and E have been aligned with the requirements of the Modalities and Procedures.
01	EB 23, Annexand 16(b) 24	Initial adoption

② China

CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM for SMALL-SCALE afforestation and reforestation project activities (CDM Version 02)

CONTENTS

Annexes

Section A. General description of the proposed small-scale A/R CDM project activity

A.1. Title of the proposed small-scale A/R CDM project activity

>> Title: Capacity Building for the Small-Scale Afforestation and Reforestation under the CDM in China

Version : 401 / Date: 08/09/2008

A.2. Description of the proposed small-scale A/R CDM project activity

>> The global climate has changed greatly (e.g., warming) over the past decades because improper human activities, including fossil fuel burning, deforestation, inappropriate land use, and land use change, cause great emission of greenhouse gas (GHG), See Fig.1 Problem Tree). To control the GHG emission, more than one hundred and fifty established the United Nations Framework Convention on Climate Change (UNFCCC) in May 1992, and then the Kyoto Protocol in December 1997. Chinabecame one of first parties of the UNFCCC. China also signed the Kyoto Protocol in May 1998, and approved it in August 2002.

Carbon sequestration has drawn considerable attention under the Protocol and in many cases those have been implemented in association with community development. In the first commitment period under the Protocol (2008 – 2012), forestry activities are limited to afforestation and reforestation. Besides the America, the carbon sequestration trade has started in China. The CDM forestry projects therefore present an opportunity to the rural communities who are heavily dependent on forest resources. Zhang et al. (2005, Scientia Silvae Sinicae, Vol. 41, No. 5) showed that the implementation of the A/R project on basis of the CDM is feasible in China, and that China is likely to take up 20% of the world market of CDM A/R projects. They suggested that China initiate the pilot A/R projects, and conduct relevant capacity building and policy and technical studies so as to enhance our competitiveness.

Trees are major components of the forest vegetation. In China, the tree exploitation plays an important role in forestry. However, the present exploitation of forests for harvesting timber and firewood, expanding agricultural land and other human activities have resulted in the destruction or degradation of forest land. If we do not implement sustainable projects such AR CDM, the forests will get worse. The CDM projects require that the forestry meet sustainable development criteria and ensure the generation of alternative sources of income for local communities. However, China is still being lacks of the

institutional and human capacity to guide the process and take advantage of the opportunities offered by the Protocol.

The primary goal of the project activities is environmental impact, but economic benefits should be fully considered. It is aimed at addressing these problems by conducting the capacity building relevant to the AR CDM program to achieve greenhouse gas emission reduction and sustainable forestry development in local communities. Its specific objectives are:

(1) to establish 200 ha study site in tropical region Longchuan of Guangdong Province for studying and then demonstrating CDM A/R techniques, including native tree breeding and planting; and

(2) to train forestry staff and rural communities in CDM A/R project techniques and to publish and disseminate these techniques.

The expected outputs of the project include:

(1) To establish and operate nurseries for collecting and breeding native tree species;

(2) To select fifty native species (including five non-timber product species) and to conduct reforestation trials;

(3) To train one hundred government staff and villagers in CDM A/R techniques; and

(4) To publish and disseminate CDM A/R techniques.

(5) Average net anthropogenic GHG removals by sink is about 5362 tons of CO2 per year. Total number of crediting period is 30 years.

Project will located at Longchuan County, Guangdong Province, south China with total area of 200ha, The participants will be included famers and communities

Reforestation will be chosen as type of forestation.

Sustainable development (SD) contribution of the project:

In environmental aspects, it will promote effectively on: 1) Enhancing biodiversity and ecosystem integrity; 2) Controlling soil erosion; 3) Regulating hydrological flows which in turn alleviates drought risk and reduces flooding risks, 4) Landscape conservation; 5) Improving watershed conservation etc.

In Social aspects, 1) Demonstration for the implementation of forest carbon sequestration project in China; 2) Building incentives to people to invest in sustainable land use; 2) Job creation; 3) Capacity building of forest management; 4) Contributing to the outside of the project boundary etc.

In economic aspects, can create 90 thousands USD of income form non-timber products for the locals. Local farmers after five years implementation of project.

A.3. Project participants

Name of Party involved (*) ((host) indicates a host Party)	Private and/or public entity(ies) project participants (*) (as applicable)	Indicate if the Party involved wishes to be considered as a project participant (Yes/No)
P.R China (host)	Guangdong Academyof Forestry (GAF),	No
(*) At the time of makingthe CDM-SSC-AR-PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting registration, the approval by the Party(ies) involved is required.		

A.4. Description of location and boundary of the small-scale A/R CDM project activity

>> The location and boundary of the proposed small scale A/R CDM project activity is described in the following subsections

A.4.1. Location of the proposed small-scale A/R CDM project activity

A.4.1.1. Host Party(ies)

>> P. R. China

A.4.1.2. Region/State/Province etc.

>> Guangdong Province

A.4.1.3. City/Town/Community etc.

>> Longchuan County, Heyuan City

A.4.2. Detail of geographical location and project boundary, including information allowing the unique identification(s) of the proposed small-scale A/R CDM project activity:

>> Longchuan County (geographical location 24.101 N, 115.2539 E, average elevation 370 m) is located in southeastern Guangdong Province. It belongs to the upper reaches of the Dongjiang River and Hanjiang River.

A.5. Technical description of the small-scale A/R CDM project activity

>> Technical issues of the proposed small-scale A/R CDM project activity are described in detail in subsections below:

A.5.1. Type(s) of small-scale A/R CDM project activity

>> The project lands are deforested land, AR-AMS0001——Simplified baseline and monitoring methodologies for selected small-scale afforestation and reforestation project activities under the clean development mechanism will be employed.

A.5.2. A concise description of present environmental conditions of the area, which include information on climate, soils, main watershed, ecosystems, and the possible presence of rare or endangered species and their habitats:

>> Longchuan County in Guangdong Province, China, belongs to tropical monsoon climate with annual air temperature 21.8℃, rainfall 1501.8 mm, relative humidity 78% on the average. The main watersheds are ones of the Dongjiang River and Hanjiang River. The original vegetation types include monsoon rainforest, and monsoon evergreen broad-leaved forest. However, due to the movements (one in 1958 to 1959 (for nationalsteel and iron-making movement, and other in 1983 (caused by the changing of land ownership), two large scale deforestations was happened, the forests had been completed damaged. The County distributes with yellow, red and latosolic red soil with low pH 4.8.

A.5.3. Species and varieties selected

>> Tree species to be used for planting have been determined by interviewing the farmers and taking into consideration of carbon sequestration rates, biodiversity enhancement, soil and climate conditions, and the value of associated forest products. The tree species selected including two categories, arbour species and non-timber product species. Forty five native (or zonal) species and five non-timber product species will be planted in the reforestation sites of the project. The chosen species are:

The species to be selected for reforestation

No.	Name of Species	Family/Genus
Native Species		
1	Acmena acuminatissima	Myrtaceae
2	Acrocarpus fraxinifolius	Caesalpiniaceae
3	Acronychia pedunculata	Rutaceae
4	Adenanthera paeonina	Mimosaceae
5	Aleurites moluccana	Euphorbiaceae
6	Alstonia scholaris	Dilleniaceae
7	Antidesma bunius	Euphorbiaceae
8	Aphanamixis grandifolia	Meliaceae
9	Artocarpus heterophyllus Lam.	Moraceae

No.	Name of Species	Family/Genus
10	Artocarpus nitidus	Moraceae
11	Bauhinia purpurea	Caesalpiniaceae
12	Bischofia javanica	Euphorbiaceae
13	Cassia fistula	Caesalpiniaceae
14	Cassia javanica	Caesalpiniaceae
15	Cassia surattensis	Caesalpiniaceae
16	Castanopsis fissa	Fagaceae
17	Castanopsis hystrisc	Fagaceae
18	Cerbera manghas	Apocynaceae
19	Chukrasia tabularis	Meliaceae
20	Cinnamomum burmanii	Lauraceae
21	Cinnamomum camphora	Lauraceae
22	Cleidiocarpon cavaleriei	Euphorbiaceae
23	Crateva formosensis	Capparaceae
24	Daibergia odorifera	Papilionaceae
25	Dolichandrone caudafelina	Bignoniaceae
26	Dracontomelon duperreanum	Anacardiaceae
27	Elaeocarpus apiculatus	Elaeocarpaceae
28	Elaeocarpus Chinesis	Elaeocarpaceae
29	Elaeocarpus decipiens Hemsl.	Elaeocarpaceae
30	Elaeocarpus hainanensis Oliver	Elaeocarpaceae
31	Elaeocarpus sylvestris	Elaeocarpaceae
32	Erythrophleum fordii	Caesalpiniaceae
33	Ficus religiosa	Moraceae
34	Garcinia oblongifolia	Guttiferae
35	Grevillea robusta	Proteaceae
36	Heritiera littoralis	Sterculiaceae
37	Heteropanax fragrans (Roxb.) Seem.	Araliaceae
38	Hopea hainanensis	Dipterocarpaceae
39	Khaya senegalensis	Meliaceae
40	Khodoleia championii Hook	Hamamelidaceae
41	Kigelia Africana	Bignoniaceae
42	Koelreuteria bipinnata Franch	Sapindaceae
43	Lagerstroemia speciosa	Lythraceae
44	Liquidambar formosana	Hamamelidaceae
45	Magnolia delavayi Franch.	Magnoliaceae
Non-timber Product Species		
1	Jatrophacurcas	
2	Camellia oleifera Abel	Theaceae
3	Eriobotrya japonica	Rosaceae
4	Litsea cubeba (Lour.) Pers	Lauraceae
5	Daemonorops margaritae	Palmae

A.5.4. Technology to be employed by the proposed small-scale A/R CDM project activity

>> The technology to be employed under this pilot project is afforestation through direct planting of chosen species. The achievements of ITTO PD 294/04 "The study and demonstration of the management of secondary forests in tropical regions for the purpose of enhancing economic and ecological benefits" will be used in reforestation of the project. And, Good practice guidance and successful national and international technologies, as well as experiences gained from the relative projects will also be adopted. Including:

(i) Super tree selection and collection.

(ii) Quality nursery stock breeding.

(iii) Reforestation.

(iv) Establishment and observation of fixed sample plots in the A/R site.

To conserve the soil carbon stock and minimize the GHG emissions from the soil, zero tillage will be practiced. Existing vegetation will not be removed and small pits of size 40 cm x 40 cm x 40 cm will be dug. The planting material will be provided by Guangdong Academy of Forestry from their nurseries established in the project region. A spacing of 3 m x 3 m will be maintained in the plantation (1,100 trees per hectare).

A.5.5. Transfer of technology/know-how, if applicable

>> Capacity building and training:

(i) Establishment of A/R CDM demonstration areas.

(ii) Training sessions for local communities.

A.5.6. Proposed measures to be implemented to minimize potential leakage as applicable

>> The A/R activities at our site will reduce potential leakage of carbon, but does not lead to leakage at other sites. The measures to be implemented are:

(1) Plant zonal tree species that have largest adaptation, regeneration,stability and productivity;

(2) Increase the local biodiversity to improve the fixation of CO2

(3) Decrease the use of the firewoodby local communities that can benefit from A/R activities through this project, ecological forest compensation, and carbon trade.]

A.6. A description of legal title to the land, current land tenure and land use and rights to tCERs / lCERs issued

>> The name of the property: Laolong Village

The land in the hands of the current owner: since 1958

There are 56 of people live within the boundary of the project activity, no small landowner is included.

The legal title to the land is the name of the PP. All carbon pools in a given piece of land are not owned by the same person. And the carbon pools are not included in the legal.

A.7. Assessment of the eligibility of land

>> The study site is located in low tropical zone, near the Tropic of Cancer. Here the climate is wet and warm, and the soil, partial to acidity, is not damaged. These conditions are suitable for the growth of most of tropical and subtropical trees, let alone zonal species originally.

A.8. Approach for addressing non-permanence

>> Please select between:

- [√] Issuance of tCERs
- [ ] Issuance of lCERs

A.9. Duration of the proposed small-scale A/R CDM project activity / Crediting period

>> Crediting period for this project will be 30 years, followed byissue of temporary Certified Emission Reduction (tCERs).

A.9.1. Starting date of the proposed small-scale A/R CDM project activity and of the (first) crediting period, including a justification

>> Starting date of the proposed small-scale AR CDM project activity is in January 2009 and of the first crediting period is form January 2009 to December 2038.

A.9.2. Expected operational lifetime of the proposed small-scale A/R CDM project activity

>> Ten years or more

A.9.3. Choice of crediting period and related information

>> Please select one of the following:

1. Renewable crediting period [ ]
2. Fixed Crediting period [√]

A.9.3.1. Duration of the first crediting period (in years and months), if a renewable crediting period is selected

A.9.3.2. Duration of the fixed crediting period (in years and months), if selected

>> 30 years

A.10. Estimated amount of net anthropogenic GHG removals by sinks over the chosen crediting period

>> Please provide the total estimation of net anthropogenic GHG removals by sinks as well as annual estimates for the chosen crediting period. Information on the net anthropogenic GHG removals by sinks shall be indicated using the following tabular format.

Years	Annual estimation of net anthropogenic GHG removals by sinks in tonnes of CO2
Year 2009	2744
Year 2010	4392
Year 2011	5490
.....	
Year 2038	5290
Total estimated net anthropogenic GHG removals by sinks (tonnes of CO2e)	160856
Total number of crediting years	30
Annual average over the crediting period of estimated net anthropogenic GHG removals by sinks (tonnes of CO2e)	5362

A.11. Public funding of the proposed small-scale A/R CDM project activity

>> There will be no public funding available in the proposed small-scale A/R CDM project activity.

A.12. Confirmation that the small-scale A/R CDM project activity is not a deluded component of a larger project activity

>> The proposed small-scale A/R CDM project activity is not a debundled component of a larger project activity.

Section B. Application of a baseline and monitoring methodology

B.1. Title and reference of the approved baseline and monitoring methodology applied to the proposed small-scale A/R CDM project activity

>> AR-AMS 0001 Simplified baseline and monitoring methodologies for small-scale A/R project activities under the CDM implemented on grasslands or croplands.

B.2. Justification of the applicability of the baseline and monitoring methodology to the proposed small-scale A/R CDM project activity

>> The project area comprises of 200 hectares of highly degraded and degrading forest lands. The farmers do not rely on these lands for their livelihood since these lands are unproductive. The land has low biodiversity, biomass and productivity. The degraded hilly grassland will be afforested by planting native species because they have large adaptation, regeneration, stability and productivity. After forestation, the land will gradually become zonal forest over succession, and therefore have increasing capability of fixing CO2.

The applicability conditions laid down in the Simplified baseline and monitoring methodologies for small-scale afforestation and reforestation project activities under the Clean Development Mechanism implemented on grasslands or croplands (AR-AMS0001 / Version 04.1).

A total of 1100 plants per ha will be planted in pits of the size 40 cm x 40 cm x 40cm. There will be no ploughing of land before the establishment of plantation. Thus the planting activities will lead to soil disturbance over less that 3 % of the surface area and hence the use of this Simplified Methodology is justified.

B.3. Specification of the greenhouse gases (GHG) whose emissions will be part of the proposed small-scale A/R CDM project activity

>> The greenhouse gases that will be a part of project emissions are N2O those result from soil respiration, i.e., the respiration of microorganisms and animals in soil. These emissions are estimated to be negligible based on preliminarily estimation. The spreadsheet for calculation of emissions shall be made available to the DOE during verification.

B.4. Carbon pools selected

Carbon pools	Selected(answer with yes or no)
Above ground	Yes
Below ground	Yes
Dead wood	No
Litter	No
Soil organic arbon	No

B.5. Description of strata applied for ex ante estimations

>> No stratification has been done for the ex-ante baseline estimation based on the landform, soil conditions influencing carbon stocks, in accordance with Section 4.3.3.2 of the IPCC GPG for LULUCF, are largely similar over the entire project area. Also the method adopted for baseline estimation is total count rather than sampling.

B.6. Application of baseline methodology to the proposed small-scale A/R CDM project activity

>> "Existing or historical, as applicable, changes in carbon stock in the carbon pools within the project boundary in the baseline approach", will be applied as determination of the baseline scenario since due to the degraded and degrading nature of the project lands caused by the artificial activity, the poor condition of landowners and the very high cost of raising for plantation on such lands. Without the proposed small-scale A/R CDM project activity, would continue to remain in their present status. The carbon stock in the living biomass pools of woody perennials and grasslands is expected to decrease in the absence of the proposed small-scale A/R CDM project activity, and is conservatively assumed to be constant.

B.7. Description of how the actual net GHG removals by sinks are increased above those that would have occurred in the absence of the registered small-scale A/R CDM project activity

>> The condition of additionality has been fulfilled as no tree planting activity with comparable sequestration capacity would have been taken up on the project lands in the absence of the project due to the non-viability of such an activity on account of the degraded and degrading nature of these lands. The barrier analyses as below.

Investment Barriers: Lack of access to credit. No credit mechanisms are in place for farmers to make long term investment in plantation forestry on degraded and degrading lands by taking commercial loans from banks. As a result they are not able to afford the high plantation costs particularly with the long gestation periods that forestry entails.

Technological barriers: The local farmers do not have an easy access to either the planting material or planting technologies as forestry is not their usual occupation. Guangdong Academy of Forestry has been able to spare resources for raising trees on these lands relying on their commitment to promotion of CDM afforestation on such lands.

B.8. Application of monitoring methodology and monitoring plan to the small-scale A/R CDM project activity

>> The monitoring methodologies are meant for ensuring the credibility of greenhouse gas (GHG) emission reductions caused by the small-scale A/R CDM project activities. After forestation, we will establish the observation stations and periodically monitor the changes of microclimate, CO2 concentration, tree growth and biomass in the forests.

Monitoring the overall performance of the project activities, including : i) actual project boundary; ii) the areas and quality of forest establishment to ensure the technical design; iii) described in section A is well-implemented; and iv) forest management. The project participants will determine any changes in carbon stocksvia measuring and monitoring the project area that has been planted. The monitoring will focus on: i) the project boundaries; and ii) the selected stratified sample plots. The stratification shall be based on the species planted and carbon sampling will take place within stratified project area. All sampling will be in accordance with the methods described in 4.3.3.4 of the IPCC GPG for LULUCF. This monitoring plan will be used throughout the project area and the crediting period. If at a later stage it isfound that the carbon stocks in some areas differ significantly from those in the same strata elsewhere, these areas will be assessed as a separate stratum.

B.8.1. Data to be monitored: Monitoring of the actual net GHG removals by sinks and leakage.

>> Permanent sampling plots are used for sampling over time to measure and monitor changes in carbon stocks of the relevant carbon pools. i) Systematic sampling with a random start position; ii) The total sum of samples (n) are estimated as per a criterion of Neyman of fixed levels of accuracy, according to Wenger (1984); iii) The size of plots will be 400 m2 (20m×20m).

B.8.1.1. Actual net GHG removals by sinks data

B.8.1.1.1. Data to be collected or used in order to monitor the verifiable changes in carbon stock in the carbon pools within the project boundary resulting from the proposed small-scale A/R CDM project activity, and how this data will be archived

Data variable	Source of data	Data unit	Measured m), calculated (c) or estimated(e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic / Paper)	Comment
Location of the areas where the project activity has been implemented	Field survey or cadastral information or aerial photographs or satellite imagery	latitude and longitude	M	5	100%	Electronic, paper, photos	GPS can be used for field survey
Ai - Size ofthe areas where the project activity has Been implemented for each type of strata	Field survey or cadastral information or aerial photographs or satellite imagery or GPS	ha	M	5	100%	Electronic, paper, photos	GPS can be used for field survey
Location of the permanent sample plots	Project maps and project design	latitude and longitude	Defined	5	100%	Electronic, Paper	Plot location is registered with a GPS and marked on the map
Diameter of tree at breast height	Permanent plot	cm	M	5	Each tree in the sample plot	Electronic, Paper	Measure diameter at breast height (DBH) for each tree that falls within the sample plot and applies to size limits
Height of tree	Permanent plot	m	M	5	Each tree in the sample plot	Electronic, Paper	Measure height (H) for each tree that falls within the sample plot and applies to size limits
Basic wood density	Literature	tonnes of dry matter per m3 fresh Volume	E	Once		Electronic, Paper	
Total CO2	Project activity	Mg	C	5	All project data	Electronic	Based on data collected from all plots and carbon pools

B.8.1.2. Data for monitoring of leakage (if applicable)

>> In this project, the A/R activity on one site does not lead to leakage of in other sites.

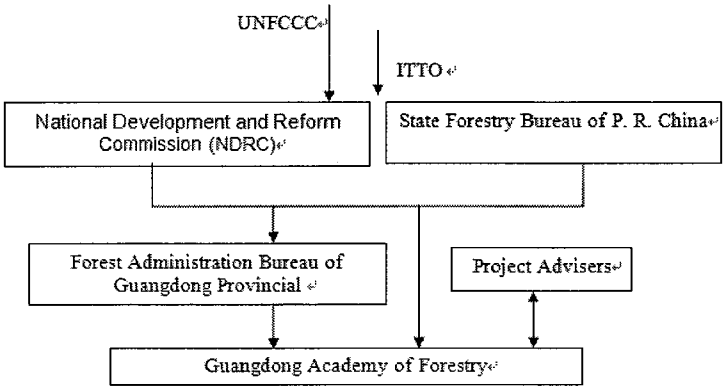
B.8.1.2.1. If applicable, please describe the data and information that will be collected in order to monitor leakage of the proposed small-scale A/R CDM project activity

Data variable	Source of data	Data unit	Measured m), calculated (c) or estimated(e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic / Paper)	Comment

B.8.2. Describe briefly the proposed quality control (QC) and quality assurance (QA) procedures that will be applied to monitor actual GHG removals by sinks

>> To ensure the net anthropogenic GHG removals by sinks to be measured and monitored precisely, credibly, verifiably and transparently, a quality assurance and quality control (QA/QC) procedure will be implemented to ensure: i) reliability of collection of field measurements; ii) verification of the methods used to collect field data; iii) verification of data entry and analysis techniques; iv) verification of data maintenance and archiving. Collecting reliable field measurements is an important step in the quality assurance plan. Those responsible for the carbon measurement work will be fully trained in all aspects of the field data collection and data analyses, and standard operating procedures.

B.8.3. Please describe briefly the operational and management structure(s) that the project operator will implement in order to monitor actual GHG removals by sinks by the proposed small-scale A/R CDM project activity



Project Operational and Management Structure

B.9. Date of completion of the baseline study and the name of person(s)/entity(ies) determining the baseline and the monitoring methodology:

>> 29 November 2007

- Institute of Forestry Ecology and Environment, the Chinese Academy of Forestry Zhang Xiaoquan
- Institute of Global Warming & Ecological Studies, Noida, India
  - ☐ Promode Kant
  - ☐ Keshav C Das
  - ☐ Debojyoti Chakraborty
  - ☐ A. S. Ashwin
  - ☐ Sohini Trehan
  - ☐ Swati Singh
  - ☐ M.A. Khalid
- Haryana Forest Department
  - ☐ S.K. Dhar
  - ☐ Jeet Ram
  - ☐ Goran Jonsson
  - ☐ D.R. Ramesh Singh
  - ☐ V.S. Tanwar
  - ☐ S.S. Sheoran

Section C. Estimation of ex ante net anthropogenic GHG removals by sinks

C.1. Estimated baseline net GHG removals by sinks:

>> The woody perennials (shrubs and herbaceous plants) existing at the project area before the start of the proposed small-scale A/R CDM project activity will be counted and measured. Since the area is serious degraded and degrading land, there is little growth of grasses as evident in the field visits. The baseline net GHG removals estimate 1.6 tC.

C.2. Estimate of the actual net GHG removals by sinks:

>> The pre-project trees are allowed to remain on the project site. For the conservative purpose, in the project scenario the carbon stocks of the pre-project trees are assumed to be constant and the woody perennials and grass are assumed to be died out. The

formulae of the simplified baseline and monitoring methodologies for small-scale afforestation and reforestation project activities under the clean development mechanism implemented on grassland or cropland (AR-AMS0001; version 04.1) has been used for calculating the actual net green house gas removals by sinks (ex-ante)

C.3. Estimated leakage:

>> In this project, the A/R activities on one site does not lead to leakage in other sites.

C.4. The sum of C. 2. minus C.1. minus C.3. representing the net anthropogenic GHG removals by sinks of the proposed small-scale A/R CDM project activity:

>> The net anthropogenic GHG removals by sinks of the proposed small-scale A/R CDM project activity has been estimated usingthe formula 21, paragraph 33 of the AR-AMS0001/version 4.1. The project emissions have been deducted from the project GHG removals by sinks. The net anthropogenic GHG removals by sinks of the proposed small-scale A/R CDM project activity have been estimated to be 5362 t CO2 each year.

C.5. Table providing values obtained when applying equations from the approved methodology

>> The result of the application of equations from approved methodology above shall be indicated using the following tabular format:

Year	Estimation of baseline net GHG removals by sinks (tonnes of CO2)	Estimation of actual net GHG removals by sinks (tonnes of CO2)	Estimation of leakage (tonnes of CO2)	Estimation of net anthropogenic GHG removals by sinks (tonnes of CO2)
Year 2011	1.6	2744	-4.0	2738.4
Year 2010	1.8	4392	-2.0	4388.2
Year 2011	2.0	5490	0.0	5488.0
.....				
Year 2040	5.2	5290	0.0	5488.0
Total (tonnes of CO2)	106.0	160856	-6.0	160744.0

Section D. Environmental impacts of the proposed small-scale A/R CDM project activity

D.1. Provide analysis of the environmental impacts, including transboundary impacts (if any)

>> No negative environmental impacts result from the proposed project. The expected outcome of the project is an increase of forest cover throughA/R practices. Collecting and breeding a number of native tree species for forestation will help to increase the local biodiversity and to prevent exotic species invasion, and thus, finally to restore the zonal vegetation that has been destroyed. Establishing A/R demonstration districts will enlarge the capacity of terrestrial carbon sink, which is a key indicator of environmental sustainability, and also a key objective of the proposed project. In this project, the A/R activities on one site does not lead to GHG leakage in other sites.

Risk analysis and countermeasures:

Site preparation: Site preparation has the potential to disturb the vegetation and soil in the planting sites. The main technical measures to be employed to mitigate the impacts designed in the project are to plant the trees with low density (1100 trees per hectare), limited pit size (40 cm x 40 cm x 40 cm) and retaining all the existing vegetation. As a result, the surface area disturbed by site preparation is estimated to account for lessthan 3% of the total land surface. Therefore the site and soil preparation will have minor negative impacts on original soil and vegetation.

Fertilization: In the proposed small-scale A/R CDM project activity, only organic manure will be applied within the small planting pits rather than through dispersal over the entire land, thus leading to maximum impact on the plant while causing least disturbance outside.

Pesticide: No pesticides are proposed to be used as a preventive measure. Only hygienic measures to control pests and diseases will be adopted. Only in case of a severe outbreak of pest attack would the use of pesticides be considered and then suitable safeguards against the environmental effects of the pesticides would be undertaken to ensure that the residues do not escape into the water sources for the people and the cattle.

Fire risk: Fires in the plantations escaping into the neighborhood is a potential risk of the proposed small-scale A/R CDM project activity. However the Haryana Forest Department shall reduce this risk through awareness and training to local farmers/communities in collaboration with the Society.

Invasive: Native tree species are being planted in the project area apart from Eucalyptus hybrid which has been raised in the district by the by the farmers in their private lands for the past many decades and there is no evidence of this species becoming invasive.

Given the countermeasures to be implemented, all the above mentioned risks are not considered to be significant by the project participants.

D.2. If any negative impact is considered significant by the project participants or the host Party, a statement that project participants have undertaken an environmental impact assessment, in accordance with the procedures required by the host Party, including conclusions and all references to support documentation

>> Environmental Impact Assessment (EIA) is not required for the proposed small-scale A/R CDM project activity, since this project does not have any significant negative impacts on the environment.

D.3. Description of planned monitoring and remedial measures to address significant impacts referred to in section D.2. above:

Section E. Socio-economic impacts of the proposed small-scale A/R CDM project activity:

E.1. Provide analysis of the socio-economic impacts, including transboundary impacts (if any):

>> The implementation of this project can help to disseminate the knowledge on the CDM under the Kyoto Protocol and CDM A/R techniques to the forest officers, communities and the general public through training and public media. This will arouse the interest of the public in the protection and management of the forest. The CDM A/R activities have drawn little attention in the past, but are likely to assume increasing importance as more communities, sectors and regions are involved. After the completion of the A/R, the forest ecological benefit will be enhanced, and thus is helpful for improvement of living condition. The goal of the project is to address current challenges impeding efforts at undertaking CDM projects and carbon trading that will offer an increasing economic benefit to developing countries.

Income generation: The project will open up certain new economic opportunities and enhance the income of the farmers through non-timber products besides earnings from the sale of carbon credits. About. Income generation from non-timber products. The total income is estimated at US$ 1.5 million.

Strengthening social cohesion: Individual farmer households/communities are unableto successfully manage the investment, production and non-wood forest products, which normally takes a much longer period than food production. In addition, the lacks of

organizational instruments also prevent them from overcoming technological barriers. Overall the proposed small-scale A/R CDM project activity will entail close interaction between individuals, communities, farm forestry and local government, with intensified communication among them, thus supporting the network for social and productive services.

Social Well Being: The proposed small-scale A/R CDM project activity will generate additional employment through site preparation, plantation and other intercultural operations. Besides, the project will enhance the community bondage and elevate the status of women by ensuring their participation in the proposed small-scale A/R CDM project activity.

Better agricultural production: The proposed small-scale A/R CDM project activity will increase the water holding capacity of the soil and add humus to the soil which would in turn make agriculture more viable in the neighbourhood.

Technical training and demonstration: Technical training and demonstration will popularize CDM activities in China. Interview with local communities indicated that local farmers/communities are usually short of access to quality for successful tree planting, as well as for preventing planted trees from impact of fire, pest and diseases. This is one of the important barriers of local communities in planting trees on their lands.

Creating employment: The project activity will create about 30 thousands person-days of temporary employment opportunities. It will also create 5 long-term job positions during the crediting period.

The proposed small-scale A/R CDM project activity is therefore expected to uplift the socio-economic status of the project participants and the communities at large by meeting the various objectives mentioned above.

Potential socio-economic risks and counter measures:

Cultural Resources: There are no cultural relics and/or cultural reserve that have been identified in the project area, and consequently, no damage to non-replicable cultural property will occur under the proposed small-scale A/R CDM project activity. Meanwhile, the project does not involve any site used for local social gatherings or other spiritual activities, thus the proposed small-scale A/R CDM project activity will not impact the normal local gatherings and religious activities.

Economic risk: The potential economic risks will be poor management of the plantations established under the project such as lack of pest and fire control measures, which could contribute to project failure and farmers'loss. The proposed small-scale A/R CDM project activity has been designed to mitigate this risk by providing technical assistance and training to farmers and communities, by farm forestry and the extension network of the forestry sector. The local government forestry office, which is experienced in reforestation and forest management, will provide the technical assistance to the farmers/communities.

None of these risks are considered significant.

E.2. If any negative impact is considered significant by the project participants or the host Party, a statement that project participants have undertaken a socio-economic impact assessment, in accordance with the procedures required by the host Party, including conclusions and all references to support documentation:

E.3. Description of planned monitoring and remedial measures to address significant impacts referred to in section E.2. above:

Section F. Stakeholders' comments

F.1. Brief description of how comments by local stakeholders have been invited and compiled:

>> The comments include:

(i) Ecological benefit is important, but economic benefits should be fully considered;

(ii) Non-timber species plantation is best way in economic aspect;

(iii) High quality native species should be used in plantation of the project;

(iv) To know the aspirations of the participants/villagers on small scale AR-CDM project activities & identify project participants

(v) To know simplified technique of reforestation

F.2. Summary of the comments received:

>> A thorough discussion was made with the farmers on Clean Development Mechanism (CDM). It was summarized as below:

- How CDM work;
- About economic benefit;
- About Species selection;
- About simplified techniques of reforestation and management.

During the interactions, made with the villagers, it was found that farmers were willing to take up this project. The active participation of the farmers in the discussion and their keen interest in knowing detailed specifics of the project are proof for this. All the farmers who participated in the activity volunteered to contribute lands for the project and were quite happy in being allowed to manage the plantation by them. However, the farmers insisted that each village should be represented in the plantation management committee.

F.3. Report on how due account was taken of any comments received:

>> Due account was taken in incorporating the comments received from local stakeholders, Following aspects were especially taken into account:

- The stakeholders were informed about the byelaws and other aspects of the project in public meeting and all their queries answered to;
- The participation of local farmers was made on a voluntary basis after they fully understood various aspects of the CDM project like the anticipated benefits, sharing of usufructs etc.;
- Preferences of farmers were taken into account in the selection of tree species, which are of economic and ecological importance for the local people;
- Establish the demonstrating districts of tree plantation and nursery.
- To summarize the achievements of reforestation into simplified technique guideline and publish.

Annex 1

>> CONTACT INFORMATION ON PARTICIPANTS IN THE PROPOSED SMALL-SCALE A/R CDM PROJECT ACTIVITY

Organization:	Guangdong Academy of Forestry
Street/P.O.Box:	Longdong Street, Tianhe District, 510520
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Country:	China
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E-Mail:	zlinghai@263.net
URL:	
Represented by:	Zuoyun Yin (Mr., Ph.D., Prof. yinzuoyun@163.com; 0086-20-87028172)
Title:	Research scientist of forest breeding and silviculture
Salutation:	Mr. Prof.
Last Name:	Zeng
Middle Name:	

First Name:	Linghai
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Personal E-Mail:	zlinghai@263.net

Annex 2. INFORMATION REGARDING PUBLIC FUNDING

>> No public funding can be utilized for this small-scale A/R CDM project activity.

Annex 3. DECLARATION ON LOW-INCOME COMMUNITIES

>> Declaration:

We, host Party, have determined low-income communities and individuals in Longchuan County of Guangdong Province to implement the proposed small-scale A/R project activity under the CDM.

The main income source of the project participants is farming and these farmers have small land holdings, with annual income about 750 US $ in 2007, is far away below the international poverty line.A considerable part of which is degraded/degrading land and not suitable for profitable plantation as investment costs are too high for them to carry out any kind of planting activities.

The above reasons clearly show that the households participating in the proposed small-scale A/R CDM project activity belong to low income communities.

Guangdong Academy of Forestry

(Host Party)

History of the document

Version	Date	Nature of revision
02	EB35, Annex19	• Sections A and B were restructured; • Requirement to repeat equations has been removed from section C; • Sections D and E have been aligned with the requirements of the Modalities and Procedures.
01	EB 23, Annexand 16(b) 24	Initial adoption

③ Fiji & Philippines

CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM for SMALL-SCALE afforestation and reforestation project activities (CDM Version 02)

CONTENTS

Section A. General description of the proposed small-scale A/R CDM project activity

A.1. Title of the proposed small-scale A/R CDM project activity

>> Small Scale Cooperative Afforestation CDM Pilot Project Activity on Communally owned Grassland in western vitilevu, fiji islands.

Version 1.0 / 9-Sep-08

A.2. Description of the proposed small-scale A/R CDM project activity

>> The lands to be planted in the proposed small-scale A/R CDM project activity is located in the western part of the island of Viti Levu around 20 km from the town of Nadi towards the Capital City of Suva via the Queens highway that runs through south western coast of the island.

The identified area is generally grasslsand with few scattered trees and shrubs along gullies classified as Non Forest under the Fiji Forest Definition Forest Definition under the Fiji Forest Policy 2007. Wildfires ocassionally occur during the dry months of the year. Large areas within the vicinity are without any bushes or tree vegetation due to the frequent burning, poor soil and the low rainfall of 300 mm annually compared to 1000 mm anually in the south eastern side of the same island. In addition, surrounding farming communities and villages risked and often suffer loosing their crops due to uncontrolled fire that spread through these grasslands into their farms.

The purpose of the small-scale A/R CDM project activity proposed by the Fiji Government and the Fiji CDM Small Tree Farmers Society are as follows:

- To earn carbon credits from the growing of trees, under the CDM provisions of Kyoto Protocol;
- To help mitigate global warming by planting trees for sequestration of atmospheric Carbon dioxide;
- To improve the local environmental condition of soil through increasing the water holding capacity of the lands, increasing the humus in soil and also reducing the threat of fires, and by converting the marginal and degraded grassland into forested lands;
- To increase income, provide employment opportunities, and as a result to alleviate poverty of the involved local communities.

To realize the objectives mentioned above, 1000 ha of pine forests will be established, using species, i.e., Pinus carribaea, (Carribean pine)

This proposed small-scale A/R CDM project activity is a pilot project activity of its kind

in the Country.

Both the Project Developer (The Forestry Department) and the Fiji CDM Tree Farmers Society. Technical asistance shall also be provided by representatives from the Philippines, particularly the Department of Environment and Natural Resources (DENR).

Participants) expect that the success of the proposed small-scale A/R CDM project activity will promote A/R CDM activities in the Non Forestgrassland areas in the two large islands of Fiji. In addition the activity will simultaneously contribute to poverty alleviation, biodiversity conservation and prevention of soil erosion, thus contributing to sustainable development.

A.3. Project participants

>> Please list project participants and Party(ies) involved and provide contact information in Annex Information shall be indicated using the following tabular format.

Name of Party involved (*) ((host) indicates a host Party)	Private and/or public entity(ies) project participants (*) (as applicable)	Indicate if the Party involved wishes to be considered as a project participant (Yes/No)
Fiji Philipines	Fiji CDM Small Tree Farmers Society Forests Department DENR, Philippines	No
(*) At the time of making the CDM-SSC-AR-PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting registration, the approval by the Party(ies) involved is required.		

A.4. Description of location and boundary of the small-scale A/R CDM project activity

>> The 100 tree farms are located in an area that spans 10,000ha. The averagerain fall in this area is 300mm per annum, and 5 percent of the said area has forest cover under the forest classification categories..The fertile areas are used up in agricultural activities while the areas unsuitable for agriculture are left as grass land which poses a lot of fire threats during the fire season.

A.4.1. Location of the proposed small-scale A/R CDM project activity

>> The project is owned by the farm cooperative with 100 tree farmer members who are allocated 10 ha tree farm lots each. Appendix 1 shows the boundary of the area in which the 100 tree farmers are located, and appendix 2 shows the actual locations of the 100 tree farmers. Appendix 3 shows the GPS coordinates of the boundaries of the 100 tree farms.

A.4.1.1. Host Party(ies)

>> The host party is the Fiji Government who signed the UNFCCC in 1992 and and formalized 1993. Together with the Republic of the Philippines, both governments joined the Kyoto Protocol ratification in 1998. For this project, both countries will come into an agreement to undertake the pilot project implementation with the Philippine representative providing the technical assistance. Economic gains of the project shall accrue to the farmer cooperative. The agreement shall form part of the project document.

A.4.1.2. Region/State/Province etc.

>> Appendix XXX shows the name of the Division, Province, and Districts in which each of the tree farm are located are located.

- Island: Viti Levu
- Province: Ba
- District : Nasigatoka

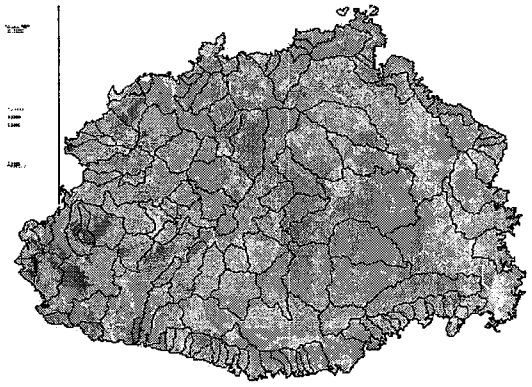
A.4.1.3. City/Town/Community etc.

>> The land owning units with their village names and the total area of land that are included in the project listed below.

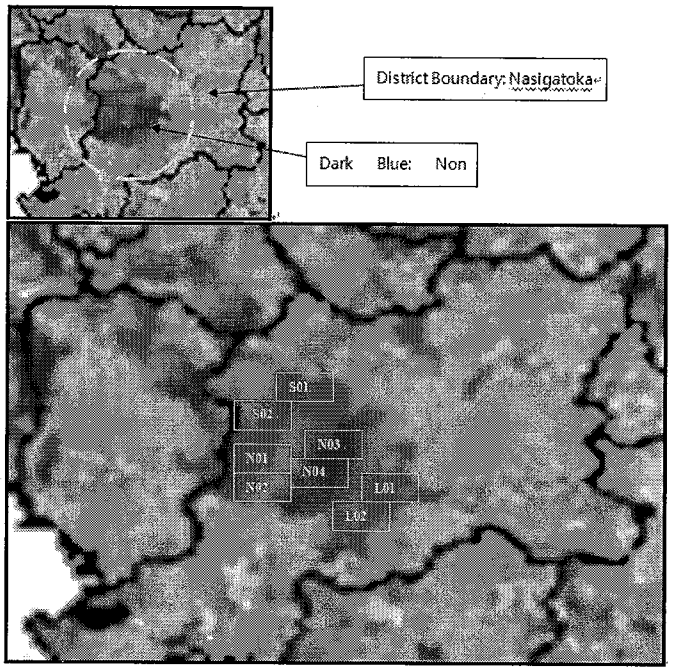
- Sigatoka : 300 hectares
- Nad : 500 hectares
- Lautoka : 200 hectares

A.4.2. Detail of geographical location and project boundary, including information allowing the unique identification(s) of the proposed small-scale A/R CDM project activity:

>> Project Area locality on the Island of Viti Levu



<Project Area in the district of Nasigatoka>



<Above: Project Site Locations>

The list of all coordinate locations for each of the 100 CDM project sites.

Village Name	Tree Farm ID	Area (ha)	Lat Coordinate	Lon Coordinate
Sigatoka	S01	90	XXXXXXX	XXXXXXX
	S02	210	XXXXXXX	XXXXXXX
Nadi	N01	55	XXXXXXX	XXXXXXX
	N02	80	XXXXXXX	XXXXXXX
	N03	175	XXXXXXX	XXXXXXX
	N04	190	XXXXXXX	XXXXXXX
Lautoka	L01	70	XXXXXXX	XXXXXXX
	L02	130	XXXXXXX	XXXXXXX

A.5. Technical description of the small-scale A/R CDM project activity

A.5.1. Type(s) of small-scale A/R CDM project activity

>> The project lands are classified as grassland and are too dry to be used for any agricultural cultivation. The activity includes the afforestation of grassland areas thus, it falls under the small scale Aforestation activities in grassland areas

A.5.2. A concise description of present environmental conditions of the area, which include information on climate, soils, main watershed, ecosystems, and the possible presence of rare or endangered species and their habitats:

>> The project area, located in the western side of the island of Viti Levu which is well known for its long dry periods and vast areas of grasslands and poor dry soils. Small patches of vegetation are located in some gullies which are habitats to local birds and insects.

Because of the harsh environmental conditions in the area, no endangered or rare species has been identified within the vicinity of the project site. All areas with environmental or biological significance are identified within the National Forest Inventory Maps, nothing was identified in this area. This was further confirmed with local conservation groups.

A.5.3. Species and varieties selected

>> Pinus carribea has been identified for the project area, because it grows well in the vicinity

A.5.4. Technology to be employed by the proposed small-scale A/R CDM project activity

>> The afforestation programme will utilise typical afforestation technology that is used in Fijifor the establishment of pine plantations. This includes:

- Nursery operations
- Preparation of planting site
- Planting
- Weed control for the first 5 years
- Thinning operatioin at years 7 and 15
- Pine resin tapping starting at year 15
- Fire protection and management
- Capacity building activities

The specific activities to be undertaken shall be formulated as part of the training/ workshop activity of the project.

A.5.5. Transfer of technology/know-how, if applicable

>> Landowners will be trained in all phases starting with planning sessions to operations and supervision of activities in all areas of the operation listed in A.5.4.

A.5.6. Proposed measures to be implemented to minimize potential leakage as applicable

>> All areas identified for the project has remained as grass land for the last 50 years and

nothing has been growing in them ever since. The area had neither farming nor grazing activity. Thus no activity will be displaced to create leakage.

A.6. A description of legal title to the land, current land tenure and land use and rights to tCERs / lCERs issued

>> All the land that is identified in the 8 activity areas are legally registered as native land under the Fiji Native Lands Commission Act (NLC Act); with each parcel of land having a NLC Reference number with registered landowners. The NLC database is linked to the Fiji Register Generals office for updating of of births, deaths, and marriages in each of the land owning Units (LOUs).

The Fiji Native Lands Trust Board (NLTB) is the legal trustee of all Native Lands. The NLTB obtains their maps and LOU listings from the NLC office. NLTB officers are present in all meetings with landowners. Appendix 1-8, shows are the certificate (with NLC map boundaries) from NLTB for the usage of the parcel of land for CDM afforestation purpose, and that all legal requirements are met.

A.7. Assessment of the eligibility of land

>> The Fiji Government defines forests as lands having trees with:

- A minimum area of 0. 5hectares;
- A minimum tree crown cover of 10%; and
- Trees of, or with potential to reach, the height of minimum of 5 meters.

The land eligibility is demonstrated using "Procedures to define the eligibility of lands for afforestation and reforestation project activities" (EB 35 report Annex 18)

(a) The land at the moment the project starts is classified as non forest, which has been demonstrated by field survey and the Participatory Rural Appraisal (PRA) which has showed that the lands to be planted in the proposed small-scale A/R CDM project activity are currently covered with grassland. Although some parcels of the project lands have existing mature trees, these trees are too sparse for any parcel to meet the definition of a forest.

(b) The activity is an eligible CDM afforestation project activity, which has been demonstrated through interviews with the local farmers/communities on land use/cover history and important events that have impacted the land use/cover changes which have shown that the lands to be planted in the proposed small-scale A/R CDM project activity have been non-forest lands since nineteen fifties and hence satisfies the criteria of being non- forested since last 50 years. See Section 9 and Section 10 for details

A.8. Approach for addressing non-permanence

>> Please select between:

- [√] Issuance of tCERs
- [ ] Issuance of lCERs

A.9. Duration of the proposed small-scale A/R CDM project activity / Crediting period

>> The crediting period for this project will be 20 years (with a choice of renewal twice for 20 years each), with verification occurring at intervals of every five years, followed by issue of temporary Certified Emission Reduction (tCERs)

A.9.1. Starting date of the proposed small-scale A/R CDM project activity and of the (first) crediting period, including a justification

>> The proposed small-scale A/R CDM project activity and its crediting period would start from 01/01/2009. Duringthat date the Fiji Forest Department would start the nursery establishment from January - March, 2007-08. The actual planting work will start from October 2009 on the onset of the rainy season.

A.9.2. Expected operational lifetime of the proposed small-scale A/R CDM project activity

>> 60 years since the trees are going to be used for resing tapping.

A.9.3. Choice of crediting period and related information

>> Please select one of the following:

1. Renewable crediting period [√]
2. Fixed Crediting period [ ]

A.9.3.1. Duration of the first crediting period (in years and months), if a renewable crediting period is selected

A.9.3.2. Duration of the fixed crediting period (in years and months), if selected

>> N/A

A.10. Estimated amount of net anthropogenic GHG removals by sinks over the chosen crediting period

>> Please provide the total estimation of net anthropogenic GHG removals by sinks as well as annual estimates for the chosen crediting period. Information on the net anthropogenic GHG removals by sinks shall be indicated using the following tabular format.

Years	Annual estimation of net anthropogenic GHG removals by sinks in tonnes of CO2 e
2010	0
2011	-5
2012	941
2013	1887
2014	2833
2015	3780
2016	5676
2017	7573
2018	9470
2019	11367
2020	13264
2021	15161
2022	17058
2023	18955
2024	20852
2025	23695
2026	24641
2027	25587
2028	26536
2029	27486
Total estimated net anthropogenic GHG removals by sinks (tonnes of CO2e)	279506
Total number of crediting years	20
Annual average over the crediting period of estimated net anthropogenic GHG removals by sinks (tonnes of CO2e)	13,975

A.11. Public funding of the proposed small-scale A/R CDM project activity

>> The Provincial Council shall provide initial project funding which shall be formalized in the agrement of parties by the Goevernments of Fiji and the Republic of the Philippines. The Philippine Government shall also fund its technical personnel who shall provide project visits (Technical)

A.12. Confirmation that the small-scale A/R CDM project activity is not a deluded component of a larger project activity

>> no

Section B. Application of a baseline and monitoring methodology

B.1. Title and reference of the approved baseline and monitoring methodology applied to the proposed small-scale A/R CDM project activity

B.2. Justification of the applicability of the baseline and monitoring methodology to the proposed small-scale A/R CDM project activity

B.3. Specification of the greenhouse gases (GHG) whose emissions will be part of the proposed small-scale A/R CDM project activity

B.4. Carbon pools selected

>> In calculating the baseline net GHG removals by sinks and/or actual net GHG removals by sinks, project participants may choose not to account for one or more carbon pools, and/or emissions of GHGs measured in units of CO2 equivalents, while avoiding double counting. Select the carbon pools that are considered in determining actual net GHG removals by sinks and baseline net GHG removals by sinks in the table below in accordance with the proposed new/ approved methodology used. Note that the same carbon pools should be considered in the actual net GHG removals by sinks and the baseline net GHG removals by sinks.

Carbon pools	Selected(answer with yes or no)
Above ground	
Below ground	
Dead wood	
Litter	
Soil organic carbon	

B.5. Description of strata applied for ex ante estimations

B.6. Application of baseline methodology to the proposed small-scale A/R CDM project activity

B.7. Description of how the actual net GHG removals by sinks are increased above those that would have occurred in the absence of the registered small-scale A/R CDM project activity

B.8. Application of monitoring methodology and monitoring plan to the small-scale A/R CDM project activity

B.8.1. Data to be monitored: Monitoring of the actual net GHG removals by sinks and leakage.

B.8.1.1. Actual net GHG removals by sinks data

B.8.1.1.1. Data to be collected or used in order to monitor the verifiable changes in carbon stock in the carbon pools within the project boundary resulting from the proposed small-scale A/R CDM project activity, and how this data will be archived

Data variable	Source of data	Data unit	Measured (m), calculated (c) or estimated (e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic / paper)	Comment
N/A	-	-	-	-	-	-	-
N/A	-	-	-	-	-	-	-

B.8.1.2. Data for monitoring of leakage (if applicable)

B.8.1.2.1. If applicable, please describe the data and information that will be collected in order to monitor leakage of the proposed small-scale A/R CDM project activity

Data variable	Source of data	Data unit	Measured (m), calculated (c) or estimated (e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic / paper)	Comment
N/A	-	-	-	-	-	-	-
N/A	-	-	-	-	-	-	-

B.8.2. Describe briefly the proposed quality control (QC) and quality assurance (QA) procedures that will be applied to monitor actual GHG removals by sinks

B.8.3. Please describe briefly the operational and management structure(s) that the project operator will implement in order to monitor actual GHG removals by sinks by the proposed small-scale A/R CDM project activity

B.9. Date of completion of the baseline study and the name of person(s)/entity(ies) determining the baseline and the monitoring methodology:

Section C. Estimation of ex ante net anthropogenic GHG removals by sinks

C.1. Estimated baseline net GHG removals by sinks:

C.2. Estimate of the actual net GHG removals by sinks:

C.3. Estimated leakage:

C.4. The sum of C. 2. minus C.1. minus C.3. representing the net anthropogenic GHG removals by sinks of the proposed small-scale A/R CDM project activity:

C.5. Table providing values obtained when applying equations from the approved methodology

>> The result of the application of equations from approved methodology above shall be indicated using the following tabular format:

Year	Estimation of baseline net GHG removals by sinks (tonnes of CO2 e)	Estimation of actual net GHG removals by sinks (tonnes of CO2 e)	Estimation of leakage (tonnes of CO2 e)	Estimation of net anthropogenic GHG removals by sinks (tonnes of CO2 e)
Year A				
Year B				
Year C				
Year ...				
Total (tonnes of CO2e)				

Section D. Environmental impacts of the proposed small-scale A/R CDM project activity

D.1. Provide analysis of the environmental impacts, including transboundary impacts (if any)

>> An EIA will be needed in this section, environment due diligence to ensure that the negative impacts are minimised. This is to ensure that these projects are in line with local laws and regulations. ARCDM will involve landuse change. In doing these legal procedures must be followed to legally allow for the conversion of landuse change.When doing the EIA we will start with the positive impact to the environment, this will then be balanced out by the negative impacts in D2. Only do the EIA on the areas where a negative impact is envisaged. Positive and negative impacts.

D.2. If any negative impact is considered significant by the project participants or the host Party, a statement that project participants have undertaken an environmental impact assessment, in accordance with the procedures required by the host Party, including conclusions and all references to support documentation

>> Analysis will have to be provided on the impacts on biodiversity, fire threats. Soils, Rsks, Pests and deases, including the counter measures that is going to be taken in order to minimise the impact of theproject. Look at the PDD for large scale guidelines for the cdm projects undre the UNFCCC website. All relevant documents, EIA reports, government approvals, etc. Are the species allowed in the country, is the species considere as invasive. Make sure thatall negative impacts are addressed to make otherwise someone else will raise it. All issues that area likely to be raised, must be raised and addressed in the PDD. Removal of biomass to control/reduce fire risk or the impact.

D.3. Description of planned monitoring and remedial measures to address significant impacts referred to in section D.2. above:

>> This refers to the planned remedial actions that is planned for the project. Basically this section will put more light on the counter measures mentioned in D2.

Section E. Socio-economic impacts of the proposed small-scale A/R CDM project activity:

E.1. Provide analysis of the socio-economic impacts, including transboundary impacts (if any):

>> What will be the impact on the gender equality, women, young girls, ets. Social wellbieng, social clhesion. The practical training that is coing to be carried out.

E.2. If any negative impact is considered significant by the project participants or the host Party, a statement that project participants have undertaken a socio-economic impact assessment, in accordance with the procedures required by the host Party, including conclusions and all references to support documentation:

>> Only go for SIA on areas with significantly identified areas.

E.3. Description of planned monitoring and remedial measures to address significant impacts referred to in section E.2. above:

Section F. Stakeholders' comments

F.1. Brief description of how comments by local stakeholders have been invited and compiled:

>> In this section should incllude the outcome of the stakeholder consultation reporting on the comments by local comminities/landowners on the project. Real numbers and figures are good to strenthen the document.

F.2. Summary of the comments received:

F.3. Report on how due account was taken of any comments received:

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROPOSED SMALL-SCALE A/R CDM PROJECT ACTIVITY

Organization:	
Street/P.O.Box:	
Building:	
City:	
State/Region:	
Postfix/ZIP:	
Country:	
Telephone:	
FAX:	
E-Mail:	
URL:	
Represented by:	
Title:	
Salutation:	
Last Name:	
Middle Name:	
First Name:	
Department:	
Mobile:	
Direct FAX:	
Direct tel:	
Personal E-Mail:	

Annex 2. INFORMATION REGARDING PUBLIC FUNDING

Annex 3. DECLARATION ON LOW-INCOME COMMUNITIES

Please provide a written declaration that the proposed small-scale afforestation or reforestation project activity under the CDM is developed or implemented by low-income communities and individuals as determined by the host Party.

History of the document

Version	Date	Nature of revision
02	EB35, Annex19	• Sections A and B were restructured; • Requirement to repeat equations has been removed from section C; • Sections D and E have been aligned with the requirements of the Modalities and Procedures.
01	EB 23, Annexand 16(b) 24	Initial adoption

④ Malaysia

CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM for SMALL-SCALE
afforestation and reforestation project activities (CDM Version 02)

CONTENTS

Annexes

Section A. General description of the proposed small-scale A/R CDM project activity

A.1. Title of the proposed small-scale A/R CDM project activity

>> Reforestation of compacted log-landing areas adjacent to native settlements

A.2. Description of the proposed small-scale A/R CDM project activity

>> Logging operations in the 70s and 80s utilized specific areas for the placement of logs while awaiting transportation to sawmills. These areas experienced high volume of traffic by heavy machinery and experienced severe compaction, erosion, and destruction of soil structure. Due to compaction, infiltration and drainage are poor and although the areas in question are surrounded by mother trees and seed sources, there has been no regeneration of native tree species. The project seeks to establish a plantation of Khaya ivorensis to provide wood for furniture manufacturing. A small proportion (2%) of the plantation will include three fruit tree species to augment the income of the local native community

A.3. Project participants

>> Please list project participants and Party(ies) involved and provide contact information in Annex Information shall be indicated using the following tabular format.

Name of Party involved (*) ((host) indicates a host Party)	Private and/or public entity(ies) project participants (*)(as applicable)	Indicate if the Party involved wishes to be considered as a project participant (Yes/No)
Forest Department of Sarawak (host)	Public entity A ...	Yes
FMUT 4317	Private	Yes
Perak Integrated Timber Complex	Private	Yes
(*) At the time of making the CDM-SSC-AR-PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting registration, the approval by the Party(ies) involved is required.		

A.4. Description of location and boundary of the small-scale A/R CDM project activity

>> The project site is 50 ha in size, flat with an average slope of < 10%, rectangular in

shape with corners located at the following GPS coordinates (see Annex I for map). The project area is located adjacent to an unpaved logging road that provides access to the logging concession (forest management unit).

The site is bounded on the northeast by the logging road and on the northwest by the Anap river. The southeast and southwest sides are bounded by secondary forest.

A.4.1. Location of the proposed small-scale A/R CDM project activity

>> The project area is located in the district of Bintulu in the state of Sarawak approximately 300 km from Bintulu town.

A.4.1.1. Host Party(ies)

>> Forest Department of Sarawak
Forest Management Unit 4317 (FMUT 4317)
Perak Integrated Timber Complex

A.4.1.2. Region/State/Province etc.

>> District: Bintulu
State: Sarawak

A.4.1.3. City/Town/Community etc.

>> Town: Bintulu

A.4.2. Detail of geographical location and project boundary, including information allowing the unique identification(s) of the proposed small-scale A/R CDM project activity:

>> The project is located on the south side of the logging access road immediately east of the bridge across the Anap river. The project site is 1000 m long and 500 m wide and oriented lengthwise in a northwest to southeast direction parallel to the logging road.

A.5. Technical description of the small-scale A/R CDM project activity

A.5.1. Type(s) of small-scale A/R CDM project activity

>> Reforestation

A.5.2. A concise description of present environmental conditions of the area, which include information on climate, soils, main watershed, ecosystems, and the possible presence of rare or endangered species and their habitats:

>> The area is located in a valley of the hill mixed dipterocarp forest. Its annual temperature ranges between 21 and 32 degrees Centigrade year round with an annual rainfall of 3400 mm and relative humidity between 85 and 100 percent. The soil is an alluvial sandy clay loam that has undergone severe compaction. The soilis identified as belonging to the Gajah mati soil series, an Oxisol that forms laterite when exposed to fluctuations in water content and temperature. The site is located along the south bank of the upper reaches of the Anap river and the water table at the site ranges between 2 and 3.5 m below the soil surface.

To establish the log landing site, all trees on the site were removed and the remaining vegetation bulldozed into piles and burned. An end loader and bulldozer was used to level the site. Normaloperations required use of shovels to load and unload logging trucks resulting in soil compaction.

The project site, while free from vegetation, is surrounded by hill mixed dipterocarp forest which is composed of several strata of vegetation ranging from herbaceous understory, middle canopy species and emergent tree species. Having been selectively logged in the 1980s, the forest contains gaps which are being colonized by pioneer species such as Macaranga, Neobalanocarpus and Ficus. The hill mixed dipterocarp forest is noted for its high biodiversity of flora and fauna. Large mammal fauna include the bearded pig Sus barbatus, Wild boar Sus scroffa, Black handed gibbons, Barking deer and mousedeer. Small mammals such as porcupine, civet cats, and squirrelsare also found. The reptile fauna include monitor lizards, reticulated pythons, pit vipers and Sumatran and king cobras. Major birdlife includes hornbills, barbets, trogons, broadbills, and assorted woodpeckers and raptors.

A.5.3. Species and varieties selected

>> Khaya ivorensis clone SBC222 will be used as the primary planting stock. In addition, small numbers of Parkia specieosa, Shorea macrophylla and Durio zibethnus will be planted to supplement the livelihoods of the native community.

A.5.4. Technology to be employed by the proposed small-scale A/R CDM project activity

>> To improve seedling survival and establishment, oil palm empty fruit bunch fibres will be used in the planting holes to improve water infiltration, storage and drainage. Empty fruit bunch fibre will also be used as a soil surface mulch to protect the soil surface from raindrop impact and direct sunlight, thereby reducing water runoff and soil erosion, as

well as extreme diurnal soil temperature fluctuations associated with laterization (formation of an indurate ferruginous crust on the soil surface). In addition fast-growing Khaya clones that are tolerant of compacted soil conditions will be used as the planting stock.

A.5.5. Transfer of technology/know-how, if applicable

>> The local community will be employed and trained in the site preparation as well as the planting, care and maintenance of the trees.

A.5.6. Proposed measures to be implemented to minimize potential leakage as applicable

>> The project site is badlycompacted and degraded and therefore yields no useful resources that would be displaced should the site be returned to forested condition. As such leakage is only attributed to transportation of the seedlings, organic compost and fertilizer during the first 4 years of the project.

A.6. A description of legal title to the land, current land tenure and land use and rights to tCERs / lCERs issued

>> The land is legally titled as state government owned and was leased to a logging concessionaire, Harta Karun Sdn. Bhd. for the period between 1987 to 1997. With the termination of the logging concession in 1997, the State government resumed custodianship and management of the area. The native forest dwellers, who lived along the banks of the Anap river practiced shifting cultivation prior to the logging activity. When the concession was active, they derived additional earnings through employment as cooks and logging operators. They also sourced jungle products for sale to the logging community. With the termination of the contract, they returned to depending on the forest and shifting cultivation for their livelihood.

A.7. Assessment of the eligibility of land

>> The logging license was approves in 1985 and timber harvesting began in 1986. The log landing site was cleared in 1995 in preparation for logging activities. As such, the site could not be considered forest in December of 1989. The continuous movement of logs into and out of the log landing area effectively prevented vegetation from re-establishing on the site. Since the termination of the logging contract, extreme soil compaction has prevented vegetation from growing on the site. The site is currently vegetation-free.

A.8. Approach for addressing non-permanence

>> Please select between:

- ☐ Issuance of tCERs
- ☑ Issuance of lCERs

A.9. Duration of the proposed small-scale A/R CDM project activity / Crediting period

>> 30 years

A.9.1. Starting date of the proposed small-scale A/R CDM project activity and of the (first) crediting period, including a justification

>> A proposed start date of January 2010 is envisioned as sufficient time will be needed to process the required approval and permits with the state government and state forest department. Time will also be needed to obtain feedback and opinions from all pertinent stakeholders including the native forest communities, NGOs, and relevant authorities.

A.9.2. Expected operational lifetime of the proposed small-scale A/R CDM project activity

>> The expected operational lifetime of the project is 35 years

A.9.3. Choice of crediting period and related information

>> Please select one of the following:

1. Renewable crediting period ☐
2. Fixed Crediting period ☑

A.9.3.1. Duration of the first crediting period (in years and months), if a renewable crediting period is selected

A.9.3.2. Duration of the fixed crediting period (in years and months), if selected

>> 30 years

A.10. Estimated amount of net anthropogenic GHG removals by sinks over the chosen crediting period

>> Please provide the total estimation of net anthropogenic GHG removals by sinks as well

as annual estimates for the chosen crediting period. Information on the net anthropogenic GHG removals by sinks shall be indicated using the following tabular format.

Years	Annual Estimation of net anthropogenic GHG removals by sinks in tons of CO2 e
2010	145.20
2011	363.00
2012	726.00
2013	1234.20
2014	1742.40
2015	2323.20
2016	2904.00
2017	3484.80
2018	4138.20
2019	4791.60
2020	5445.00
2021	6171.00
2022	6897.00
2023	7623.00
2024	8276.40
2025	8929.80
2026	9583.20
2027	10236.60
2028	10817.40
2029	11398.20
2030	11979.00
2031	12487.20
2032	12995.40
2033	13431.00
2034	13866.60
2035	14229.60
2036	14520.00
2037	14810.40
2038	15100.80
2039	15391.20
Total estimated net anthropogenic GHG removals by sinks (tons CO2 eq)	15391.20
Total number of crediting years	30.00
Annual average over the crediting period	513.04

A.11. Public funding of the proposed small-scale A/R CDM project activity

>> Public funding for the project will be sourced from the Sarawakstate government. As such no Overseas Direct Assistance (ODA) funds will be used for the project.

A.12. Confirmation that the small-scale A/R CDM project activity is not a deluded component of a larger project activity

>> Log-landing sites are not numerous and are widely spaced across the state and at various stages of use. A majority are in active use and not available for A/R CDM activities.

Section B. Application of a baseline and monitoring methodology

B.1. Title and reference of the approved baseline and monitoring methodology applied to the proposed small-scale A/R CDM project activity

>> Simplified baseline and monitoring methodologies AR-AMS0002

B.2. Justification of the applicability of the baseline and monitoring methodology to the proposed small-scale A/R CDM project activity

>> The log landing sites are associated with the transportation of harvested logs from the forest to the sawmills. As such they remain a part of the transport infrastructure although they are no longer in use. Because no agriculture activities are being carried out on the site, no agricultural activities will be displaced. The only disturbance to the land will be the digging of the holes in which the tree seedling will be planted. We anticipate using a plant spacing of 4 m between trees in a triangular format resulting in 16 m2 per tree and a final population of 625 trees per hectare. The planting holes envisioned are 1 square meter in size and are therefore belowthe 10% threshold for disturbance of the soil surface which would be 1.6 square metres.

B.3. Specification of the greenhouse gases (GHG) whose emissions will be part of the proposed small-scale A/R CDM project activity

>> CO2, N2O

B.4. Carbon pools selected

>> In calculating the baseline net GHG removals by sinks and/or actual net GHG removals by sinks, project participants may choose not to account for one or more carbon pools, and/or emissions of GHGs measured in units of CO2 equivalents, while avoiding double counting.

Select the carbon pools that are considered in determining actual net GHG removals by sinks and baseline net GHG removals by sinks in the table below in accordance with the proposed new/ approved methodology used. Note that the same carbon pools should be considered in the actual net GHG removals by sinks and the baseline net GHG removals by sinks.

Carbon pools	Selected(answer with yes or no)
Above ground	Yes
Below ground	Yes
Dead wood	No
Litter	No
Soil organic carbon	No

B.5. Description of strata applied for ex ante estimations

>> Only one stratum is required as the area of settlements with changes in the carbon stocks expected not to exceed 10% of ex ante actual net GHG removals by sinks multiplied by share of the area in the entire project area;

B.6. Application of baseline methodology to the proposed small-scale A/R CDM project activity

>> The project site is part of the infrastructure used for the transportation of round logs from the interior of the forest to the sawmill. Forestlogging trucks were used to transport the logs from the forest to the log landing site. The logs were then unloaded at the site and stored there until they were again loaded onto trailer trucks for transportation to the sawmill. The site was cleared in 1987, actively used until 1997 and not used between 1997 and 2008. Because the site has remained denuded between 1997 and 2008, a period of 11 years, despite being undisturbed and surrounded by secondary forest seed sources, it is unreasonable to expect that the area will naturally regenerate into forest. As such the baseline carbon sequestration is estimated to be less than 10% and therefore assumed to be 0 following the ruling that for those strata without growing trees, $\Delta C_{i,baseline,t} = 0$.The area is considered to be degraded and, due to erosion, still degrading.

B.7. Description of how the actual net GHG removals by sinks are increased above those that would have occurred in the absence of the registered small-scale A/R CDM project activity

>> Due to the compacted nature of the soils at the site, no vegetation is currently growing

there or has grown there since logging operations were terminated in 1997. So the actual net GHG removals by sinks will be generated by the planted trees. No fossil fuels will be used on the site as at will be site as all the irrigation is gravity fed from a tributary of the Anap river.

B.8. Application of monitoring methodology and monitoring plan to the small-scale A/R CDM project activity

>> The project manager that will be hired to manage the area will visit the site every 2 months (Permanent sample plots will be established to monitor the growth performance of the planted trees.

B.8.1. Data to be monitored: Monitoring of the actual net GHG removals by sinks and leakage.

B.8.1.1. Actual net GHG removals by sinks data

B.8.1.1.1. Data to be collected or used in order to monitor the verifiable changes in carbon stock in the carbon pools within the project boundary resulting from the proposed small-scale A/R CDM project activity, and how this data will be archived

Data variable	Source of data	Data unit	Measured m), calculated (c) or estimated(e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic / Paper)	Comment
Location of the areas where the project activity has been implemented	Field survey or cadastral information or aerial photographs or satellite imagery	Latitude and longitude	Measured	2 years	100%	Electronic, paper, photos	GPS can be used for field survey
Ai - Size of the areas where the project activity has been implemented for each type of strata	Field survey or cadastral information or aerial photographs or satellite imagery or GPS		Measured	2 years	100%	Electronic, paper, photos	GPS can be used for field survey
Location of the permanent sample plots	Project maps and project design	Latitude and longitude	Measure	2 years	100%	Electronic , paper, photos	Plot location is registered with a GPS and marked on the map
DBH (1.3m)	Permanent sampling plot	m	Measured	2 years	100%	Electronic , paper	Measure diameter at breast height (DBH) for each tree that falls within the sample plot and applies to size limits
Height of tree	Permanent plot	m	Measured	2 years	Each tree n the sample plot	Electronic paper	Measure height (H) for each tree that falls within the sample plot and applies to size limits
Basic wood density	Permanent plots, literature	Tonnes of dry matter per m3 fresh volume	Estimated	Once	3 samples per tree from base, middle and top of the stem of three individuals	Electronic paper	
Total CO2	Project activity	Mg	Calculated	2 years	All project data	Electronic	Based on data collected from all plots and C pools

B.8.1.2. Data for monitoring of leakage (if applicable)

>> Standard distance and fuel consumption data will be used to estimate emissions related to transportation of seedlings, compost and fertilizer

B.8.1.2.1. If applicable, please describe the data and information that will be collected in order to monitor leakage of the proposed small-scale A/R CDM project activity

Data variable	Source of data	Data unit	Measured m), calculated (c) or estimated(e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic / Paper)	Comment
Diesel consumption	Vehicle mileage	Liters	Measured	Annual	100%	Electronic and paper	Emissions from diesel associated with transportation of seedlings, soil conditioner and mulch and fertilizer.

B.8.2. Describe briefly the proposed quality control (QC) and quality assurance (QA) procedures that will be applied to monitor actual GHG removals by sinks

>> All data will be audited every 4 years using an independent carbon accounting firm.

B.8.3. Please describe briefly the operational and management structure(s) that the project operator will implement in order to monitor actual GHG removals by sinks by the proposed small-scale A/R CDM project activity

>> A project manager will be hired from the town of Bintulu tomanage the project. The manager will be responsible for the overall management of the site. A site supervisor living close to the project site will be hired from the local community to oversee the day-to-day operation of the site. A team of workers will be hired from the local community to maintain the trees.

B.9. Date of completion of the baseline study and the name of person(s)/entity(ies) determining the baseline and the monitoring methodology:

>> Baseline study conducted by Gary Theseira from FRIM and completed on [date]

Section C. Estimation of ex ante net anthropogenic GHG removals by sinks

C.1. Estimated baseline net GHG removals by sinks:

>> From section B, baseline net GHG removals by sinks may be assumed to be 0.

C.2. Estimate of the actual net GHG removals by sinks:

>> 15391.20 tons CO2 Equivalent

C.3. Estimated leakage:

>> Leakage will result from the need to transport the seedlings from the nursery to the planting site. Leakage will also result from the transportation of 25 kg dry composted oil palm empty fruit bunch per tree (totaling 0.781 tons dry biomass) to serve as a soil conditioner and soil surface mulch. Transportation of fertilizer will also result in emissions. Total emissions resulting from leakage are estimated at 5 tons CO2 equivalent the first year and 3 tons per year for the second, third and fourth years for a total of 14 tons CO2 Equivalent. From the 5th year onward, leakage is negligible.

C.4. The sum of C. 2. minus C.1. minus C.3. representing the net anthropogenic GHG removals by sinks of the proposed small-scale A/R CDM project activity:

>> 15391.20-0-14 = 15377.20 tons

C.5. Table providing values obtained when applying equations from the approved methodology

>> The result of the application of equations from approved methodology above shall be indicated using the following tabular format:

Year	Estimation of baseline net GHG removals by sinks (tonnes of CO2 e)	Estimation of actual net GHG removals by sinks (tonnes of CO2 e)	Estimation of leakage (tonnes of CO2 e)	Estimation of net anthropogenic GHG removals by sinks (tonnes of CO2 e)
2010	0	145.20	5	140.20
2011	0	217.80	3	214.80
2012	0	363.00	3	360.00
2013	0	508.20	3	505.20
2014	0	508.20	0	508.20
2015	0	580.80	0	580.80
2016	0	580.80	0	580.80
2017	0	580.80	0	580.80
2018	0	653.40	0	653.40
2019	0	653.40	0	653.40
2020	0	653.40	0	653.40
2021	0	726.00	0	726.00
2022	0	726.00	0	726.00
2023	0	726.00	0	726.00
2024	0	653.40	0	653.40
2025	0	653.40	0	653.40
2026	0	653.40	0	653.40
2027	0	653.40	0	653.40
2028	0	580.80	0	580.80
2029	0	580.80	0	580.80
2030	0	580.80	0	580.80
2031	0	508.20	0	508.20
2032	0	508.20	0	508.20
2033	0	435.60	0	435.60
2034	0	435.60	0	435.60
2035	0	363.00	0	363.00
2036	0	290.40	0	290.40
2037	0	290.40	0	290.40
2038	0	290.40	0	290.40
2039	0	290.40	0	290.40
Total Tons CO2 Equivalent	0	15391.2	14	15377.2

Section D. Environmental impacts of the proposed small-scale A/R CDM project activity

D.1. Provide analysis of the environmental impacts, including transboundary impacts (if any)

>> The project area has been impacted severely by 10 years of use as a log landing. Apart from the compaction and damage to soil structure that resulted from the repeated heavy vehicle traffic and the constant loading and unloading of logs, the site has also been contaminated by leaking lubricating oil, engine coolant and hydraulic fluid. The establishment of the project will help begin the rehabilitation of the project site through the introduction of leaf litter and soil microfauna

D.2. If any negative impact is considered significant by the project participants or the host Party, a statement that project participants have undertaken an environmental impact assessment, in accordance with the procedures required by the host Party, including conclusions and all references to support documentation

>> The rehabilitation of the project site through the establishment of the tree plantation will not result in any negative impacts.

D.3. Description of planned monitoring and remedial measures to address significant impacts referred to in section D.2. above:

Section E. Socio-economic impacts of the proposed small-scale A/R CDM project activity:

E.1. Provide analysis of the socio-economic impacts, including transboundary impacts (if any):

>> The economic situation of communities in the area have fluctuated depending on the level of logging activity in the area. Prior to the issuing of the logging license, the local community made their livelihood from the forest in the form of shifting cultivation and the saleof forest products. While the logging activity was ongoing, the community derived additional income from the timber concessionaire by opening and running the canteen for the logging concessionaire. The young men in the community worked as riggers and maintenance workers for the logging machinery. When logging operations ceased, the local community resumed their prior lifestyle. The project is designed to provide two distinct

sources of income for the local community. The first source of income is derived from the land preparation, planting, care and maintenance of the trees while the second income source is to be derived from the sale of the fruit from the fruit trees to be planted on part of the project area.

E.2. If any negative impact is considered significant by the project participants or the host Party, a statement that project participants have undertaken a socio-economic impact assessment, in accordance with the procedures required by the host Party, including conclusions and all references to support documentation:

E.3. Description of planned monitoring and remedial measures to address significant impacts referred to in section E.2. above:

Section F. Stakeholders' comments

F.1. Brief description of how comments by local stakeholders have been invited and compiled:

>> Meetings with stakeholders were held on [ ] occasions; [insert dates of meetings.] The attendance lists of the meetings are attached and include Sarawak Forest Department Officers, members of the local community, including community leaders, members of indigenous peoples' NGOs, members of environmental NGOs, representatives of the local district office and officers of the Forest Research Institute Malaysia. The meetings were co-chaired by the Sarawak Forest Department and representatives of the local community, and were documented using audio-visual equipment. All stakeholders were given ample opportunities to express their views and concerns as well as the opportunity to request clarifications and question any of the officers present on any aspect of the project. The complete proceedings have been archived an are available on request

F.2. Summary of the comments received:

>> Members of the local community expressed concerns about the amount of labour needed in the land preparation phase and the early establishment phase of the project. They were happy to be involved in the scheduling and planning of activities as well as the allocation of resources.

They also expressed concerns about the continuity and reliability of income and were pleased to note that they had been included in all planned budgeting meetings

Finally, they were concerned about the impact of fertilizer runoff into the river given the poor infiltration characteristics of the site. They were happy to suggest locally composted organic fertilizer that had slow-release properties and would serve as a soil conditioner to improve the soil at the site in the long-term

They were also very pleased to note that we had included the fruit trees in the planting scheme to supplement their seasonal income.

F.3. Report on how due account was taken of any comments received:

>> All concerns were recorded and classified according to the scope of the concerns. Small working groups comprised of pertinent stakeholders were assigned the task of finding mutually acceptable and workable solutions. These working groups met independently, resolved the issues and reported to the main committee.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROPOSED SMALL-SCALE A/R CDM PROJECT ACTIVITY

Organization:	Forest Department Sarawak
Street/P.O.Box:	Jalan Stadium, Petra Jaya
Building:	Wisma Sumber Alam
City:	Kuching
State/Region:	Sarawak
Postfix/ZIP:	93660
Country:	Malaysia
Telephone:	+6082 – 442180
FAX:	+6082 – 442180
E-Mail:	ricky1@sarawaknet.gov.my
URL:	www.forestry.sarawak.gov.my
Represented by:	Ricky Jonathan Alek

Title:	Executive Forester
Salutation:	Mr
Last Name:	Alek
Middle Name:	Jonathan
First Name:	Ricky
Department:	
Mobile:	
Direct FAX:	+6082 445639
Direct tel:	+6082 319214
Personal E-Mail:	ricky1@sarawaknet.gov.my

Annex 2. INFORMATION REGARDING PUBLIC FUNDING

Annex 3. DECLARATION ON LOW-INCOME COMMUNITIES

Please provide a written declaration that the proposed small-scale afforestation or reforestation project activity under the CDM is developed or implemented by low-income communities and individuals as determined by the host Party.

History of the document

Version	Date	Nature of revision
02	EB35, Annex19	• Sections A and B were restructured; • Requirement to repeat equations has been removed from section C; • Sections D and E have been aligned with the requirements of the Modalities and Procedures.
01	EB 23, Annexand 16(b) 24	Initial adoption

⑤ Indonesia

CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM for SMALL-SCALE afforestation and reforestation project activities (CDM Version 02)

CONTENTS

Annexes

Section A. General description of the proposed small-scale A/R CDM project activity

A.1. Title of the proposed small-scale A/R CDM project activity

>> Reforestation of unproductive grassland through small-scale fruit and timber tree systems - Version 02 - 09 September 2008 (AR-AMS0001)

A.2. Description of the proposed small-scale A/R CDM project activity

>> The purpose of the proposed A/R CDM project activityis to reforest grasslands, which have become a climax landcover due to tolerance of the wildfires that occur every 1-2 years. The proposed project is located in four sub-districts, containing 16,000 hectares of grassland (BPS Sidrap, 2004). The grasslands are dominated by Imperata cylindrica (hereafter referred to as Imperata). Most of these lands are found on state lands and are considered unproductive. There is interest at both the government and community levels to convert these vast grasslands to more productive tree-based systems. To date most reforestation efforts, both public and private, have fallen short of their objectives due to reoccurring fires and a lack of clear land/tree tenure. The proposed A/R CDM project activity qualifies as a Small Scale AR CDM Project as it is estimated to produce net green house gas (GHG) removal by sink of not more than 16 kton of CO2-equivalent per year and will be implemented by low income community as defined by Host Party (Decision ……. 2007)

Grasslands have dominated the project location since the late 1960 s. In 1967, Haji Abunawas was granted land-use rights to 382 ha of Imperata land in recognition of his service to the district by becoming the national Pencak Silat champion Pencak Silat is a traditional form of martial art. Haji Abunawas invited 100 households to share the land grant with him, providing full tenure rights to the land they converted to tree farming systems. This strategy has successfully reforested 300 ha, but at a rate of less then 8 ha/yr. The local government would like to replicate, expand and accelerate this successful farmer-led strategy by provide land/tree tenure and facilitate technical support to communities that are willing to rehabilitate Imperata lands with tree-based systems. Communities are interested in this concept as a meansof gaining tree and land tenure, diversifying their current farming systems, producing tree crops need in their homes, and enhancing their medium to long-term income. However, most households at the location are subsistence farmers; they do not have the start-up capital required to invest in tree-based systems.

Lestari Foundation-MPI Reformasi, a community development organization involved with

Community Based Forest Management, in collaboration with the local government will assist local communities to develop Fruit and Timber Trees Systems. They see that the CDM is an appropriate mechanism to accelerate the reforestation of degraded lands and achieve sustainable development by enhancing farmer incomes. Tree species selection is based on community preference and favor species yielding products for household use and market sale. Timber species are both fast and slow growing, with rotations of 5-7 years and 30 years, respectively; fruit species systems will be retained on farm for 60 or more years after establishment.

The project activities will contribute significantly to sustainable development by accruing the following private and public benefits:

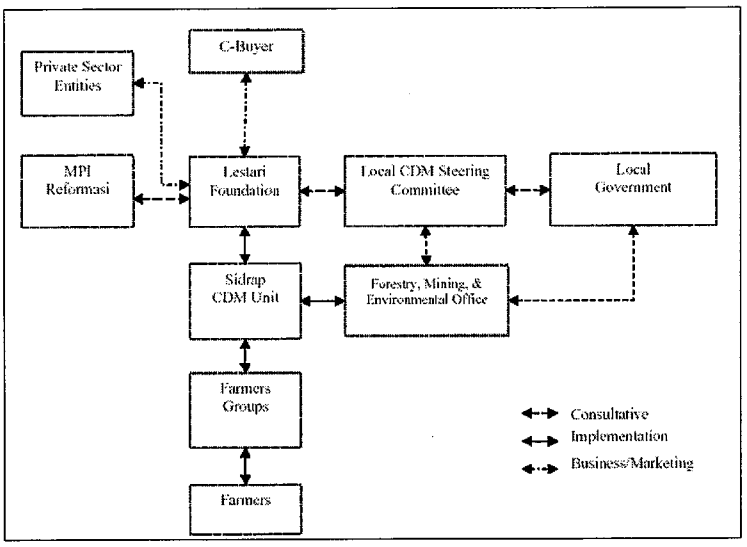
- Increase incomes of participating families from: i) market sales of fruit and timber products starting in the fifth year after establishment; and ii) carbon payments from CERs for a thirty year period,
- Control and reverse soil degradation as the physical presence of tree roots and crowns will protect the soil from erosion from surface erosion and impact of rain drops,
- Enhance soil productivity and increase soil carbon, and
- Reduce run-off, increase soil water storage, and increase air and water quality.

A.3. Project participants

>> The main project participants are the low income communities of the villages of Rijang Panua, Mario, Bulo Wattang, Cipotakari, and Lasilawa in the three sub-districts of Siddenreng Rappang District. Those communities will be coordinated by Lestari Foundation (Yayasan Lestari MPI Reformasi) and assisted by a number of entities as listed in Table A3.1. The relationship among the entities is shown in Figure A3.1.

[Table A3.1] Entities Involve in the Project

Name of Party involved (*) ((host) indicates a host party)	Private and/or public entity(ies) project participants (*) (as applicable)	Kindly indicate if the Party involve wishes to be considered as project participants (Yes/No)
Farmers	Project participants	Yes
Farmer groups (see Table A3.2)	Project participants	Yes
Lestari Foundation	Private Entity	Yes
Sidrap CDM Unit	Private Entity	Yes
District Forest, Mining, and Environment Office	Public entity	Yes
Local Government	Public entity	No
MPI Reformasi	Private entity	No
CDM Steering Committee and local governments	Public entity	No
Private Entities	Private Entities	No
NGOs	Private Entities	No



<Figure A3.1> Institutional arrangement for the project activities

Lestari Foundation will be responsible for facilitating mutually acceptable Memorandum of understanding (MoU) between all project participants regarding roles, rights and responsibilities. Additionally, Lestari Foundation with the assistance of MPI Reformasi will identify secure funding to support project inception (see Annex 2); and develop agreements with Carbon buyers and others private sector entities for the purchase of CER and other tree products. Lestari Foundation, through its Sidrap CDM Unit, will coordinate farmers groups in implementing and monitoring the project activities and related activities (seedling production, trainings, marketing, etc.). The Local CDM Steering Committee will act as focal point at the District level for facilitating any CDM project related activities. The committee consist of relevant government agencies, NGOs, community leaders and farmer representatives. The CDM Unit through relevant farmers groups will develop MoUs with individual farmer regarding rights and responsibilities. The Local Government will provide supportive policy and regulatory framework for CDM activities. In this proposed project, the Local Government through the Forestry, Mining and Environmental Office (Forestry Office) will provide financial support for technical assistance, including training in fire control management, tree management, etc. Lestari Foundation through its Sidrap CDM Unit, in coordination with the Forestry Office, will provide technical assistant for nursery management, carbon monitoring and other priority topics identified by project participants. NGOs maybe contracted to provide capacity building or leadership training to farmer groups, and/or C-Buyer assist with the facilitation of technical training. Project participants agree to share CERs as follows: Local Government 15%, Lestari Foundation 40% and farmers 45%. All tree products produced by the tree-based systems established through the project activity will be owned by the individual farmer, producer and that those products should be sold through the market linkages developed by Lestari Foundation.

【Table A3.2】 Name of Farmer Groups, villages and sub-districts

No	Name of Farmer Group	Name of Head of the Group	Number of member (Farmers)	Village	Sub-District	Total Area proposed for CDM (ha)
1	Puncak Harapan	Abdul Halim	54	Rijang Panua	Kulo	67.6
*2**	*Sipodeceng*	*Dalle Wilo*	*51*	*Rijang Panua*	*Kulo*	*71.0*
3	Birue	Ali	25	Rijang Panua	Kulo	47.5
4	Mase-Mase	Abu Nawas	29	Bulo Wattang	Panca Rijang	46.9
5	Waisingnge	Husain	50	Bulo Wattang	Panca Rijang	49.1
6	Bulu Bendera	Lamure	60	Bulo Wattang	Panca Rijang	44.0
7	Mulamellee	Makka	6	Lasilawa	Pitu Riawa	54.1
8	Sipatur	Burhan	112	Lasilawa	Pitu Riawa	117.4
9	Sipakainge	Labora		Lasilawa	Pitu Riawa	
10	Uluna Elle Pellengnge	Musliga	32	Cipo Takari	Panca Rijang	49.0
11	Lapadujung	P. Mide	30	Cipo Takari	Panca Rijang	48.0
12	Ancae	Onding	23	Cipo Takari	Panca Rijang	26.0
13	Maddara Takku	Lababa	28	Bulu Timoreng	Panca Rijang	21.2
14	Cahaya Malleleang	Nasir	81	Bulu Timoreng	Panca Rijang	80.8
	TOTAL (eligible land)					652

*Note: Names of farmer participants are listed in Annex 1. Area proposed by Sipodeceng farmer group is not eligible for CDM project, as the area was forest in 1989.

A.4. Description of location and boundary of the small-scale A/R CDM project activity

A.4.1. Location of the proposed small-scale A/R CDM project activity

A.4.1.1. Host Party(ies)

>> Indonesia

A.4.1.2. Region/State/Province etc.

>> South Sulawesi

A.4.1.3. City/Town/Community etc.

>> Sindenreng Rappang, As it is indicated in Table A3.2, the project activity will be located in five villages (desa) of three sub-districts (Kecamatan): Lasiwala village, Pituriawa sub-disitrict; Rijang Panua village, Kulo sub-district; Bulo Wattang, Bulu Timoreng and Cipotakari villages, Panca Rijang subdistrict. The sub-districts are all located in Siddenreng Rappang District of South Sulawesi Province (Figure A4.1)

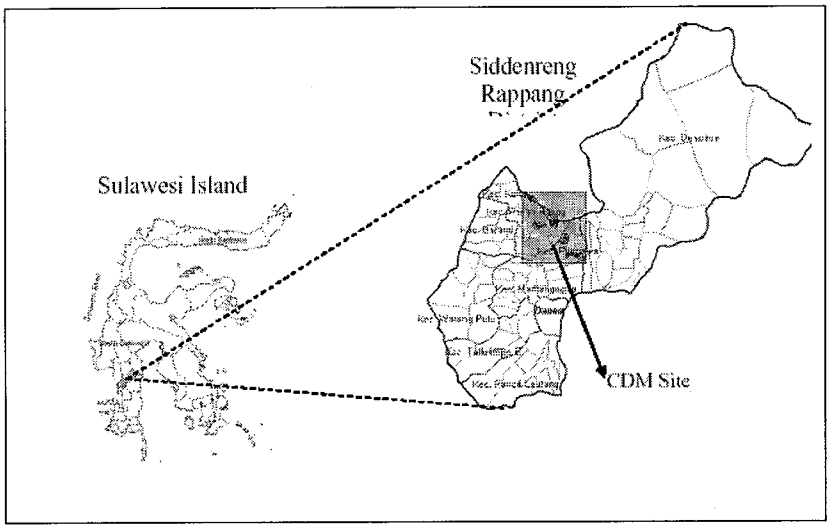
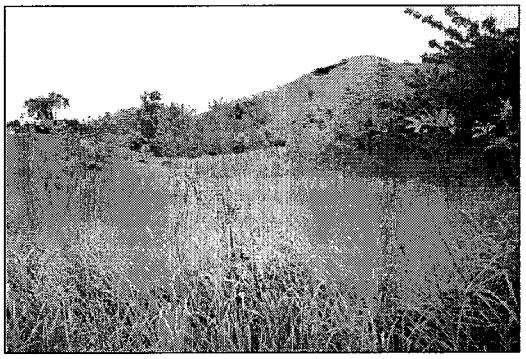


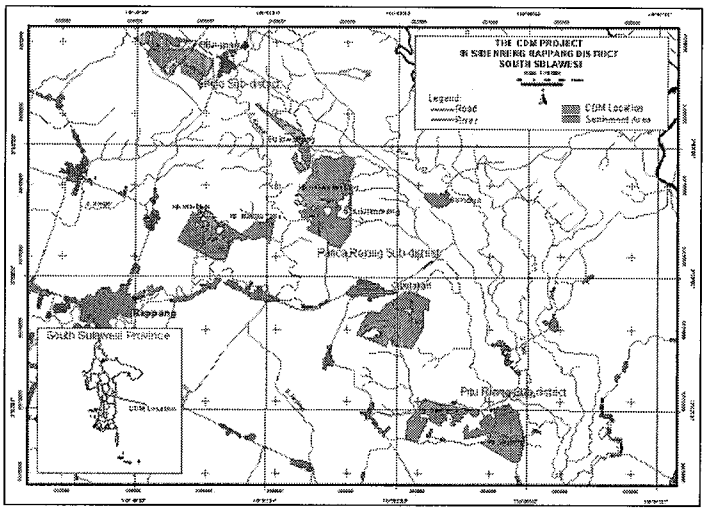
Figure A4.1. Location of the A/R CDM project

A.4.2. Detail of geographical location and project boundary, including information allowing the unique identification(s) of the proposed small-scale A/R CDM project activity:



<Figure A4.2> General condition of lands in the project location

>> The A/R CDM project activity will be implemented in seven discrete areas of land which were determined based on field survey data and in collaboration with heads of the sub-districts, community leaders and other stakeholders. The general condition of land in the project location is shown in Figure A.4.2. The geographic locations and project boundaries of the discrete areas in which project activity will be implemented are shown in Figure A.4.3. Total area within the project boundaries are 1,033 ha, but the total area being planted will be about 652 ha, the ones that meets Kyoto definition (see Table A.4.1). These boundaries were developed within the areas of land designated by the local government for the AR CDM project development. The detail geographic positions of lands being reforested within the boundaries will be identified for each individual farmer through field surveys and later these boundaries will be treated as the actual project boundaries.



<Figure A4.3> The geographic locations and project boundaries of the discrete areas in which project activity will be implemented

[Table-A.4.1] Project area and number of household that will participate in the projects

Name of sub-district (Kecamatan)	Name of Village	Lat.	Long.	Area allocated for CDM (ha)	Total Area within the boundary (ha)
Kulo	Rijang Panua	3.77-3.79°	119.83-119.85°	115	135
Pitu Riawa	Lasilawa-1	3.87-3.88°	119.91-119.92°	117	104
	Lasilawa-2	3.87-3.88°	119.89-119.91°	54	132
Panca Rijang	Bullo wattang	3.79-3.81°	119.86-119.87°	47	50
	Cipotakari	3.84-3.85°	119.88-119.90°	123	179
	Bulu Timoreng-1 (Klp. Cahaya Maleleang)	3.80-3.83°	119.87-119.88°	125	266
	Bulu Timoreng-2 (Klp. Waesinge, Madara)	3.82-3.83°	119.84-119.86°	70	167
Total				**652**	**1,033**

Note: Area proposed by Sipodeceng farmer group is excluded.

A.5. Technical description of the small-scale A/R CDM project activity

A.5.1. Type(s) of small-scale A/R CDM project activity

A.5.2. A concise description of present environmental conditions of the area, which include information on climate, soils, main watershed, ecosystems, and the possible presence of rare or endangered species and their habitats:

>> Soil and Physiographic. Soil types common in Kulo and Panca Rijang sub-districts are dark gray alluvial (clays), brown podsolic (clay-loams), and complex of brown podsolic

and regosol (sandy clay). Soil types of Pitu Riawa sub-district are the same as those in Kulo and Panca Rijang, plus hydromorphic aluvial (clay), and yellowish red podsolik (loam-clay) (BPS Sidrap, 2000 and Bappeda Sidrap, 2003). These soils are appropriate for, and currently support, the range of annual and tree crops to be established through the project activity.

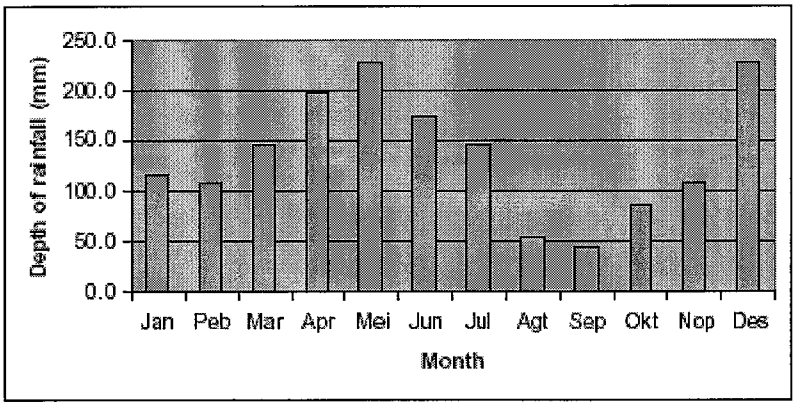
Most of project area is flat, with some undulating to rolling regions. Fifty to sixty percent of the target sub-districts are flat or rolling hills, the remaining areas are mountainous (Table A.5.2). The elevation of the target sub-districts is between 50 and 250 m above sea level (asl). The project area is about 10 km from the District capital and 180 km from the Provincial capital of Makassar. The main road between the Provincial and District capitals is made of aspalt. Most of the roads between the district capital and project sites are made of aspalt, while some are made of gravel and soil.

[Table-A.5.2] Topographic Condition of Sidenreng Rappang

No	Sub-district	Topography (%)				
		Flat	Hilly	Mountain	Swamp/lake	Total
1.	Kulo	52	3	45	-	100
2.	Panca Rijang	52	3	45	-	100
3.	Pitu Riawa	35	25	40	-	100

Source: Sidenreng Rappang Dalam Angka 2000 (BPS Sidrap, 2001)

Climate. The average temperature of Sidenreng Rappang ranges from 32°C to 26°C. Annual precipitation is between 1300-2200 mm. The rainy season occurs from December to July; the dry season between August and November. Figure A.5.1 provides data on average monthly precipitation. Average relative humidity is around 85%.



<Figure A.5.1> Average monthly rainfall in Siddenreng Rappang

Rainfall pattern of the site are of the equatorial type with two annual peaks around May and December. In most cases, during El-Nino years, rainfall is below normal and may

cause drought. Kirono and Partridge (2002) found strong correlation between Southern Oscillation Index (SOI or El-Nino occurrences) and seasonal rainfall at the proposed site. The chance to have normal or above normal rainfall during El-Nino years is only 20%. As the El-Nino cycle is 3-7 years, it is likely to experience a dry year at the site at that frequency. However, droughts only occur in Sulawesion a 20-30 year cycle (Whitten et al 200). The La-Nina events which follow El-Ninos increase rainfall and potentially the risk of floods. However, the project site is an expansive flat to undulating area, floods have not been common in the past and are not expected to be in the future. Similarly, typhoons are not common as the district is located inland. Neither are landslides significant problems, as the topography of the project location is flat to rolling, opposed to steep and mountainous.

Hydrology. The proposed project areas are located the Bila Watershed; specifically Kulo and Panca Rijang sub-districts in the upstream portion Dua sub-watershed and Pituriawa sub-district inthe downstream portion of the Rappang sub-watershed. Bila watershed, together with a number of other watershed forms the SWS (Satuan Wilayah Sungai or Regional River Unit) Walanae-Cenrane river unit area. Most of the rivers in this unit area flow into the ocean at Bone Gulf(see Figure A.5.2). The main rivers in the proposed project area are the Bila, Rappang, Bulu Cenrane and Dua rivers. Local communities use the water from these river to meet their daily household and agricultural needs (Bappeda Sidrap, 2003). Another common water source is the small Tellangnge dam located in Kulo sub-district. Communities also access ground water from wells (shallow aquifer) at depths of 7-11 m and some deep aquifers. The quality of the ground water sources are very good (Bappeda Sidrap, 2003).

Ecosystems. The proposed project areas were converted from their natural lowland forest ecosystems in and prior to the 1960s. The current mosaic of landuse systems includes the private holdings of smallscale farmers, government land (primarily Imperata grasslands, including areas targeted for reforestation by the project activity) and small areas of degraded secondary forests. Farmers land holdings are composed of irrigated rice land, upland fields and tree gardens (also called agroforests). Crop production in upland fields is for household consumption. Common tree garden species include the timber species Gmelina arborea (jati putih), Tectona grandis (jati), Paraserianthes falcataria (sengon), Acacia ariculiformis (akasia), and the fruit species2 Theobroma cacao (coklat or kakao), Aleurites moluccana (kemiri), Anacardium occidentale (jambu mete), Citrus spp. (jeruk), Ceiba pentandra (kapuk), Mangifera indica (mangga), Artocarpus altilis (sukun), and Artocarpus heterophylla (nangka). Tectona grandis is particularly popular, with several varieties being cultivated. Most of these common

species are not truly native to Sulawesi, although they may have been naturalized long

ago. Mangifera indica spread to Indonesia from its native India 1500 years ago (Sukonthasing et al 1992). Tectona grandis, was introduced centuries ago from India and Burma(Altona 1922 and Carthaus 1909 in Whitten et 2002). Acacia ariculiformis and Paraserianthes falcataria are native to Irian Jaya and/or the Moluccas (in Indonesia), but not Sulawesi (MacDicken 1994). While the precise geographic origin of Aleurites moluccana, Artocarpus altilis, Artocarpus heterophylla and Citrus spp are not known, they are all likely native to Indonesia (Verheij and Coronel 1992); the cultivars currently propagated by farmers are the result of anthropogenic domestication. None of these four species are mentioned by Whitten et al (2002) as common components of the native lowland forests of Sulawesi.

Rare or endangered species and their habitats. The fauna of Sulawesi is one of the most distinctive in all of Indonesia. The island s indigenous species includes at least 127 mammals, 332 birds, 29 amphibian and 40 lizards (Whitten et al 2002). Many of these species are endemic. The 16 indigenous species listed in Table A.4.3 are considered rare or endangered by the International Union for the Conservation of Nature (Whitten et al 2002). As the proposed project area is mainly grasslands with only scattered tree cover, it does not provide suitable habitat to indigenous fauna species, including rare or endangered species. However, once the area is reforested through the proposed project activity its habitat value will increase significantly, particularly for migratory birds. The project activity s impact on rare or endangered species will be neutral or beneficial.

[Table-A.5.3] Rare and Endangered Species in Sulawesi

Common Name	Scientific Name	Common Name	Scientific Name
Sulawesi tarsier	*Tarsius spectrum*	Maleo	*Macrocephalon maleo*
Sulawesi civet	*Macrogalidia musschenbroeckii*	Estuarine crocodile	*Crocodylus porpsus*
Dugong	*Dugong dugon*	Leatherback turtle	*Dermochelys coriacea*
Babirusa	*Babirousa babirusa*	Hawkbill turtle	*Eretochelys imbricate*
Lowland anoa	*Bubalus depressicornis*	Forsten's tortoise	*Indotestudo forsteni*
Mountain anoa	*Bubalus quarlesi*	Talaud black birdwing butterfly	*Troides dohertyi*
Chinese egret	*Egrettaeulophotes*	Palu swallowtail	*Atrophaneura palu*
Milky stork	*Ibis cinereus*	Tambusisi wood nymph	*Idea tmbusistana*

A.5.3. Species and varieties selected

>> The tree species selected for the project activity are based on community preference and favor species that yield products for household use and market sale. Farmers prefer diversified, multi-species agroforestry systems over monocultures. While both fruit and timber species are desired, most farmers favor fruit species, as the market opportunities for timber/wood are still limited. Timber species are both fast and slow growing, with rotations of 5-7 years and 20-30 years, respectively; fruit species systems will be retained

on farm for 60 years establishment. In addition farmers also want to raise bees for honey production. The tree species selected are listed in Table A.4.3.

[Table A5.3] List of species selected for the project

No.	English name	Local name	Scientific name
A	**Border Trees**		
1	Cotton tree	Kapok Randu[1]	*Ceiba pentandra*
2	Candle nut	Kemiri	*Aleurites moluccana*
B	**Timber Trees**		
1	Teak	Jati	*Tectona grandis*
2	Gmelina	Jati putih	*Gmelina arborea*
C	**Commodities**		
1	Cacao	Coklat	*Theobroma cacao*
2	Cashew nut	Jambu mete	*Anacardium occidentale*
	TOTAL		

A.5.4. Technology to be employed by the proposed small-scale A/R CDM project activity

>> The technology to be employed by the A/R CDM project activity has been developed in Southeast Asia by and for rural communities to convert Imperata grasslands to more productive tree-based systems. They are similar to practices currently used by local farmers and will beeasily adopted. The conditions required for successful use of the technology are: i) secure land and/or tree use rights, ii) community cooperation in fire prevention and suppression, and iii) species selection that match socioeconomic and biophysical conditions. These conditions exist or will develop through implementation of the technology and methods.

A.5.5. Transfer of technology/know-how, if applicable

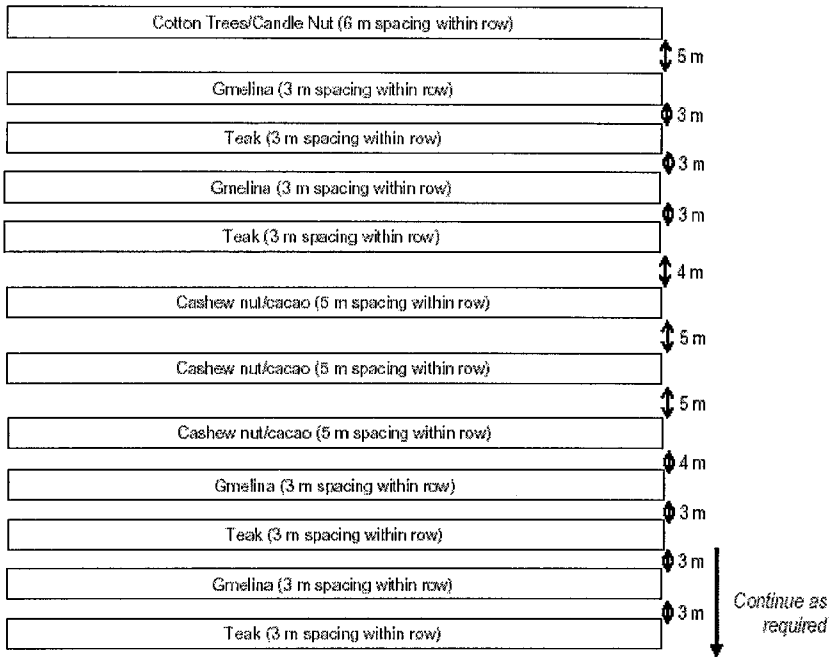
>> Site mapping and assessment. First, the areas on which the project activity is to be implemented will be mapped and micro-site assessment conducted to assure species-site matching is appropriate. The local community has sufficient knowledge to conduct this evaluation independently; community leaders may seek input from farmer specialists, the project proponent or other relevant stakeholders when conducting mapping and assessment. Depending on their capacity and desire, most families participating in the project activity will be allocated 0.5 to 2 hectares of land.

Fire management strategy. Fire is used by farmers as a tool to prepare fallowed or unproductive lands for planting and to create a barrier between lands being used and the

larger grasslands where wildfires occur almost every year. Abandoned grasslands are also burned to deny cover to wildpigs, which often damage agricultural and tree garden crops. (Wildpigs refers to feral domesticate pigs, not the indigenous babirusa mentioned in Table A.4.3). Farmers have developed a number of indigenous methods and practices to use fire safely. Farmers burn grasslands when the temperature is cool and there is no wind. They also: i) spray the borders of the area to be burned with water; ii) create firebreaks by bending or removing grass at the borders of the area to be burned; and iii) control the directionand momentum of the fire by bending or removing the grass within the area to be burned. Most importantly, farmers work with their neighbors when burning. Two days in advance, farmers call a meeting to announce and organize cooperation for burning operations. The meeting should be arranged through the village head or elder. Fire fighting groups are organized when wildfires threaten land used by the farmers/village. The community response united and quickly to such threats, which are not common due to farmers proactive use of backfires to decrease the fuel load in the areas separating the farmer/village lands and the larger grasslands. Fire fighting methods and practices match those mentioned above. Additionally, training in fire fighting will be provided to farmer participants through sponsorship of the District Forest Office.

Species selection. Farmer participants have selected six main species to be included in the project activity: cottan trees (Ceiba pentandra), candlenut (Aleurites moluccana), cashew (Anacardium occidentale), (Theobroma cacao), teak (Tectona grandis) and gmelina (Gmelina arborea). Additionally, small numbers of other species may be cultivated as part of the project activity. The specific species to be planted on individual farms will depend on farmers choice and the biophysical conditions of the site. Results from surveys and discussion conclude that farmers will not establish monocultures.

Planting design. The following standard planting design has been recommended to farmer participants. However, farmers remain free to establish their preference of species in the design of their choice. Approximately 690 trees will be planted per hectare. Standard species composition per hectare is: 30 cotton trees (Ceiba pentandra) and/or candlenut (Aleurites moluccana), 160 cashew (Anacardium occidentale) and/or cacao (Theobroma cacao), 250 teak (Tectona grandis) and 250 gmelina (Gmelina arborea). Farmers will be able to choose between cottan trees and candlenut or a combination of both; between cashew and cacao or a combination of both; and between teak and gmelina or a combination of both. Cotton tree and candlenut will be planted at 6 meter spacing along the borders separate the plots of individual farmers; cashew and cacao will be planted at 5x5 meter spacing; teak and gmelina will be planted at 3x3 m spacing. The general planting design provided in Figure A.5.4.



<Figure A.5.4> **General planting design for the proposed project activity. A row of cotton tree/candlenut are planted on the border of the plot at 6 meter spacing. Four rows of timber trees are planted at 3 meter spacing. Rows of timber trees alternating between gmelina and teak. Three rows of cashew/cacao are planted at five meter spacing. Distance between cotton tree/candlenut and timber rows is 5 meters. Distance between rows of timber trees is 3 meters. Distance between rows of timber and cashew/cacao is 4 meters. Distance between rows of cashew/cacao is 5 meters. The pattern is repeated until the site is fully occupied.**

Seedling production. During the first two years of the project activity the farmers groups will produce enough seedlings to reforest 654 hectares. Lestari Foundation, the District Forest Office, MPI Reformasi and other relevant local stakeholders will provide seedlingproduction training, relevant technical extension, and facilitate access to quality seed and nursery supplies. Seedling production will be initiated 4 to 6 months before the tree planting annual planting season. Annual seedling production during the firsttwo years will be approximately 259,500, determined as follows 690 seedlings x 327 hectares plus an additional 15% in anticipation of seedling damage and mortality. Each farmer group will be responsible to produce sufficient seedlings to meet the needs of its members on an annual basis. Seedling production per species will consider farmers preference, the number of seedlings required per hectare, and the additional 15% to anticipate damage and mortality.

Land preparation. Reforestation of Imperata grasslands requires through land preparation. Farmers use three different methods of land preparation: ploughing with a tractor,

application of herbicide, or burning as described above. Ploughing is too expensive and will not be used in the project activity. Additionally, ploughing is not allowed under SSC A/R CDM Project activities.

Participating farmers will agree not to plough their project lands. Farmers will be encouraged to maintain current practices, i.e. combination of herbicide and burning methods. Four weeks before the anticipated arrival of the first rains, herbicide is applied to the grass. Two weeks after the first application herbicide may be applied again. Based on local experience (characteristics of the grasslands), recommended application rates of 3-10 liters/ha. One to two weeks after the second herbicide application, farmers will cultivate the area, removing all Imperata and other weeds, including the below ground roots. Alternatively, in collaboration with neighbours, farmers may choose to remove the dead grass through a controlled burn in accordance with practices mentioned above.

Tree planting. At each tree planting position, the soil will be prepared to a depth and width of 25-50 cm just prior to the arrival of the rainy season (December). All tree species will be planted immediately after the first heavy rain.

Intercropping. It is recommended that farmers intercrop their trees with annual crops once a year for 2-3 years. annual crops will be planted and managed according to local practices. Choice of annual crop will be made by individual farmers and likely to favor corn, peanut, chilli and upland rice. Intensive weed control and fertilizer applied to the annual crops will enhance tree growth and survival. Based on the survey, on average the amount of NPK fertlizer applied for annual crops is about 100 kg/ha. For perennial crops manure is also applied. The amount of NPK and manure applied per tree is about 0.25 kg NPK and 7.5 kg respectively.

Weed control. Weed competition will be controlled during intercropping periods. At other times, all vegetation within 50 cm of seedlings/trees will be removed whenever it begins to impede seedling/tree growth. Local experience indicates that such weed control measures will be implemented every 2 months(1 to 4 months) during the first year. In the second year, weed control may occur only every 4 to 6 months. Weed control will be maintained until trees achieve a dominant position and suppress other vegetation. In mature tree systems, annual or biennial removal of understorey vegetation will be conducted to enhance tree growth and productivity.

Tree maintenance (fertilizer application and replacement planting). Survey results indicate that a small number of participating farmers will choose to fertilize their tree crops. MPI Reformasi or other stakeholders will provide site or species specific fertilizer recommendations when requested by farmers. Most fertilizers applied will be farm yard manure and compost. Being expensive, chemical fertilizers are not likely to be applied beyond the tree establishment or intercropping phase. Farmers will practice replacement

planting of dead seedlings/trees during the first 2 years after establishment to maintain a 90% survival rate.

Timber harvesting. All Gmelina trees will be harvested at the end of year 10.

A.5.6. Proposed measures to be implemented to minimize potential leakage as applicable

A.6. A description of legal title to the land, current land tenure and land use and rights to tCERs / lCERs issued

>> Legal title to the land: The land to be reforested through the project activities is state land which has never had a private owner. The land has been underutilized for many years. Currently there are no land titles for either the use or ownership of the land to be reforested by the project activity. No people currently live on the land. According to relevant Indonesian Law (Law No. 5 of 1960 regarding the Basic Agrarian Law Government Regulation No. 38 of 1963 regarding the Legal Entities Who Entitles to Hold Ownership Land Title; Government Regulation No. 24 of 1997 regarding Land Registration; and Government Regulation No. 40 of 1996 regarding the Land Title of Right to Cultivate, Right to Build and Right to Use Regulation), these lands will remain as state landuntil: i) the State through central and or local government grant land titles (for land ownership, the right to cultivate, the right to build, or the right to use) to suitable legal subjects based upon legal application, or ii) designate the underutilized state land for certain activities.

Current land tenure and land use. Based on consultation and discussion with the local governments, the representative of Land National Agency (BPN) and local NGOs in Sidrap District, the best alternative for gaining secure land use rights is to maintain the underutilized lands as state land and designate them as special areas for land rehabilitation under AR CDM project. In this regard, the district government has issued several supportive local regulations and policies:

a. Bupati Decree of Sidrap District No 20/2006 stipulates the project area (1013 ha) as a special allocation for land rehabilitation under AR CDM Project. It provides legal base for farmers to claim land-use rights over the project area during the project period, if they establish and maintain tree-based systems that met the MOF definition of forests as specified in section A.4.5.
b. The Confirmation Letter from the Head of Regional Plan Agency (BAPPEDA) of Sidrap District No. 050/BAPPEDA/2006 acknowledges the commitment of District Government to set aside the project area as a special allocation for land rehabilitation under AR CDM Project as stipulated in the Bupati Decree and confirms that this

arrangement will be included in the new District Spatial Planning (RTRW) of Sidrap District to be enacted in coming September.

c. The Recommendation Letter of Bupati of Sidrap District No. 522/614/Hutaling regarding the Land Eligibility for AR CDM Project that will be submitted to MOF.

Rights of access to the sequestered carbon: Ministry of Forestry Regulation Number 14/2004 affirms that state lands are eligible to be used for AR CDM projects and provides rights of access to the sequestered carbon. Project participants agree to share CERs as follows: Local Government 15%, Lestari Foundation 40% and farmers 45%.

A.7. Assessment of the eligibility of land

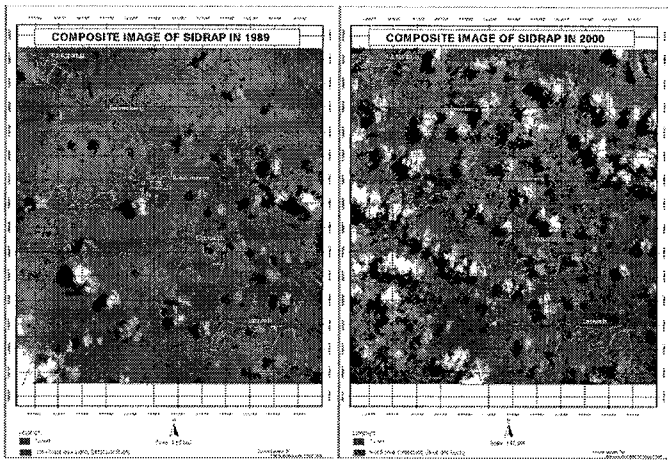
>> Reforestation is the direct human-induced conversion of non-forested land to forested land through planting, seedling, and/or the human-induced promotion of natural seed sources, on land that was forested but that has been converted to non-forested land. For the first commitment period, reforestation activities will be limited to those lands that did not contain forests on 31 December 1989. Satellite imagery (Figure A.5.7) and government regulations (Bupati Decree No. 20/2006) of accountable and reliable information are available that confirm the project areas did not contain forests on 31 December 1989. Figure A4.5 shows colour composite satellite imagery, integration between band 5 (1.55-1.75 m), band 4 (0.76-0.90 m) and band 2 (0.52-0.60 m). Based on this composite, the following types of landcover can be identified: forests are indicated by dark green, while non-forested lands are indicated by other colors. According to Estes et al (1979 in Sabins, 1986) shrub and brushlands are indicated by brown colors and grasslands are pinkish to red colors. Non-clean water is indicated by bluish colors (Short, 1982).

As indicated in Section A4.1.4 some of land areas within the project boundaries may not meet Kyotodefinition. For example, a few areas in Figure A4.5 are of a light green colour indicating that these areas may contain some tree cover. As identified by a detailed field survey, such lands will not be included in the project boundary when the project is implemented. The current boundaries were developed based on the area of land designated for AR CDM project development by the local government.

According, to Ministry of Forestry Regulation Number 14/2004 and its Addendum, forests in Indonesia are defined as land having:

- a minimum area of 0.25 ha
- a minimum tree crown cover of 30%, and
- species that have the potential to reach a minimum height of 5m

The systems to be established through the project activity comply with the definition of MOF definition of forests.



<Figure A4.7> Image of land use cover in the project location in 1989 and 2001

A.8. Approach for addressing non-permanence

>> Please select between:

- ☑ Issuance of tCERs

Temporary-CERs (tCERs) have been selected toaddress non-permanence. The tCERs will expire at the end of the commitment period subsequent to the crediting period for which it was issued. Risk associated with tCERs is lower then with lCERs, because the buyers/sellers of tCERs are not exposed to the risk of penalty associated with C loss or decrease after the CERs are issued.

- ☐ Issuance of lCERs

A.9. Duration of the proposed small-scale A/R CDM project activity / Crediting period

A.9.1. Starting date of the proposed small-scale A/R CDM project activity and of the (first) crediting period, including a justification

>> Starting date of the project: January 1, 2009

Crediting period: January 1, 2009 to December 31, 2029

Justification: As the project will be implemented on state land, a crediting period of 20 years is reasonable. The district government has issued a regulation (Bupati Decree Number 20/2006) stating that, if the participating farmers reforest the land and maintain land cover that complies with the definition of forests, during the crediting period: i) the legal status of the land will not be changed; and ii) the right to cultivate the land will not be cancelled or transferred to others parties.

A.9.2. Expected operational lifetime of the proposed small-scale A/R CDM project activity

A.9.3. Choice of crediting period and related information

>> Please select one of the following:

1. Renewable crediting period ☐
2. Fixed Crediting period ☑ 20 Years

A.9.3.1. Duration of the first crediting period (in years and months), if a renewable crediting period is selected

A.9.3.2. Duration of the fixed crediting period (in years and months), if selected

>> Starting date : January 1, 2009

A.10. Estimated amount of net anthropogenic GHG removals by sinks over the chosen crediting period

Years	Annual estimation of net anthropogenic GHG removals by sinks in tonnes of CO2 e
1	(13,564)
2	(24,244)
3	(17,127)
4	(8,857)
5	617
6	12,151
7	23,744
8	34,858
9	46,100
10	57,174
11	44,429
12	30,077
13	38,627
14	47,970
15	57,869

Years	Annual estimation of net anthropogenic GHG removals by sinks in tonnes of CO2 e
16	68,679
17	78,762
18	88,378
19	98,919
20	110,226
Total estimated net anthropogenic GHG removals by sinks (tonnes of CO2e)	774,788
Total number of crediting years	20
Annual average over the crediting period of estimated net anthropogenic GHG removals by sinks (tonnes of CO2e)	38,739

A.11. Public funding of the proposed small-scale A/R CDM project activity

>> No public funding will be used to support the proposed project that results in a diversion of official development assistant or other obligations by any parties under UNFCCC regulations (FCCC/CP/2003/6/Add.2). The establishment cost of the proposed project will be covered by upfront payment of CERs, counterpart funding from local government, and self financing by the project participants themselves. The operating and maintenance cost will be covered by the project participants and other donors.

A.12. Confirmation that the small-scale A/R CDM project activity is not a deluded component of a larger project activity

>> Up to now, the proposed project is the only proposed SS AR CDM project in the district of Sidrap, thus there is no other registered small-scale AR CDM project proposed by the same project participants in the previous threeyears. The local authority who is assigned to issue confirmation letter on eligibility of the land for AR CDM project as mandated by the Forest Minister Regulation Number 14/2004 is newly established and the participants of the project are the only applicant currently recorded. Thus the project can not be a debundled component of a larger project activity.

Section B. Application of a baseline and monitoring methodology

B.1. Title and reference of the approved baseline and monitoring methodology applied to the proposed small-scale A/R CDM project activity

B.2. Justification of the applicability of the baseline and monitoring methodology to the proposed small-scale A/R CDM project activity

B.3. Specification of the greenhouse gases (GHG) whose emissions will be part of the proposed small-scale A/R CDM project activity

B.4. Carbon pools selected

>> According to the FCCC/KP/CMP/2005/4/Add.1, the proposed project meets the criteria to use the Simplified Baseline and Monitoring Methodologies. Therefore, the proposed project will consider only two carbon pools as shown in the following table.

Carbon Pools Yes/No

Carbon pools	Selected(answer with yes or no)
Above ground	Yes
Below ground	Yes
Dead wood	No
Litter	No
Soil organic carbon	No

B.5. Description of strata applied for ex ante estimations

B.6. Application of baseline methodology to the proposed small-scale A/R CDM project activity

B.7. Description of how the actual net GHG removals by sinks are increased above those that would have occurred in the absence of the registered small-scale A/R CDM project activity

B.8. Application of monitoring methodology and monitoring plan to the small-scale A/R CDM project activity

B.8.1. Data to be monitored: Monitoring of the actual net GHG removals by sinks and leakage.

B.8.1.1. Actual net GHG removals by sinks data

B.8.1.1.1. Data to be collected or used in order to monitor the verifiable changes in carbon stock in the carbon pools within the project boundary resulting from the proposed small-scale A/R CDM project activity, and how this data will be archived

Data variable	Source of data	Data unit	Measured (m), calculated (c) or estimated (e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic / paper)	Comment
N/A	-	-	-	-	-	-	-
N/A	-	-	-	-	-	-	-

B.8.1.2. Data for monitoring of leakage (if applicable)

B.8.1.2.1. If applicable, please describe the data and information that will be collected in order to monitor leakage of the proposed small-scale A/R CDM project activity

Data variable	Source of data	Data unit	Measured (m), calculated (c) or estimated (e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic / paper)	Comment
N/A	-	-	-	-	-	-	-
N/A	-	-	-	-	-	-	-

B.8.2. Describe briefly the proposed quality control (QC) and quality assurance (QA) procedures that will be applied to monitor actual GHG removals by sinks

B.8.3. Please describe briefly the operational and management structure(s) that the project operator will implement in order to monitor actual GHG removals by sinks by the proposed small-scale A/R CDM project activity

B.9. Date of completion of the baseline study and the name of person(s)/entity(ies) determining the baseline and the monitoring methodology:

Section C. Estimation of ex ante net anthropogenic GHG removals by sinks

C.1. Estimated baseline net GHG removals by sinks:

C.2. Estimate of the actual net GHG removals by sinks:

C.3. Estimated leakage:

C.4. The sum of C. 2. minus C.1. minus C.3. representing the net anthropogenic GHG removals by sinks of the proposed small-scale A/R CDM project activity:

C.5. Table providing values obtained when applying equations from the approved methodology

>> The result of the application of equations from approved methodology above shall be indicated using the following tabular format:

Year	Estimation of baseline net GHG removals by sinks (tonnes of CO2 e)	Estimation of actual net GHG removals by sinks (tonnes of CO2 e)	Estimation of leakage (tonnes of CO2 e)	Estimation of net anthropogenic GHG removals by sinks (tonnes of CO2 e)
Year A				
Year B				
Year C				
Year ...				
Total (tonnes of CO2e)				

Section D. Environmental impacts of the proposed small-scale A/R CDM project activity

D.1. Provide analysis of the environmental impacts, including transboundary impacts (if any)

D.2. If any negative impact is considered significant by the project participants or the host Party, a statement that project participants have undertaken an environmental impact assessment, in accordance with the procedures required by the host Party, including conclusions and all references to support documentation

>> Minister of Environment (MOE) Decree No. 17 Year 2001 stipulates the conditions under which environmental impact assessments (EIAs) are required. According to its Article 2, Decree No. 17 supersedes MOE Decree No. 3 Year 2000, which also addresses the requirements for EIAs. According to the Decree No. 17 (Attachment, Section B Forestry Matters) forestry activities smaller then 5000 ha do not require an EIA, unless the Bupati of the district in which the activity is to implemented requests the MOE to conduct an EIA. Decree No. 17 (Attachment, Section B Agriculture Matters) specifies the agriculture activities that require EIA as the following: seasoned agriculture and horticulture crop production (budidaya tanaman pangan dan holtikultura semusim) greater than 2000 ha and annual agriculture and horticulture crop production (budidaya tanaman pangan dan holtikultura tahunan) greater than 5000 ha. As the size of the project is only 652 ha and the Bupati is supportive of the project activity and has not requested a special EIA, no EIA is required for the proposed AR CDM project activity in Sidrap District.

D.3. Description of planned monitoring and remedial measures to address significant impacts referred to in section D.2. above:

Section E. Socio-economic impacts of the proposed small-scale A/R CDM project activity:

E.1. Provide analysis of the socio-economic impacts, including transboundary impacts (if any):

E.2. If any negative impact is considered significant by the project participants or the host Party, a statement that project participants have undertaken a socio-economic impact assessment, in accordance with the procedures required by the host Party, including conclusions and all references to support documentation:

>> No negative socio-economic impacts are envisaged. The three sub-districts in which the project will be implemented contain 16,000 hectares of grasslands dominated by Imperata. Only 652 hectares of grasslands will be converted through the project activity. Imperata has a limited number of subsistence uses. It is used to make compost and young flushes of the grass are used for animal fodder. Very small amounts of Imperata are used to make thatch roofing (people prefer corrugated steel roofs) Locally, Imperata has no economic uses. The area of these grasslands is much greater then is required by the local communities. Even the poor, and other disadvantaged groups, have adequate access to these grasslands.

The local government and participating communities approve of the project activity; neither group has identified any negative socio-economic impacts of the project activity.

E.3. Description of planned monitoring and remedial measures to address significant impacts referred to in section E.2. above:

F. Stakeholders' comments

F.1. Brief description of how comments by local stakeholders have been invited and compiled:

>> The stakeholder process was intended to building stakeholders understanding of and commitment to the design and implementation of an AR CDM project activity. The stakeholder process was conducted in three stages. The first stage was aimed to raise stakeholder s awareness about the AR-CDM (What is a CDM project?, What are the advantages of a CDM project?, How to conduct a CDM project?, Where and when to conduct a CDM project?, and Who can undertake a CDM project?). The first stakeholder process was conducted through a series of roving workshops with the: (a) communities interested in the AR CDM project, (b) Local NGOs, (c) Association of Forestry Companies (MPI Reformasi), and (d) local governments (Province of South Sulawesi, Regency of Sindenreng Rappang, Sub-districts of Kulo, Panca Rijang, and Pituriawa.

The second stage was carried at the end of November 2005 through targeted Focus GroupDiscussions (FGDs) at the community and district level to identify stakeholders understanding, needs, priorities, interests and commitments related to implementing an AR-CDM project activity. The second stage incorporated a broader forum of district stakeholder and bigger events, including media coverage.

The third stage of the stakeholder process will be organized and conducted by the Designated National Authority (DNA), housed in the MOE, if additional consultation is deemed necessary before approval is given.

F.2. Summary of the comments received:

>> Farmers welcome the idea of afforestation/reforestation of grasslands through the project activity for the following reasons: i) the government will facilitate landtenure throughout the project period for farmers who agree to establish/maintain tree-based systems; ii) farmers will be able to establish market-oriented tree-based systems; iii) stakeholders or investors are expected to cover some of the initial investment cost of establishing tree-based system; iv) other stakeholders are expected to assist with the development of market linkages for the products from their tree-based systems; and v) farmers are expected to increase their livelihoods and income. Interviews within the participating communities indicate that farmers anticipate additional agriculture and rural development programs will be implemented in their communities; and that production factor (particularly seedling, herbicide and cost for cultivation), technical assistance, and market linkages will be provided through those programs.

MPI Reformasi expects the AR CDM project will provide them with access to additional wood supplies to strengthen their forest industry enterprises. Local government expected that project activity will help develop Sidrap as one of major honey, fruit and timber supplier in South Sulawesi. The District Forest Office, national government and local governments all expect the AR CDM project activity will positively contribute to local and national land rehabilitation, particularly by establishing successful locally implemented models of reforestation. These factors will ensure that Sidrap AR CDM project will be implemented for the benefit of all.

F.3. Report on how due account was taken of any comments received:

>> This project has been designed in direct response to the interests and urgent needs of the participating farmer s group, local government, MPI Reformasi and other stakeholders. All stakeholders have been involved in the stakeholder and project activity design processes.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROPOSED SMALL-SCALE A/R CDM PROJECT ACTIVITY

Organization:	Yayasan Lestari MPI Reformasi, South Sulawesi
Street/P.O.Box:	Jl. Gagak No. 16 Makassar
Building:	CV. Benteng Aznal Makassar
City:	Makassar
State/Region:	South Sulawesi
Postfix/ZIP:	90122
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E-Mail:	lestari-mpir@yahoo.com
URL:	
Represented by:	Iswara Gautama
Title:	Ir, M.Si
Salutation:	
Last Name:	Gautama
Middle Name:	
First Name:	Iswara
Department:	Yayasan Lestari MPI Reformasi
Mobile:	+6281342774001
Direct FAX:	+62411 872625
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Annex 2. INFORMATION REGARDING PUBLIC FUNDING

The main financial obstacle faced by the proposed project is a lack of initial investment capital. This obstacle must be addressed before the project can be successfully initiated and the tree-based systems established. The proposed strategy to address this obstacle is to develop financial shares among stakeholders with strong support from the local government through sound and clear policies. The lead Sidrap AR CDM project proponent, Lestari

Foundation, will approach international organizations interested in the C trade. Organizations interested in the Sidrap AR CDM project will be requested to make advance carbon payment to be used as initial investment funds. If the advance payments from international sources are insufficient to cover the initial investment cost, Lestari Foundation will seek domestic sources of funding to make up the deficiencies. The domestic private sector may be interested in providing initial investment funds in return for guaranteed product supply (wood, honey, and other forestry products) from AR CDM project. Under this scheme, Lestari Foundation will act as initiator to bridge private sectors and farmer groups.

Total costs of the project are about US$825,000 of which US$620,000 is required in the first two years as the initial investment to support the establishment of the tree-based systems. The remaining US$205,000 is for systems management between the second and thirtieth year of the project activity.

The project costs will be supported as follows: US$240,000 will be raised by Lestari Foundation through upfront sales of tCERs produced for the first verification period (based on a price of US$4/ton C). US$105,000 will be provided by farmers as labor equity in the first two years to cover 15% of the establishment costs US$170,000 will be provided by farmers as labor equity between the second and thirtieth to maintain and manage their tree-based systems. The remaining US$310,000 is required as initial investment capital and will be raised by the Lestari Foundation from international or domestic sources.

Annex 3. DECLARATION ON LOW-INCOME COMMUNITIES

Please provide a written declaration that the proposed small-scale afforestation or reforestation project activity under the CDM is developed or implemented by low-income communities and individuals as determined by the host Party.

History of the document

Version	Date	Nature of revision
02	EB35, Annex19	• Sections A and B were restructured; • Requirement to repeat equations has been removed from section C; • Sections D and E have been aligned with the requirements of the Modalities and Procedures.
01	EB 23, Annexand 16(b) 24	Initial adoption

⑥ Myanmar

CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM for SMALL-SCALE afforestation and reforestation project activities (CDM Version 02)

CONTENTS

Annexes

Section A. General description of the proposed small-scale A/R CDM project activity

A.1. Title of the proposed small-scale A/R CDM project activity

>> Community Small Scale Reforestation Project in Mangrove Forest, Ayeyawady Delta, Myanmar

A.2. Description of the proposed small-scale A/R CDM project activity

>> The proposed small scale A/R CDM project aims to rehabilitate the degraded mangrove lands of Bogalay Township in Ayeyarwady Delta, where richlycovered by mangrove forests in the past. Recently, this Delta area was hardly hit by Cyclone Nargis, which devastated huge areas of mangrove forests across the Delta. Abovementioned Township is the most exposed area among Townships in Delta area along Myanmar's southwest coast. These low lying areas, combined with many tidal waterways are naturally exposed to storms and monsoon winds blowing from the southwest. Their vulnerability to natural disasters, like Cyclone Nargis, however, was significantly increased by the losses of natural forests and vegetations that have accompanied transformation of the lands for paddy cultivation and other land uses.

The Ayeyawady Delta is one of the areas where the most serious deforestation taken place in Myanmar. Since early 20thcentury, all the existing reserved forests in this area were established by the Forest Department (FD). However, due to the various historical anthropogenic modification of mangrove forests such as inter alia charcoal production, agricultural and aquaculture encroachment and fuel wood extraction, the area of mangrove forests has decreased to approximately 40% than recorded in the 1920s.

To address the above situation, the Forest Department of the Ministry of Forestry (MOF) formulated the Integrated Mangrove Management Plan (IMMP), or a 40 year master plan (2007-2046). The purpose was to promote the co-existence between the communities and the mangrove forests within the Ayeyawardy Delta, in other words, to implement the sustainable mangrove management through community participation.

The proposed SSC-AR-CDM Project activities would support in grasping the objectives of IMMP while fulfilling local people's enthusiasm to rehabilitate mangrove forest after Cyclone Nargis. Various socio-economic and ecological benefits are expected from the proposed community-based SSC-AR-CDM Project as follows:

- employment and income generation
- poverty alleviation

- development of community forestry
- carbon sequestration
- mangrove ecosystem restoration

A.3. Project participants

>> The project participants are local poor residing in the vicinity of mangrove reserved forest in the Ayeyawady Delta, Myanmar. Table A-1 provides an over view of the preliminary selected communities for the project activities.

Name of Party involved (*) ((host) indicates a host Party)	Private and/or public entity(ies) project participants (*) (as applicable)	Indicate if the Party involved wishes to be considered as a project participant (Yes/No)
Forest Department, Ministry of Forestry, Union of Myanmar	• Local Communities (House holds of 10 villages) residing in PyindayeReserved Forest, Bogalay Township, Pyapon District Ayeyawady Division • Forest Department, Ministry of Forestry	Yes

A.4. Description of location and boundary of the small-scale A/R CDM project activity

>> The proposed small-scale A/R CDM project will be established in PyindayeReserved Forest, one of the mangrove reserved forests in the Ayeyawady Delta, where severe forest degradation have been occurring.

A.4.1. Location of the proposed small-scale A/R CDM project activity

A.4.1.1. Host Party(ies)

>> Forest Department, Ministry of Forestry, Union of Myanmar

A.4.1.2. Region/State/Province etc.

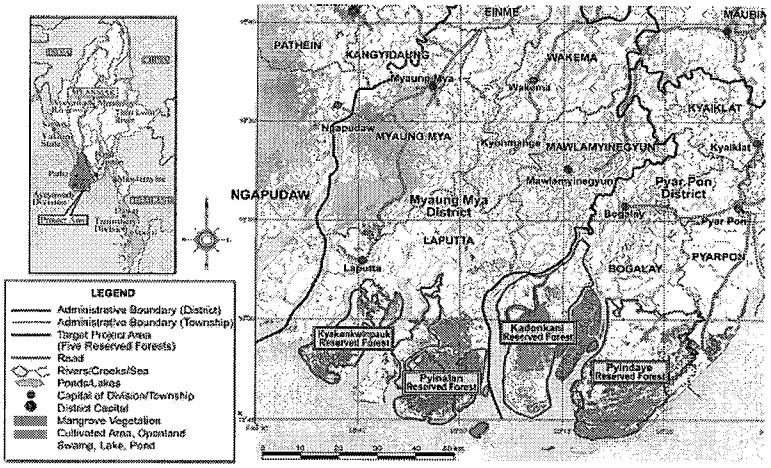
>> Ayeyawady Division

A.4.1.3. City/Town/Community etc.

>> Pyapon District/Boglay Township/10 Village Communities

A.4.2. Detail of geographical location and project boundary, including information allowing the unique identification(s) of the proposed small-scale A/R CDM project activity:

>> Following map shows the whole region of Ayeyawady Delta and Reserved Forests. The purple colored ellipse shape demonstrates the proposed project area.



<1990 forest condition>

<2007 forest condition>

A.5. Technical description of the small-scale A/R CDM project activity

A.5.1. Type(s) of small-scale A/R CDM project activity

>> Under the category of SSC-AR-CDM, the proposed project activity is "reforestation of degraded mangrove land with the participation of local communities". The selected area is going to be planted with indigenous mangrove tree species as well as suitable exotic tree species. The size of area will be about 500 ha. According to the recent socioeconomic surveys and analysis, local people in the study area are poorest in Myanmar.The proposed SSC-AR-CDM Project is anticipated to sequester Net Anthropogenic GHG of approximately 16,000 metric ton CO2 per year.

A.5.2. A concise description of present environmental conditions of the area, which include information on climate, soils, main watershed, ecosystems, and the possible presence of rare or endangered species and their habitats:

>> The proposed AR CDM project area is located in the Ayeyawady Delta of the lower Myanmar. The Ayeyawady River is one of the four major river systems in Myanmar and runs the country vertically for 2,170 km, from the northern Kachin Statefor down south to the Andaman Sea. Since about three quarters of the river, or 1,500 km is navigable, it considered as the commercial lifeline of the country. The Ayeyawady Delta region is located at the mouth of the Ayeyawady River as it flows in to the Andaman Sea at the southwestern part of the country.

The Ayeyawady Delta covers an area of 33,670 km2 and is composed of a large network of creeks, streams and rivers. Due to its low altitude (maximum 3 meter above sea level), this region is frequently flooded by tides and rains during the rainy seasons. During the high tides most of the low lying and middle ground areas inundated by saline and brackish water. On the other hand, when the tide is at its lowest level, the ground becomes relatively dry and the soil salinity increases, as the area closed to the estuary. As for the climatic condition, the recorded mean maximum temperature is 35-37°C in the summer season, and the mean maximum temperature in the cold season is 11-15°C. Humidity remains between 60% and 100% throughout the year, and the recorded mean annual rainfalls of the selected township is 2,477 mm. The tidal action in the Delta region together with various other conditions constitutes an ideal ecological environment for mangrove vegetation.

The proposed project area closely locates to a wildlife sanctuary, namely, Mainmahla, where varieties of indigenous mangrove tree and plant species, and many aquatic, reptile, mammal and bird (including migratory) species are protected.

A.5.3. Species and varieties selected

>> Considering commercial importance, enrichment of species diversity, maintenance of ecological balance and simplification of assessment of carbon sequestration, species selection will be done. All species chosen to be planted are all indigenous species except Malaluca cajuputi, which is a species of fast growing and rather tolerant to saline water. Species selected for SSC-AR-CDM project are as follow.

- Rhizophora mucronata
- Rhizophora appiculata
- Avecenia officinalis
- Hariteria fomes
- Malaluca cajuputi

A.5.4. Technology to be employed by the proposed small-scale A/R CDM project activity

>> Since Forest Department has enough experience and expertise for the rehabilitation and management of mangrove forests, the proposed project activity will be implemented in the Delta area and species above mentioned will be selected.

The techniques to be implementedinclude site preparation, seedling production, seed storage, planting, tending, plantation maintenance and trainings.

- Seedling Production

In the Ayeyawady Delta, mangrove Reserved Forests (RF) has long been managed by Forest Department and there was a nursery in each RF. But after raging of Tropical Cyclone Nargis, all mangrove nurseries were severely damaged and most of mangrove trees fell down. As a consequence, collection of seed and propagule might be difficult in the project area.

- Site preparation and spacing

Special site preparation for plantation is not necessary because most of the area is occupied by abandoned paddy and shrimp ponds, and no vegetation exists. Stacking with bamboo sticks will be done. Seedling spacing of 1.8m x 1.8 m (6 ft x 6 ft) will be used. It is intended to plant 3000 seedlings per hectare and 10% of total seedlings will be set aside for the replanting of failure seedlings in the plantation.

- Planting Techniques

For plantation, one to two year old seedlings with 8-10 inches in height and in good shape of root and leaf formation will be selected. Generally, planting season in Myanmar starts at mid June, the time regular rain can be received by planted seedlings to secure good survival rate. Planting season takes up till mid August. Each mangrove tree species has their special adaptation characteristics to the site condition so that it will be taken special consideration on site and species matching. For the case of Melaluca cajuputi species, only an exotic treespecies with considerable high growth rate, will be planted at higher level ground not to halt the growth rate.

- Tending operations

Weeding operation will be practiced 4 consecutive years starting from first year. Weeding regime is envisaged as 3, 2, 2 and 1time for each year, respectively. It will be stopped beyond the 4thyear of seedlings (plantations).

Fire protection is necessary for each dry season (i.e.,February 15 to mid May). Fire protection will be practiced 5 consecutive years.

A.5.5. Transfer of technology/know-how, if applicable

>> For the successful implementation of the reforestation activities, it is essential to train local people in seedling handling, nursery practises, planting techniques and tending activities. Capacity building of the local people in implementation of Small Scale A/R CDM project and Community Forestry Activities are also of great needs for the achievement of the project objectives. Local Forest Department staffs shall also be trained to attain the knowledge in preparation of PDD and development of AR CDM projects.

A.5.6. Proposed measures to be implemented to minimize potential leakage as applicable

>> Plantation activities will be established in the abandoned shrimp ponds and neglected paddy fields. Therefore, land preparation for tree planting will not be necessary. Moreover, displacement of residential area and cattle grazing ground will not be taken place; accordingly potential of GHG leakage to outside of the project boundary is not anticipated.

A.6. A description of legal title to the land, current land tenure and land use and rights to tCERs / lCERs issued

>> The proposed project area exists in the reserved forest area on which Forestry Law prevail and it is under the direct administration of Forest Department. The area was severely degraded for decades: it means that the area has been no forests since the end of 1989. The selected area confined to the rivers' and/or creeks'banks, in average 200 metres from the banks to inland. The idea of river bank plantation awakens after struck of killer tropical storm Nargis. Due to the horrible negative impacts of cyclone Nargis, local communities are fervent to plant trees at the river sides for the sake of their lives and properties from storm and tidal surge. Of course, the communities participating in the project activities will be the owners of the CERs credits generated by the project.

A.7. Assessment of the eligibility of land

>> Although the proposed project area was covered with good mangrove forests in the past, unsustainable paddy cultivation and aquaculture practises led to serious degradations at present. Generally, encroacher used the land for about 5 years for agriculture and aquaculture and abandoned it due to drastic declining of productivity. After that, they move to another mangrove forests and cut down the forest to practise unsustainable land use again. This phenomenon has happened repeatedly in the Ayeyawady Delta since long before. Consequently, deforestation and land degradation become a serious problem in the

Delta area and the Government recognized this area as one of environmentally critical areas in Myanmar.

- The area is occupied by a species of grass and some species of ground fern. There is no advanced growth of tree species which have yet to reach a good crown cover or tree height.
- Myanmar's definition of forest is not yet designatedbut probably it will be informed EB very soon. The proposed project is to implement the reforestation on the degraded mangrove forests, and we can prove that proposed project area is eligible for AR CDM project by using satellite images and inventory data that shows the area has been no forest since 1989.

A.8. Approach for addressing non-permanence

>> Please select between:

- [√] Issuance of tCERs
- [ ] Issuance of lCERs

A.9. Duration of the proposed small-scale A/R CDM project activity / Crediting period

>> 20 years with renewal of 3 times (every 20 years)

A.9.1. Starting date of the proposed small-scale A/R CDM project activity and of the (first) crediting period, including a justification

>> The project activities are going to be commenced on 1stJune 2009, because planting season begins regularly at that time and monsoon rain will be ended. These conditions secure the survival of planted seedlings.

A.9.2. Expected operational lifetime of the proposed small-scale A/R CDM project activity

>> 20 years.

A.9.3. Choice of crediting period and related information

>> First crediting period for project is 20 years, with renewals for two further 20 year. Thus, a total crediting period will be 60 years.

Please select one of the following:

1. Renewable crediting period [√]
2. Fixed Crediting period [ ]

A.9.3.1. Duration of the first crediting period (in years and months), if a renewable crediting period is selected

>> 1st June 2009 to 31st May 2029 (20 years)

A.9.3.2. Duration of the fixed crediting period (in years and months), if selected

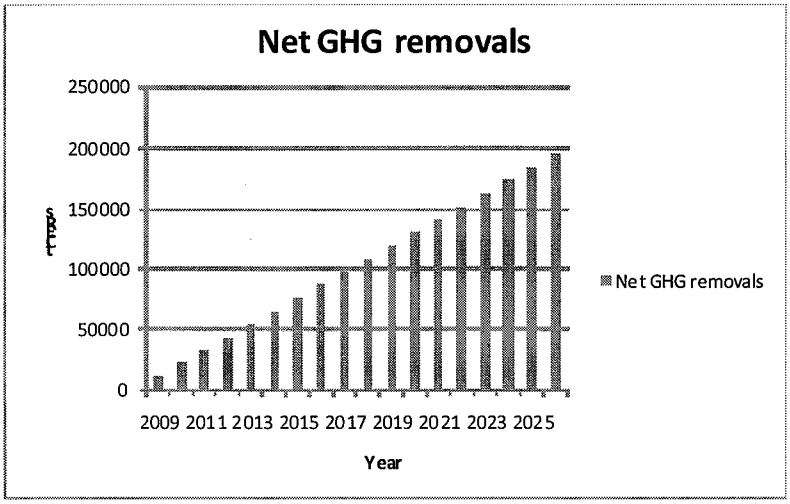
>> N/A

A.10. Estimated amount of net anthropogenic GHG removals by sinks over the chosen crediting period

>> A total 438,770 metric ton of net anthropogenic GHG removals by mangrove tree plantation is envisaged through out the crediting period.

Please provide the total estimation of net anthropogenic GHG removals by sinks as well as annual estimates for the chosen crediting period. Information on the net anthropogenic GHG removals by sinks shall be indicated using the following tabular format.

Years	Annual estimation of net anthropogenic GHG removals by sinks in tonnes of CO2 e
Year 2011	21,615
Year 2016	75,652
Year 2021	129,690
Year 2026	183,727
Total estimated net anthropogenic GHG removals by sinks (tonnes of CO2e)	183,727
Total number of crediting years	20
Annual average over the crediting period of estimated net anthropogenic GHG removals by sinks (tonnes of CO2e)	9669



A.11. Public funding of the proposed small-scale A/R CDM project activity

>> N/A

A.12. Confirmation that the small-scale A/R CDM project activity is not a deluded component of a larger project activity

>> The proposed small scale A/R CDM project activity is the first in the Union of Myanmar and not a debundled component of a larger project activity. Furthermore, it will be a model SSC A/R CDM project to demonstrate that the project is a sustainable land use practise in the mangrove forest areas.

Section B. Application of a baseline and monitoring methodology

B.1. Title and reference of the approved baseline and monitoring methodology applied to the proposed small-scale A/R CDM project activity

>> AR-AMS 003 – Simplified baseline and monitoring methodology for small scale CDM afforestation and reforestation project activities implemented in wetlands.

B.2. Justification of the applicability of the baseline and monitoring methodology to the proposed small-scale A/R CDM project activity

>> The baseline and monitoring methodology to be used is applicable for this project, the reasons are as follow.

1. The project will be established in the mangrove areas and the DNA of Myanmar will provide a statement of which conforms to the national policy and legislation that is applicable to wetlands.
2. The project activities will be established on the degraded mangrove land and it is strongly envisaged that the land will be degrading for coming years because of population pressure and growing demand of forest produces.
3. No activities changing the land formation are necessary to implement the project activities, because the plantation is going to be created in the abandoned shrimp pond and neglected paddy fields.
4. The area is occupied by grass and weeds.
5. Within the project boundary, the agricultural area is not more than the 10% of total project area.

6. In the proposed project area, except buffalos using for plowing, there is almost no grazing animals.
7. No land preparation work is envisaged for plantation activities.

B.3. Specification of the greenhouse gases (GHG) whose emissions will be part of the proposed small-scale A/R CDM project activity

>> N2O

B.4. Carbon pools selected

>> In calculating the baseline net GHG removals by sinks and/or actual net GHG removals by sinks, project participants may choose not to account for one ormore carbon pools, and/or emissions of GHGs measured in units of CO2 equivalents, while avoiding double counting.

Select the carbon pools that are considered in determining actual net GHG removals by sinks and baseline net GHG removals by sinks in the table below in accordance with the proposed new/ approved methodology used. Note that the same carbon pools should be considered in the actual net GHG removals by sinks and the baseline net GHG removals by sinks.

Carbon pools	Selected(answer with yes or no)
Above ground	YES
Below ground	YES
Dead wood	NO
Litter	NO
Soil organic carbon	NO

B.5. Description of strata applied for ex ante estimations

>> For the ex ante calculation of the project biomass, the project area will be stratified by the tree species to be planted, matching with specific sites.

B.6. Application of baseline methodology to the proposed small-scale A/R CDM project activity

>> AR-AMS 003 - Simplified baseline and monitoring methodologies for small-scale afforestation and reforestation project activities implemented on wetlands.

B.7. Description of how the actual net GHG removals by sinks are increased above those that would have occurred in the absence of the registered small-scale A/R CDM project activity

>> Without the AR CDM project activities, the actual net GHG removals by sink will not increase, since under the current condition the site is neglected as grass and ground-fern land. Under the proposed project activity they will be converted into mangrove forest land and the actual net GHG removals by sinks will be increased. Because, mangrove forest is supposed to be one of the most efficient carbon sinks among the forest types.

Financial barriers

- Lack of access to credit

  It is the most significant barrier to implement this project. There is no opportunity for getting loans from banks to support such project activities due to high market risk, low productivity, natural disasters and economically unattractiveness.

Institutional barriers

- Weakness of enforcement on forest legislation

  Even though the area is under the Permanent Forest Estate, there are land use conflicts among sectors of forestry, agriculture and fisheries.

Barriers due to local ecological conditions

- degraded soil
- The project area is mostly covered with grass and fern showing the sign of infertility of land on which the tree species cannot naturally grow or viable agricultural activities cannot be exercised.

Barriers due to social conditions

- lack of organization of local communities

  There are no organized communities to solve socio-economic and environmental problems among villagers in the project area. Extension activities which motivate the environmental awareness to local communities are weak and it is still to encourage them to understand the synergy which brings integrated benefits to enjoy themselves.

B.8. Application of monitoring methodology and monitoring plan to the small-scale A/R CDM project activity

B.8.1. Data to be monitored: Monitoring of the actual net GHG removals by sinks and leakage.

B.8.1.1. Actual net GHG removals by sinks data

B.8.1.1.1. Data to be collected or used in order to monitor the verifiable changes in carbon stock in the carbon pools within the project boundary resulting from the proposed small-scale A/R CDM project activity, and how this data will be archived

B.8.1.2. Data for monitoring of leakage (if applicable)

>> No leakage is envisaged.

B.8.1.2.1. If applicable, please describe the data and information that will be collected in order to monitor leakage of the proposed small-scale A/R CDM project activity

Data variable	Source of data	Data unit	Measured (m), calculated (c) or estimated (e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic / paper)	Comment
N/A	-	-	-	-	-	-	-
N/A	-	-	-	-	-	-	-

B.8.2. Describe briefly the proposed quality control (QC) and quality assurance (QA) procedures that will be applied to monitor actual GHG removals by sinks

B.8.3. Please describe briefly the operational and management structure(s) that the project operator will implement in order to monitor actual GHG removals by sinks by the proposed small-scale A/R CDM project activity

>> Director General of Forest Department, Ministry of Forestry will supervise the whole project activities. In close cooperation with local community user group leaders, Director of Ayeyawady Division, Forest Department will actively participate to fulfill the project objectives.

B.9. Date of completion of the baseline study and the name of person(s)/entity(ies) determining the baseline and the monitoring methodology:

>> Director General of the Forest Department will determine the baseline and the monitoring methodology of the SSC AR CDM project through the agreement of DNA of Myanmar.

Section C. Estimation of ex ante net anthropogenic GHG removals by sinks

C.1. Estimated baseline net GHG removals by sinks:

>> The project activities to be implemented are in the degraded mangrove forest area, therefore changes in the carbon stocks in the living biomass pool of trees and non-trees vegetation under the baseline scenario are expected to be zero in the absent of project activity.

C.2. Estimate of the actual net GHG removals by sinks:

>> 183,727 ton CO2e

C.3. Estimated leakage:

>> No leakage is expected.

C.4. The sum of C. 2. minus C.1. minus C.3. representing the net anthropogenic GHG removals by sinks of the proposed small-scale A/R CDM project activity:

>> 183,727 ton CO2e

C.5. Table providing values obtained when applying equations from the approved methodology

>> The result of the application of equations from approved methodology above shall be indicated using the following tabular format:

Year	Estimation of baseline net GHG removals by sinks (tonnes of CO2 e)	Estimation of actual net GHG removals by sinks (tonnes of CO2e)	Estimation of leakage(tonnes of CO2 e)	Estimation of net anthropogenic GHG removals by sinks (tonnes of CO2 e)
Year 2011	-	21,615	-	21,615
Year 2016	-	75,652	-	75,652
Year 2021	-	129,690	-	129,690
Year 2026	-	183,727	-	183,727
Total (tonnes of CO2e)	-	183,727	-	183,727

Section D. Environmental impacts of the proposed small-scale A/R CDM project activity

D.1. Provide analysis of the environmental impacts, including transboundary impacts (if any)

>> No impacts are expected.

D.2. If any negative impact is considered significant by the project participants or the host Party, a statement that project participants have undertaken an environmental impact assessment, in accordance with the procedures required by the host Party, including conclusions and all references to support documentation

>> The project activities will not introduce any negative impacts on the environment because the most activities will be carried out manually except transportation of seedlings from nursery to planting site by engine boat, but nursery site is considerably closed to the proposed project area.

D.3. Description of planned monitoring and remedial measures to address significant impacts referred to in section D.2. above:

Section E. Socio-economic impacts of the proposed small-scale A/R CDM project activity:

E.1. Provide analysis of the socio-economic impacts, including transboundary impacts (if any):

>> Local communities are not yet organized for the project, but PRA or RRA and extension activities will be practiced to have their spontaneous participation.

E.2. If any negative impact is considered significant by the project participants or the host Party, a statement that project participants have undertaken a socio-economic impact assessment, in accordance with the procedures required by the host Party, including conclusions and all references to support documentation:

>> No significant negative socio-economic impacts are anticipated, because the project activities will support improvement of their livelihood.

E.3. Description of planned monitoring and remedial measures to address significant impacts referred to in section E.2. above:

Section F. Stakeholders' comments

F.1. Brief description of how comments by local stakeholders have been invited and compiled:

F.2. Summary of the comments received:

F.3. Report on how due account was taken of any comments received:

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROPOSED SMALL-SCALE A/R CDM PROJECT ACTIVITY

Organization:	Forest Department, Ministry of Forestry
Street/P.O.Box:	
Building:	Building No. 39
City:	Nay Pyi Taw
State/Region:	Mandalay Division
Postfix/ZIP:	
Country:	Myanmar
Telephone:	95-67-405400
FAX:	95-67-405017
E-Mail:	dg.fd@mptmail.net.mm
URL:	
Represented by:	Soe Win Hlaing
Title:	Director-General
Salutation:	Mr.
Last Name:	Hlaing
Middle Name:	Win
First Name:	Soe
Department:	Forest Department
Mobile:	
Direct FAX:	95-1- 405017
Direct tel:	95-67-405400
Personal E-Mail:	

Annex 2. INFORMATION REGARDING PUBLIC FUNDING

No public funding for this project.

Annex 3. DECLARATION ON LOW-INCOME COMMUNITIES

Please provide a written declaration that the proposed small-scale afforestation or reforestation project activity under the CDM is developed or implemented by low-income communities and individuals as determined by the host Party.

The related documents will be provided later.

Annex 4. Estimated amount of et anthropogenic GHG removals by sinks over the chosen crediting period is attached.

⑦ PNG

CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM for SMALL-SCALE
afforestation and reforestation project activities (CDM Version 02)

CONTENTS

Annexes

Section A. General description of the proposed small-scale A/R CDM project activity

A.1. Title of the proposed small-scale A/R CDM project activity

>> Title: Small Scale Afforestation A/R CDM Pilot Project Activity on customary Lands on degraded savannah grassland in Kwikila, Central Provinc,PNG

Version: 01 / Date: 12/09/2008

A.2. Description of the proposed small-scale A/R CDM project activity

>> The proposed area is located about 60 km north east of Port Mores by. Most part of the Central Provinceused to have wooded or Eucalyptus savannah forests naturally as a result of the southern climatic regime and geology of the area. The maximum rainfall of the area is less than 2000 mm per year. Over the years, the contributing effects of fires, human encroachment, fuel wood and timber exploitations have reduced these savannah and hill forests to grassland and barren areas while at the same time contributing to the already degreasing area of the savannah grassland.

Theseareas experience soil erosion, through strong winds, in the form of dust, during the dry seasons, and in wet periods, the dried up soils are washed away by runoff water resulting in top soil removal and thus land degradation.

Local landowners are discouraged by the degraded grasslands from carrying out commercial farming activities and the use of the land is only for family gardens but to a lesser extent. There is thus little economic activity of the land providing little income to the local people.

Thegrasslands are thus left alone with little development options but for hunting of which burning is the common method used especially during dry season. This traditional behaviour including the slash and burn method of subsistence farming are the major drivers of deforestation and forest degradation

The purpose of the this small-scale ARCDM project activity proposed by Gomore ILG are as follow;

1. To earn carbon credits from growing of trees to be planted, under ARCDM provisions of Kyoto Protocol;
2. To help in mitigation of global warming by planting trees for sequestration of atmospheric carbon dioxide;
3. To improve the local environmental through prevention of fires and increasing the forest cover by converting the marginal and degraded grasslands into forested lands

4. To increase income, provide employment opportunities, and as a result to alleviate poverty of local communities.

To realize the objectives mentioned above, 200 ha of teak will be established.

A.3. Project participants

>> Please list project participants and Party (ies) involved and provide contact information in AnnexInformation shall be indicated using the following tabular format.

Name of Party involved (*) ((host) indicates a host Party)	Private and/or public entity(ies) project participants (*) (as applicable)	Indicate if the Party involved wishes to be considered as a project participant (Yes/No)
PNG	Gomore ILG	No
(*) At the time of making the CDM-SSC-AR-PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting registration, the approval by the Party(ies) involved is required.		

A.4. Description of location and boundary of the small-scale A/R CDM project activity

>> The description is located in the following subsections.

A.4.1. Location of the proposed small-scale A/R CDM project activity

>> To be done…

A.4.1.1. Host Party(ies)

>> Gomore ILG / Registration No. 0100

A.4.1.2. Region/State/Province etc.

>> Central Province

A.4.1.3. City/Town/Community etc.

>> Port Moresby

A.4.2. Detail of geographical location and project boundary, including information allowing the unique identification(s) of the proposed small-scale A/R CDM project activity:

>> To be done.

A.5. Technical description of the small-scale A/R CDM project activity

>> Technical issues of the proposed small-scale A/R CDM project activity are described in detail in subsection below.

A.5.1. Type(s) of small-scale A/R CDM project activity

>> The project is a dry savannah grasslands usually burnt for hunting and land clearance purposes, and are left to fallow until the next dry season. Based on the Decision 6/CMP.1, titled "Simplified modalities and procedures for small-scale afforestation reforestation project activities under the clean development mechanism in the first commitment period of the Kyoto Protocol and measures to facilitate their implementation", the proposed small-scale A/R CDM project activity belongs to the type "grassland to forested land"

A.5.2. A concise description of present environmental conditions of the area, which include information on climate, soils, main watershed, ecosystems, and the possible presence of rare or endangered species and their habitats:

>> Technical issues of the proposed small-scale A/R CDM project activity are described in detail in subsections below.

A.5.3. Species and varieties selected

>> Acacia crassicarpa

A.5.4. Technology to be employed by the proposed small-scale A/R CDM project activity

>> The technology to be employed under this pilotproject is afforestation through direct planting of the chosen species guided by an approved silvicultural manual (Acacia crassicarpa) by PNG Forest Authority. National and international forestry experts will also be consulted for this purpose but there will be no transfer of technology from an Annex 1 country to the Host country.

A.5.5. Transfer of technology/know-how, if applicable

>> No technology will be transferred to the host country (PNG). The project is unilateral and no upfront CDM benefit has been sought for the landowners

A.5.6. Proposed measures to be implemented to minimize potential leakage as applicable

>> The will be no leakage because the proposed area is currently unutilized. Hence, no displacement of people, no utilization of grass and other perennials within the area. Furthermore, there is no grazing in the proposed area.

A.6. A description of legal title to the land, current land tenure and land use and rights to tCERs / lCERs issued

>> The proposed area is under customary landownership of the Gomore villagers. They have incorporated their group with the Lands Department under the Land Group Incorporation Act, 1973. This arrangement legally recognized the traditional landowners and their land rights.

A.7. Assessment of the eligibility of land

>> The PNG Forest Authority defines forests as lands having trees with:

- A minimum area of …….hectares;
- A minimum tree crown cover of ….%; and
- Trees of, or with potential to reach, the height of minimum of … meters.

The land eligibility is demonstrated using "Procedures to define the eligibility of lands for afforestation and reforestation project activities" (EB 35 report Annex 18) (a.). The land currently (start of the project) not a forest. The maximum rainfall of the area isless than 2000 mm per year. Over the years, the contributing effects of fires, human encroachment, fuel wood and timber exploitations have reduced these savannah and hill forests to grassland and barren areas while at the same time contributing to the already increasing area of the savannah grassland. (more data required to prove eligibility).

A.8. Approach for addressing non-permanence

>> Please select between:

- [√] Issuance of tCERs
- [ ] Issuance of lCERs

A.9. Duration of the proposed small-scale A/R CDM project activity / Crediting period

>> Crediting period for this project will be 20 years (with a choice of renewal twice for 20 years each), with verification occurring at intervals of every five years, followed by issue of temporary Certified Emission Reduction (tCERs).

A.9.1. Starting date of the proposed small-scale A/R CDM project activity and of the (first) crediting period, including a justification

>> The proposed small-scale ARCDM project activity and its crediting period would start from November 2009, for which PNG Forest Authority would start establishing nurseries from December- January, 20090. The actual plantation work will start from November 2009, because during this time, monsoonal rains will increase the soil moisture content and would ensure survival of the seedlings.

A.9.2. Expected operational lifetime of the proposed small-scale A/R CDM project activity

>> 20 years

A.9.3. Choice of crediting period and related information

>> Please select one of the following:

1. Renewable crediting period ☑
2. Fixed Crediting period ☐

A.9.3.1. Duration of the first crediting period (in years and months), if a renewable crediting period is selected

>> 20 yrs

A.9.3.2. Duration of the fixed crediting period (in years and months), if selected

>> NA

A.10. Estimated amount of net anthropogenic GHG removals by sinks over the chosen crediting period

>> The net anthropogenic GHG removals by the sinks as a result of the proposed small-scale A/R CDM project activity are anticipated to be 3048578.168 tonnes of CO2 equivalent during the crediting period (from 2009 to 2029). The details are given below in Table A-5

Years	Annual estimation of net anthropogenic GHG removals by sinks in tonnes of CO2 e
2009	0
2010	17827.9425
2011	35655.885
2012	53483.8275
2013	71311.77
2014	89139.7125

Years	Annual estimation of net anthropogenic GHG removals by sinks in tonnes of CO2 e
2015	106967.655
2016	124795.5975
2017	142623.54
2018	160451.4825
2019	178279.425
2020	196107.3675
2021	213935.31
2022	231763.2525
2023	249591.195
2024	267419.1375
2025	285247.08
2026	303075.0225
2027	320902.965
2028	17827.9425
2029	35655.885
Total estimated net anthropogenic GHG removals by sinks (tonnes of CO2e)	3,048,578.168
Total number of crediting years	20
Annual average over the crediting period of estimated net anthropogenic GHG removals by sinks (tonnes of CO2e)	152,428.9084

A.11. Public funding of the proposed small-scale A/R CDM project activity

>> There will be no public funding in the proposed small-scale ARCDM project activity that will result in the diversion of Official Development Assistance and financial obligations of any Parties under UNFCCC.

A.12. Confirmation that the small-scale A/R CDM project activity is not a deluded component of a larger project activity

>> There is no registered small-scale A/R CDM project activity and no application to register another small-scale CDM project activity that conform to the criteria for determining the occurrence of debundling, namely

- with the same project participants registered within the previous two years
- whose project boundary is within 1 km of the project boundary of the proposed small-scale A/R CDM activity at the closest point.

Therefore the proposed small-scale ARCDM project activity is not a debundled component of a larger project activity.

Section B. Application of a baseline and monitoring methodology

B.1. Title and reference of the approved baseline and monitoring methodology applied to the proposed small-scale A/R CDM project activity

>> Simplified baseline and monitoring methodologies for small-scale afforestation and reforestation project activities under the clean development mechanism implemented on grasslands or croplands AR-AMS0001 (AR-AMS0001 / Version 04.1

B.2. Justification of the applicability of the baseline and monitoring methodology to the proposed small-scale A/R CDM project activity

>> The applicability conditions laid down in the Simplified baseline and monitoring methodologies for small-scale afforestation and reforestation project activities under the Clean Development Mechanism implemented on grasslands or croplands (AR-AMS0001 / Version 04.1) are

a) Project activities are implemented on grasslands or croplands;

b) Project activities are implemented on lands where the area of the grassland within the project boundary displaced due to the project activity is less than 50 per cent of the total project area;

c) Project activities are implemented on lands where the number of displaced grazing animals is less than 50 per cent of the average grazing capacity of the project area;

d) Project activities are implemented on lands where $\leq$ 10% of the total surface project area is disturbed as result of soil preparation for planting.

These applicability conditions are fulfilled as given below.

a) The project area is located in the southern part of the island of New Guinea where Savannahgrasslands as a result of the southern climatic regime and geology of the area. The area is severely affected by fire due to shifting cultivation and hunting. The project area comprises of 200 hectares of highly degraded and degrading grasslands.

b) The landowners have contributed only a small portion of their lands which is degraded and degrading and they do not rely on these lands for their livelihood since these lands are unproductive and prone to fires during prolong dry periods. Details to be provided later tabulated format (table B1).

B.3. Specification of the greenhouse gases (GHG) whose emissions will be part of the proposed small-scale A/R CDM project activity

>> The greenhouse gases that will be a part of project emissions are CO2. These emissions

are estimated to be negligible based on preliminarily estimation. The spreadsheet for calculation of emissions shall be made available to the DOE during verification.

B.4. Carbon pools selected

>> Based on the simplified baseline and monitoring methodology applied by the proposed small-scale A/R CDM project activity, the aboveground and belowground biomass (living biomass) are the only carbon pools to be considered (table B-2).

Carbon pools	Selected(answer with yes or no)
Above ground	yes
Below ground	yes
Dead wood	No
Litter	No
Soil organic carbon	Yes

B.5. Description of strata applied for ex ante estimations

>> No stratification is required because the area is mostly of grassland with few trees sparsely distributed. This is in accordance with Section 4.3.3.2 of the IPCC GPG for LULUCF. Also the method adopted for baseline estimation be a total count rather than sampling. (to be reviewed)

B.6. Application of baseline methodology to the proposed small-scale A/R CDM project activity

>> Due to the degraded and degrading nature of the project, 'Existing or Historical Approach'would be used to determine the baseline scenario because degraded or degrading nature of the project caused by seasonal fires and the poor state of landowners coupled with very high cost of raising and maintaining trees on such lands, the lands to be afforested, without the proposed small-scale A/R CDM project activity, would continue to remain in their present status.

B.7. Description of how the actual net GHG removals by sinks are increased above those that would have occurred in the absence of the registered small-scale A/R CDM project activity

>> The condition of additionality has been fulfilled as no tree planting activity with comparable sequestration capacity would have been taken up on the project lands in the absence of the project due to the non-viability of such an activity on account of the

degraded and degrading nature of these lands and the continue made fires during dry season. Furthermore, the area is currently unutilized due to its degraded nature. Also, since the lands in question are customarily owned, degraded grasslands, the afforestation of these lands is not a legal requirement

B.8. Application of monitoring methodology and monitoring plan to the small-scale A/R CDM project activity

>> No monitoring of the baseline is required for small-scale A/R CDM project activity as per the decision 6/CMP.1, appendix B, and paragraph 6. The baseline net GHG removals by sinks will be assumed to be those estimated in section C.1 below.

B.8.1. Data to be monitored: Monitoring of the actual net GHG removals by sinks and leakage.

>> Any changes in the carbon stocks will be determined by the project participants by measuring and monitoring the project area that has been planted. The monitoring will focus on:

(i) the project boundaries and

(ii) the selected stratified sample plots. The stratification shall be based on the species planted, other things being almost uniform throughout the project lands and finally, carbon sampling will take place within stratified project area. IPCC GPG for LULUCF (4.3.3.4) methods will be used for all sampling. This monitoring plan will be used throughout the project area and the crediting period. If at a later stage it is found that the carbon stocks in some areas differ significantly from those in the same strata elsewhere, these areas will be assessed as a separate stratum.

GPS will be used to demarcate the project boundary and location.

B.8.1.1. Actual net GHG removals by sinks data

B.8.1.1.1. Data to be collected or used in order to monitor the verifiable changes in carbon stock in the carbon pools within the project boundary resulting from the proposed small-scale A/R CDM project activity, and how this data will be archived

Data variable	Source of data	Data unit	Measured (m), calculated (c) or estimated (e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic / paper)	Comment
Location of the areas where the project activity has been implemented	Field survey using GPS Latitude and longitude Measured 4 100 % Electronic	paper	photos GPS will be used for field survey	Field survey using GPS Latitude and longitude Measured 4 100 % Electronic	paper	photos GPS will be used for field survey	Field survey using GPS Latitude and longitude Measured 4 100 % Electronic
Ai	Size of the areas where the project activity has been implemented for each type of strata Field survey using GPS Ha Measured 4 100 percent Electronic, paper, photos GPS will be used for field survey	Ai	Size of the areas where the project activity has been implemented for each type of strata Field survey using GPS Ha Measured 4 100 percent Electronic, paper, photos GPS will be used for field survey	Ai	Size of the areas where the project activity has been implemented for each type of strata Field survey using GPS Ha Measured 4 100 percent Electronic, paper, photos GPS will be used for field survey	Ai	Size of the areas where the project activity has been implemented for each type of strata Field survey using GPS Ha Measured 4 100 percent Electronic, paper, photos GPS will be used for field survey
Location of the permanent sample plots Project maps and project design Latitude and longitude Defined 4 100 percent Electronic	Paper Plot location is registered with a GPS and marked on the map	Location of the permanent sample plots Project maps and project design Latitude and longitude Defined 4 100 percent Electronic	Paper Plot location is registered with a GPS and marked on the map	Location of the permanent sample plots Project maps and project design Latitude and longitude Defined 4 100 percent Electronic	Paper Plot location is registered with a GPS and marked on the map	Location of the permanent sample plots Project maps and project design Latitude and longitude Defined 4 100 percent Electronic	Paper Plot location is registered with a GPS and marked on the map
Diameter of tree at breast height (1.3m) Permanent	Permanent sample Cm Measured 4 Each tree in the sample plot Electronic, paper. Measure diameter at breast height	Diameter of tree at breast height (1.3m) Permanent	Permanent sample Cm Measured 4 Each tree in the sample plot Electronic, paper Measure diameter at breast height	Diameter of tree at breast height (1.3m) Permanent	Permanent sample Cm Measured 4 Each tree in the sample plot Electronic, paper Measure diameter at breast height	Diameter of tree at breast height (1.3m) Permanent	nent sample Cm Measured 4 Each tree in the sample plot Electronic, paper Measure diameter at breast height

B.8.1.2. Data for monitoring of leakage (if applicable)

>> Leakage is unlikely however, it will be still be monitored through participatory method through the assessment of fuel wood consumption and traditional gardening patterns.

B.8.1.2.1. If applicable, please describe the data and information that will be collected in order to monitor leakage of the proposed small-scale A/R CDM project activity

Data variable	Source of data	Data unit	Measured (m), calculated (c) or estimated (e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic / paper)	Comment
N/A	-	-	-	-	-	-	-
N/A	-	-	-	-	-	-	-

B.8.2. Describe briefly the proposed quality control (QC) and quality assurance (QA) procedures that will be applied to monitor actual GHG removals by sinks

>> A rigid quality control and quality assurance (QA/QC) method involving Standard Operating Procedures will be applied to ensure that:

(i) collection of field measurements are reliable,

(ii) the methods used to collect field data are verifiable,

(iii) data entry and analysis technique can be verified,

(iv) data maintenance and archiving is verified and

(v) electronic data with technological changes followed/used are upgraded".

NB: ""methods to be further discussed in detail and developed

B.8.3. Please describe briefly the operational and management structure(s) that the project operator will implement in order to monitor actual GHG removals by sinks by the proposed small-scale A/R CDM project activity

>> The proposed small-scale A/R project activity will be implemented by the Incorporated land Group (ILG), under the guidance of PNG ForestAuthority. The PNG Forest Authority shallprovide all needed technical help including training to the persons selected by the ILG group and facilitate consultation with other experts wherever such consultations become necessary. The PNG Forest Authority shall also coordinate the measuring and monitoring of the actual GHG removals by sinks and any leakage generated by the proposed small-scale A/R CDM project activities. Any activity data and monitoring and measuring data will be reported to and archived in the Climate Change Office of the Department of the Prime Minister at Waigani, Port Moresby.

B.9. Date of completion of the baseline study and the name of person(s)/entity(ies) determining the baseline and the monitoring methodology:

>> 1. Forest Research Institute
- Mr. Martin Golman
- Mr. Patrick Nimiango

2. PNG University of Technology
- Dr. Ruth Turia,

3. Unversity of PNG
- Dr. Simon Saulei
- Dr. Chalapan Kaluwin

4. PNG Forest Authority
- Mr. Tom Bukon- Forest Development Division
- Gewa Gamoga - Forest PlanningDivision.

Section C. Estimation of ex ante net anthropogenic GHG removals by sinks

C.1. Estimated baseline net GHG removals by sinks:

>> a Pre-project Carbon stock

a.1 Non-tree Vegetation

Not yet measured, however, woody perennials (shrubs and herbaceous plants) existing at the project area before the start of the proposed small-scale A/R CDM project activity need to be counted and measured.

a.2 Pre-project living tree

There are some trees pre-existing in the area specified for the proposed small-scale A/R CDM project activity. The diameterat breast height (DBH), tree height, crown diameter and age of all pre-project living trees will be measured and volume estimated using Volume the standard tree volume tables adopted by PNG Forest Authority. The stem volume of trees will then be convertedinto carbon stock in aboveground biomass and belowground biomass through wood density (D), biomass expansion factor (BEF), root-shoot ratio (R) and carbon fraction (CF) using equations:

CAB = VX DX BEF X CF

CBB = CA3X R

Where CAB : Carbon stock aboveground biomass t C. tree-1

CBB : Carbon stock in belowground biomass t C. treel

V : stem volume m3 tree-1

D : wood density t d.m.m-3

BEF : Biomass expansion factor from stem biomass to aboveground biomass, dimensionless

CF : Carbon fraction, t C t d.m-1 IPCC default =0.5

R : Root-shoot ratio, dimensionless

a.3 Below Ground Biomass

Below ground biomass is assumed to remain constant therefore, the average below grown carbon stock is estimated as the below grown carbon stock in grass and in biomass of woody perennials. Hence, the default factor to be used is 0.5.

b Estimation of baseline net GHG removals by sinks

Due to frequent fires resulting in the grassland areas continuing to degrade, the carbon stocks both in the living biomass pool of woody perennials and in below-ground biomass of grasslands are expected to decrease or remain constant in the absence of the proposed small-scale A/R CDM project activity. Therefore, based on paragraph 6(a) and (b) of the methodology applied, the baseline carbon stocksin the living biomass pool of woody perennials and in below-ground biomass of grass are conservatively may also decrease to some extent. Since all pre-project living trees on lands to be planted in the proposed A/R CDM project activity will be measured, the baseline net removals by sinks are estimated on average tree basis rather than per hectare basis. The formulae to apply are:

Baseline Carbon stocks:

B(t) = (BA(t)+BB(t))N

Where B(t) : Carbon stocks in the living biomass within the project boundary at time t in the absence of the project activity (t C)

BA(t) : Carbon stocks in above-ground biomass per tree at time t in the absence of the project activity (t C/tree)

BB(t) : Carbon stocks in below-ground biomass per tree at time t in the absence of the project activity (t C/tree)

N : Number of pre-project living trees

Carbon stocks in aboveground Biomass

$BA(t) = M(t) * 0.5$

where

BA(t) : Carbon stocks in above-ground biomass per tree at time t in the absence of the project activity (t C/tree)

M(t) : Aboveground biomass per tree at time t that would have occurred in the absence of the project activity (t d.m/tree.)

0.5 : Carbon fraction of dry matter (t C/t d.m.)

Carbon stocks in below ground biomass

$BB(t) = M(t) *R* 0.5$

where

BB(t) : Carbon stocks in belowground biomass per tree at time t in the absence of the project activity (t C/tree)

M(t) : Above-ground biomass per tree at time t that would have occurred in the absence of the project activity (t d.m./tree) R Root-shoot ratio

C.2. Estimate of the actual net GHG removals by sinks:

>> The formulae that have been given in the section III of the simplified baseline and monitoring methodologies for small-scale afforestation and reforestation project activities under the clean development mechanism implemented on grassland or cropland (AR-AMS0001; version 04.1) will be used to calculate the actual net green house gas removals by sinks (ex-ante) The carbon stocks for the project scenario at the starting date of the project activity4 (t=0) will be the same as the baseline stocks of carbon at the starting date of the project (t=0). For all other years, the carbon stocks of planted trees within the project boundary (N(t)) at time t will bedetermined using the formulae given by UNFCCC for calculating Baseline carbon stock(section II) for small scale ARCDM projects.

C.3. Estimated leakage:

>> Considering that there will be no displacement of people and landowner have other fertile areas to garden, the estimate leakage is zero.

C.4. The sum of C. 2. minus C.1. minus C.3. representing the net anthropogenic GHG removals by sinks of the proposed small-scale A/R CDM project activity:

>> not completed from here on

C.5. Table providing values obtained when applying equations from the approved methodology

>> The result of the application of equations from approved methodology above shall be indicated using the following tabular format:

Year	Estimation of baseline net GHG removals by sinks (tonnes of CO2 e)	Estimation of actual net GHG removals by sinks (tonnes of CO2 e)	Estimation of leakage (tonnes of CO2 e)	Estimation of net anthropogenic GHG removals by sinks (tonnes of CO2 e)
Year A				
Year B				
Year C				
Year ...				
Total (tonnes of CO2e)				

Section D. Environmental impacts of the proposed small-scale A/R CDM project activity

D.1. Provide analysis of the environmental impacts, including transboundary impacts (if any)

D.2. If any negative impact is considered significant by the project participants or the host Party, a statement that project participants have undertaken an environmental impact assessment, in accordance with the procedures required by the host Party, including conclusions and all references to support documentation

D.3. Description of planned monitoring and remedial measures to address significant impacts referred to in section D.2. above:

Section E. Socio-economic impacts of the proposed small-scale A/R CDM project activity:

E.1. Provide analysis of the socio-economic impacts, including transboundary impacts (if any):

E.2. If any negative impact is considered significant by the project participants or the host Party, a statement that project participants have undertaken a socio-economic impact assessment, in accordance with the procedures required by the host Party, including conclusions and all references to support documentation:

E.3. Description of planned monitoring and remedial measures to address significant impacts referred to in section E.2. above:

Section F. Stakeholders' comments

F.1. Brief description of how comments by local stakeholders have been invited and compiled:

F.2. Summary of the comments received:

F.3. Report on how due account was taken of any comments received:

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROPOSED SMALL-SCALE A/R CDM PROJECT ACTIVITY

Organization:	
Street/P.O.Box:	
Building:	
City:	
State/Region:	
Postfix/ZIP:	
Country:	
Telephone:	
FAX:	

E-Mail:	
URL:	
Represented by:	
Title:	
Salutation:	
Last Name:	
Middle Name:	
First Name:	
Department:	
Mobile:	
Direct FAX:	
Direct tel:	
Personal E-Mail:	

Annex 2. INFORMATION REGARDING PUBLIC FUNDING

Annex 3. DECLARATION ON LOW-INCOME COMMUNITIES

Please provide a written declaration that the proposed small-scale afforestation or reforestation project activity under the CDM is developed or implemented by low-income communities and individuals as determined by the host Party.

History of the document

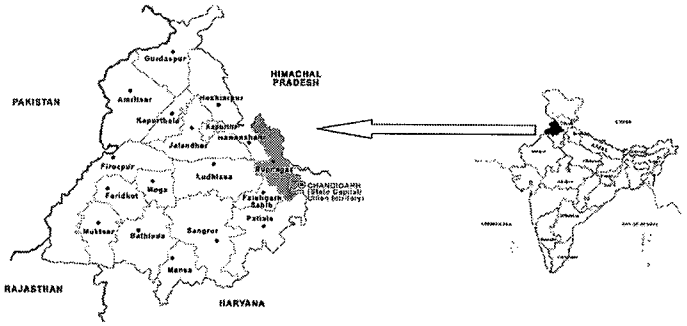
Version	Date	Nature of revision
02	EB35, Annex 22 19 October 2007	• Sections A and B were restructured; • Requirement to repeat equations has been removed from section C; • Sections D and E have been aligned with the requirements of the Modalities and Procedures.
01	EB 23, Annex 16(a) and 16(b) 24 February 2006	Initial adoption

⑧ India

CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM for SMALL-SCALE afforestation and reforestation project activities (CDM Version 02)

CONTENTS

PROJECT LOCATION



Section A. General description of the proposed small-scale A/R CDM project activity

A.1. Title of the proposed small-scale A/R CDM project activity

>> Title: Small Scale Cooperative Afforestation CDM Pilot Project Activity on Community Lands Affected by Frequent Landslides and Destabilization of the ground slopes in Roopnagar, Punjab.

A.2. Description of the proposed small-scale A/R CDM project activity

>> The proposed land is under the possession of the local farming community and is almost lying fallow for want of suitable thickness of soil and its productivity. It has led to decrease in fertility of soil over the years.

A.3. Project participants

>> India.

Please list project participants and Party(ies) involved and provide contact information in AnnexInformation shall be indicated using the following tabular format.

Name of Party involved (*) ((host) indicates a host Party)	Private and/or public entity(ies) project participants (*) (as applicable)	Indicate if the Party involved wishes to be considered as a project participant (Yes/No)
INDIA	Local Farmers Government of Punjab...	No
(*) At the time of making the CDM-SSC-AR-PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting registration, the approval by the Party(ies) involved is required.		

A.4. Description of location and boundary of the small-scale A/R CDM project activity

>> The study area covers the Roopnagar district of the state of Punjab in India

A.4.1. Location of the proposed small-scale A/R CDM project activity

A.4.1.1. Host Party(ies)

>>India

A.4.1.2. Region/State/Province etc.

>> North India, Punjab

A.4.1.3. City/Town/Community etc.

>> Roopnagar, Ropar,Punjab

District	Tehsil	Village
Rupnagar	Anandpur Sahib	i) Abiana Kalan
		ii) Chanouli
		iii) Chhutewal
		iv) Dher
		v) Lassari
		vi) Laudipur
		vii) Majher
	Sub total	
	Kharar	i) Bajheri
		ii) Bhago Majra
		ii) Churheri
		iv) Guno Mazra
		v) Jhanjheri
		vi) Manakpur Kallar
		vii) Raihman Pur
		viii) Sahauram
		ix) Sangatpura
	Sub total	
	Rupnagar	i) Attari
		ii) Brindrakh
		iii) Chhota Phul
		iv) Chhota Surtapur
		v) Dadhi
		vi) Majri
		vii) Panjoli
	Sub total	
Grand total		

A.4.2. Detail of geographical location and project boundary, including information allowing the unique identification(s) of the proposed small-scale A/R CDM project activity:

>> The Project is located 35 km from the district HQ of Roopnagar on the National highway No. 30 which connects Roopnagar to Anantpur Sahib.

A.5. Technical description of the small-scale A/R CDM project activity

A.5.1. Type(s) of small-scale A/R CDM project activity

>> The project lands are marginal croplands that are cultivated once every three years in average, and are left failow during other period of time. Based on the Decision 6/CMP.1, titled "Simplified modalities and procedures for small-scale afforestation reforestation project activities under the clean development mechanism in the first commitment period of the Kyoto Protocol and measures to facilitate their implementation", the proposed small-scale A/R CDM project activity belongs to the type "cropland to forested land

A.5.2. A concise description of present environmental conditions of the area, which include information on climate, soils, main watershed, ecosystems, and the possible presence of rare or endangered species and their habitats:

>> The project area, located in the southern foothills of Shivalik hills, which constitutes boundary of outer Himalayas having been affected by surface run off of high velocity is for most part a degraded cropland. The mean daily maximum temperature during May and June, which is the hottest period, varies from 34° C to 43° C and winter temperature ranges between 6° C to 20° C. Precipitation is high but erratic,with average annual rainfall ranging between 1000-1200 mm. All these factors contribute to massive soil erosion and landslides frequently.

A.5.3. Species and varieties selected

>> Tree species to be used for planting have been determined by interviewing the farmers. The medicinal plant trees which provide good income have been considered on priority andalso,taking taking into consideration of carbon sequestration rates, biodiversity enhancement, soil and climate conditions, and the value of associated forest products. The chosen species are:

Terminalia chebula, T. bellerica, Emblica officinalis, Melia azadirachta and Terminalia arjuna.

A.5.4. Technology to be employed by the proposed small-scale A/R CDM project activity

>> The technology to be employed under this pilot project is afforestation through direct planting of chosen species. Environment - friendly technologies,like use of vermi-compost, mulching and spot irrigation will be used. National and International forestry experts will also be consulted for this purpose but there will be no transfer of technology from an Annex - 1 country to the Host country.

To conserve the soil carbon stock and minimize the GHG emissions from the soil, zero tillage will be practiced.

Existing vegetation will not be removed and small pits of size 45 cm x 45cm x 45 cm will be dug. In the first two years castor crop etc will be grown by dibbling seeds without tilling of land thus ensuring that the land over which soil disturbance is caused due to both tree planting and castor growing will be less than 3% of the total project area. The planting material will be provided by the Punjab Forest Department from their nurseries established in the project villages. The saplings will be raised in plastic containers, containing an appropriate mixture of soil & farm yard manure/vermicompost and humus to ensure healthy and robust initial growth.

A.5.5. Transfer of technology/know-how, if applicable

>> Not applicable.No technology will be transferred to the host country (India). The project is unilateral and no upfront CDM benefit has been sought for the farmers

A.5.6. Proposed measures to be implemented to minimize potential leakage as applicable

>> It has been ensured that the farmers contribute only small portions of their lands that are degraded and degrading and are unproductive and they do not rely on these lands for their livelihood; so that the leakages due to the displacement of activities are unlikely to occur.

A.6. A description of legal title to the land, current land tenure and land use and rights to tCERs / lCERs issued

A.7. Assessment of the eligibility of land

>> Eligible, no forest for last 50 years

A.8. Approach for addressing non-permanence

>> Please select between:

- ☑ Issuance of tCERs
- ☐ Issuance of lCERs

A.9. Duration of the proposed small-scale A/R CDM project activity / Crediting period

>> Crediting period for this project will be 20 years

A.9.1. Starting date of the proposed small-scale A/R CDM project activity and of the (first) crediting period, including a justification

>> 01-01-2009

A.9.2. Expected operational lifetime of the proposed small-scale A/R CDM project activity

>> 01-01-2029

A.9.3. Choice of crediting period and related information

>> Please select one of the following:

1. Renewable crediting period ☐
2. Fixed Crediting period ☑

A.9.3.1. Duration of the first crediting period (in years and months), if a renewable crediting period is selected

>> Not applicable

A.9.3.2. Duration of the fixed crediting period (in years and months), if selected

>> 30 years

A.10. Estimated amount of net anthropogenic GHG removals by sinks over the chosen crediting period

>> Please provide the total estimation of net anthropogenic GHG removals by sinks as well as annual estimates for the chosen crediting period. Information on the net anthropogenic GHG removals by sinks shall be indicated using the following tabular format.

Years	Annual estimation of net anthropogenic GHG removals by sinks in tonnes of CO2 e
Year 2009	0
Year 2019	4800
Year 2029	5400
Year ...	
Total estimated net anthropogenic GHG removals by sinks (tonnes of CO2e)	10200
Total number of crediting years	20
Annual average over the crediting period of estimated net anthropogenic GHG removals by sinks (tonnes of CO2e)	510

A.11. Public funding of the proposed small-scale A/R CDM project activity

>> Govt of Punjab(30%), Govt of India(60%)&community(10%)

A.12. Confirmation that the small-scale A/R CDM project activity is not a deluded component of a larger project activity

>> There is no registration of small scale A/R CDM project and no application to register another small scale CDM.

Section B. Application of a baseline and monitoring methodology

B.1. Title and reference of the approved baseline and monitoring methodology applied to the proposed small-scale A/R CDM project activity

>> simplified baseline and monitoring methodology for small scale project activity under CDM implemented of grassland or cropland AR-AM0001/version04.1

B.2. Justification of the applicability of the baseline and monitoring methodology to the proposed small-scale A/R CDM project activity

>> Justification of application of the baseline and monitoring methodology for SS under CDM implemented of grassland and cropland are:

1. Project activities are on grassland or cropland
2. On land which has displacement on less than 50% of the total project area
3. On land where number of displaced graziers are less than 50% of the average grazing capacity
4. On land where less than 10% of total project area is disturbed as a result of soil preparation activity

(a) The area is located at the foothills of Shiwalik hills which is the southern most boundary of the outer Himalayas. The undulating plains near Beas ravaged by floods.

The project area comprises of 225 hectares of highly degraded and degrading croplands beyond the reach of irrigation, which is generally left fallow, belonging to 58 farmers spread across 23 villages. The cropping intensity on these degraded croplands is barely one crop in three years as against the norm of two crops per year on the surrounding good croplands.

(b) The farmers have contributed only a small portion of their lands which is degraded and degrading and they do not rely on these lands for their livelihood since these lands are unproductive and an agriculture crop is grown on these lands only once at an average interval of three years, and that too only in one cropping season after the monsoon rains, whereas two crops per year is the norm in the other irrigated agricultural lands in these eight and surrounding villages. The farmers have other productive lands on which they depend for their livelihood.

The farmers have contributed only a small portion of their lands which is degraded and degrading and they do not rely on these lands for their livelihood since these lands are unproductive and an

agriculture crop is grown on these lands only once at an average interval of three years, and that too only in one cropping season afterthe monsoon rains, whereas two crops per year is the norm in the other irrigated agricultural lands in these twenty three and surrounding villages.

Most cattle in the project villages are stall fed most of the time with fodder grown on the irrigated agricultural lands outside the project lands. The only period they are allowed to graze is immediately after the crop harvest for a few days in the cropped lands belonging to the cattle owners.

There is no cattle displacement due to the project activity and hence the use of this simplified methodology is justified.

d) A total of 1000 plants per ha will be planted in pits of the size 45 cm x 45 cm x 45 cm. There will be no ploughing of land before the establishment of plantation. Thus the planting activities will lead to soil disturbance over less that 3 % of the surface area and hence the use of this SimplifiedMethodology is justified.

e) There is no single accepted definition of low income communities by the Government of India, for the purpose of CDM projects. Therefore the international norms have been followed according to which people below a daily income of US$ 1 (around 40 Rs) fall under the poverty line. Most members (82%) of the Society fall in this low income family category with an average annual income of just 6,610 Rs .Also the generally poor living conditions in most households that have contributed their lands to the Society for this project with no toilet and running water facilities justifies their inclusion in the low income categories. In view of the above explanation the use of a Simplified Methodology is justifiable.

B.3. Specification of the greenhouse gases (GHG) whose emissions will be part of the proposed small-scale A/R CDM project activity

>> (b)The farming community have contributed only a small portion of their lands which is degraded and degrading and they do not rely on these lands for their livelihood since these lands are unproductive and an agriculture crop is grown on these lands only once at an average interval of three years, and that too only in one cropping season after the monsoon rains, whereas two crops per year is the norm in the other irrigated agricultural lands in these eight and surrounding villages. The farmers have other productive lands on which they depend for their livelihood.

B.4. Carbon pools selected

>> In calculating the baseline net GHG removals by sinks and/or actual net GHG removals by sinks, project participants may choose not to account for one or more carbon pools, and/or emissions of GHGs measuredin units of CO2 equivalents, while avoiding double counting. Select the carbon pools that are considered in determining actual net GHG removals by sinks and baseline net GHG removals by sinks in the table below in accordance with the proposed new/ approved methodology used. Note that the same carbon pools should be considered in the actual net GHG removals by sinks and the baseline net GHG removals by sinks.

Carbon pools	Selected(answer with yes or no)
Above ground	Yes
Below ground	Yes
Dead wood	
Litter	
Soil organic carbon	

B.5. Description of strata applied for ex ante estimations

>> No stratification has been done for the ex-ante baseline estimation since the climate, landform, soil conditions influencing carbon stocks, in accordance with Section 4.3.3.2 of the IPCC GPG for LULUCF, are largely similar over the entire project area. Also the method adopted for baseline estimation is total count rather than sampling. For the ex-ante estimation of the carbon stocks in the project area the climate, landform, soil conditions, and afforestation activity, including planting density and age, being same throughout the project area, the project lands have been stratified into seven project strata based on species alone. Each species represents one stratum.

B.6. Application of baseline methodology to the proposed small-scale A/R CDM project activity

>> AR AMS0001

B.7. Description of how the actual net GHG removals by sinks are increased above those that would have occurred in the absence of the registered small-scale A/R CDM project activity

>> The condition of additionality has been fulfilled as no tree planting activity with comparable sequestration capacity would have been taken up on the project lands in the absence of the project due to the non-viability of such an activity on account of the degraded and degrading nature of these lands. The Community Forestry Project of the Punjab Forest Department has been very active in this area targeting private lands in the past seven years but the lands inquestion were not taken up for tree plantation under the project for the same reason. Also, since the lands in question are privately owned degraded croplands, the afforestation of these lands is not a legal requirement. Thus the project lands would not have been taken up for tree planting in the baseline scenario. This has been established by barrier analysis presented below.

☐ Investment Barriers

Lack of access to credit: No credit mechanisms are in place for farmers to make long term investment in plantation forestry on degraded and degrading lands by taking commercial loans from banks. Agriculture is the main income sourcein the project area and with low productivity the condition of most farmers borders on poverty. As a result they are not able to afford the high plantation costs particularly with the long gestation periods that forestry entails. The proposed small-scale A/R CDM project activity reduces the gestation period for economic returns through carbon credits and makes the project a

more attractive economic proposition.

☐ The Punjab Forest Department has taken up the proposed small-scale A/R CDM project activity as a pilot project with a view to promote tree planting for climate change mitigation on the most unproductive lands and is bearing all project investigation and preparation costs as well as nursery costs in the first phase and will also endeavour to help the project proponent raise money for raising plantation. This is being done only because it is a CDM project.

B.8. Application of monitoring methodology and monitoring plan to the small-scale A/R CDM project activity

>> a. Ex post estimation of the baseline net greenhouse gas removals by sinks

In accordance with the decision 6/CMP.1, appendix B, paragraph 6, no monitoring of the baseline is required for small-scale A/R CDM project activity. The baseline net GHG removals by sinks will be assumed to be those estimated as per calculations

b. Ex post estimation of the actual net greenhouse gas removals by sinks

The project participants will determine any changes in carbon stocks via measuring and monitoring the project area that has been planted. The monitoring will focus on (i) the project boundaries and (ii) the selected stratified sample plots. The stratification shall be based on the species planted, other things being almost uniform throughout the project lands (reference paragraph B.5 above) and carbon sampling will take place within stratified project area. All sampling will be in accordance with the methods described in 4.3.3.4 of the IPCC GPG for LULUCF. This monitoring plan will be used throughout the project area and the crediting period. If at a later stage it is found that the carbon stocks in some areas differ significantly from those in the same strata elsewhere, these areas will be assessed as a separate stratum. The project boundary will be monitored by monitoring of parcels using GPS. Any changes in project boundary will be accounted for in all calculations of actual net GHG removals by sinks. The monitoring methodology uses permanent sample plots to monitor carbon stock changes in above- and below-ground biomass pools.

B.8.1. Data to be monitored: Monitoring of the actual net GHG removals by sinks and leakage.

B.8.1.1. Actual net GHG removals by sinks data

B.8.1.1.1. Data to be collected or used in order to monitor the verifiable changes in carbon stock in the carbon pools within the project boundary resulting from the proposed small-scale A/R CDM project activity, and how this data will be archived

Data variable	Source of data	Data unit	Measured (m), calculated (c) or estimated (e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic / paper)	Comment
N/A	-	-	-	-	-	-	-
N/A	-	-	-	-	-	-	-

B.8.1.2. Data for monitoring of leakage (if applicable)

B.8.1.2.1. If applicable, please describe the data and information that will be collected in order to monitor leakage of the proposed small-scale A/R CDM project activity

Data variable	Source of data	Data unit	Measured (m), calculated (c) or estimated (e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic / paper)	Comment
N/A	-	-	-	-	-	-	-
N/A	-	-	-	-	-	-	-

B.8.2. Describe briefly the proposed quality control (QC) and quality assurance (QA) procedures that will be applied to monitor actual GHG removals by sinks

B.8.3. Please describe briefly the operational and management structure(s) that the project operator will implement in order to monitor actual GHG removals by sinks by the proposed small-scale A/R CDM project activity

B.9. Date of completion of the baseline study and the name of person(s)/entity(ies) determining the baseline and the monitoring methodology:

Section C. Estimation of ex ante net anthropogenic GHG removals by sinks

C.1. Estimated baseline net GHG removals by sinks:

C.2. Estimate of the actual net GHG removals by sinks:

C.3. Estimated leakage:

C.4. The sum of C. 2. minus C.1. minus C.3. representing the net anthropogenic GHG removals by sinks of the proposed small-scale A/R CDM project activity:

C.5. Table providing values obtained when applying equations from the approved methodology

Section D. Environmental impacts of the proposed small-scale A/R CDM project activity

D.1. Provide analysis of the environmental impacts, including transboundary impacts (if any)

>> The proposed small-scale A/R CDM project activity is expected to have the following environmental impacts through its afforestation activities:

Soil fixation and controlling its erosion

The major soil type in the project area is loose soil with a high silt content and the area is affected by speedy water impacts As a result, these lands have severely degraded and are degrading. Therefore establishment of plantations in 225 ha of the project area under the proposed small-scale A/R CDM project activity will help stabilize the sand dunes in the project area and arrest soil erosion. Environment impact study in Punjab Community Forestry Project villages indicated that with the establishment of plantation by PCFP, moving slopes have been stabilized have been fixed and erosion has been mitigated in 25-70% of the PCFP villages

Improving land fertility

Productivity on these lands is low and highly depends on rainy event due to inaccessible

irrigation system and low soil fertility. The proposed afforestation activitiy will enhance the soil retention capacity

Soil sampling and analyses in 6 villages indicated that soil organic carbon (0-30 cm) under the 5-6 year old plantation established by the project ranges from 0.43% to 1.29% compared to 0.31-1.21% in the open lands adjacent to the plantation1.

Protecting the surrounding productive cropland

Productive croplands adjacent to the project lands have been threatening by soil erosion and become

less productive. The loss of cropland due to shifting sand dune has occurred in many villages1. Restoration of these degraded areas will lead to positive impacts in the areas outside the project boundary, especially the fertile agricultural areas as the afforestation activities in the project activity area will contribute to stabilize soil

Environment impact study in villages indicated that with the establishment of plantations and planting

of proper species Environment impact study in Punjab Community Forestry Project villages indicated that the loss of cropland due to soil erosion has been brought under control in some of the villages.

Risk analysis and countermeasures:

Site preparation: Site preparation has the potential to disturb the vegetation and soil in the planting

sites. The main technical measures to be employed to mitigate the impacts designed in the project are to plant the trees with low density (1000 trees per hectare), limited pit size (45 cm x 45 cm x 45 cm) and retaining all the existing vegetation. Even the crop that is proposed to be taken in the first two years shall be raised only by dibbling seeds and not more than 10 sq cm of soil at each dibble point will be disturbed. As a result, the surface area disturbed by site preparation is estimated to account for less than 3% of the total land surface. Therefore the site and soil preparation will have minor negative impacts on original soil and vegetation.

Fertilization: In the proposed small-scale A/R CDM project activity, only organic manure will be applied within the small planting pits rather than through dispersal over the entire land, thus leading to maximum impact on the plant while causing least disturbance outside.

Pesticide: Under the proposed small-scale A/R CDM activity, no pesticides are proposed to be used as a preventive measure. Only hygienic measures to control pests and diseases will be adopted. Only in case of a severe outbreak of pest attack would the use of pesticides be considered and then suitable safeguards

against the environmental effects of the pesticides would be undertaken to ensure that the residues do not escape into the water sources for the people and the cattle.

Fire risk: Fires in the plantations escaping into the neighbourhood is a potential risk of the proposed small-scale A/R CDM project activity. However the Punjab Forest Department shall reduce this risk

through awareness and training to local farmers/communities in collaboration with the Society.

significant by the project participants.

D.2. If any negative impact is considered significant by the project participants or the host Party, a statement that project participants have undertaken an environmental impact assessment, in accordance with the procedures required by the host Party, including conclusions and all references to support documentation

>> Environmental Impact Assessment (EIA) is not required for the proposed small-scale A/R CDM project activity, since this project does not have any significant negative impacts on the environment.

D.3. Description of planned monitoring and remedial measures to address significant impacts referred to in section D.2. above:

>> Not applicable

Section E. Socio-economic impacts of the proposed small-scale A/R CDM project activity:

E.1. Provide analysis of the socio-economic impacts, including transboundary impacts (if any):

>> The project participants belong to communities whose main income source is farming and animal husbandry.

These farmers have small land holdings, a considerable part of which is degraded and degrading croplands and not suitable for profitable agriculture as investment costs are too high for them to carry out any kind of farming or planting activities. Only 35% of the land owned by the farmers are productive and give them an annual income of 4000 rupees per acre while their earnings from animal husbandry ranges around one to five thousand rupees a year .Data6 with the land details and cattle holding of the farmers participating in the proposed small-scale A/R CDM project activity was collected to estimate their average annual income individually as well as for all the villages and their households (as shown in the table E-1). The data shows that 72% of the households are below the international poverty norm of US$ 1.00 (around Rs. 50) per day and have an

average daily income amounting to 30 Rupees.

Field visits and interviews with the project participants have shown that the households of majority of the farmers lack basic amenities such as running water and bathroom facilities. Most of the farmers reside in small houses which are not concrete structures and the cattle are also housed in the same dwelling. Fuelwood is the sole medium of cooking in all the households which puts a lot of burden on the women folk as they have to walk long distances for fuelwood collection. They don't own vehicles for transport and they either walk long distances or use animal transport. It was learnt through repeated interactions with the project participants and their family members that they don't have any savings or assets apart from the land and a few cattle that they possess .The average annual income of these households varies from 20 to 40 thousands which is still below the international poverty line ceiling around 86,400 Rs. A small percentage of farmers (8 %) who have larger land holdings have been also included in the project in order to make the activity more viable and enable smooth and efficient functioning of the proposed small-scale A/R CDM project activity.

Economic risk

The potential economic risks will be poor management of the plantations established under the project such as lack of pest and fire control measures, which could contribute to project failure and farmers' loss. The proposed small-scale A/R CDM project activity has been designed to mitigate this risk by providing technical assistance and training to farmers and communities, by farm forestry and the extension network of the forestry sector. The local government forestry office, which is experienced in reforestation and forest management, will provide the technical assistance to the farmers/communities.

(3) The possibility that carbon credits from forestry projects may have very low value:

This is almost the lowest risk factor, as there is increasing realisation of the threat of global warming and the countries which were reluctant to join Kyoto till recently are coming onboard and it is expected that the demand for carbon credits will keep on increasing thereby helping raise their prices in future.

None of these risks are considered significant.

E.2. If any negative impact is considered significant by the project participants or the host Party, a statement that project participants have undertaken a socio-economic impact assessment, in accordance with the procedures required by the host Party, including conclusions and all references to support documentation:

>> There is no negative impact that is considered significant by the project participants or the host party.

E.3. Description of planned monitoring and remedial measures to address significant impacts referred to in section E.2. above:

>> N/A

Section F. Stakeholders' comments

F.1. Brief description of how comments by local stakeholders have been invited and compiled:

>> To collect the relevant information for the 'Small Scale Cooperative Afforestation CDM Pilot Project Activity on community Lands Affected by Soil erosion a series of PRA exercise was conducted. The main objectives of this PRA exercise were:

- To know the aspirations of the participants/villagers on small scale AR-CDM project activities & identify project participants
- To evaluate the eligibility of the lands under the project area
- To analyze the potentiality of additionality and leakage in the project area
- To identify the discrete parcels to be included under the project area
- To explore the crop productivity, grazing pattern, climate & other relevant points
- To know the income sources of the project participants and study the socio-economic conditions of the households and the communities in the eight villages.
- To collect field data on individual land details and cattle holdings of the project participants

Tools Used:

A series of open meetings were conducted by using the following tools:

- Semi-structured interviewing
- Focus group discussions
- Village and resource Mapping
- Seasonal /crop cycle mapping
- Timeline analysis
- Transect walk

A PRA exercise in progress in one of the project village

Detailed PRA exercises were conducted for 8 participating villages, viz. Neemla, Dhani Sheranwali, Bhuratwala, Poharkan, Umedpura, Mallekan, Madho Singhana and Gudia

Khera. The villagers were informed well in advance about the visit of the PRA team by the Haryana Forest Department. The PRA team met the farmers in their respective villages at a common place. At each village, activities like preparation of village & resource map, timeline analysis, crop cycle / seasonal maps were performed. The villagers were clearly informed about the Society byelaws and the criteria and eligibility for the CDM project. They were particularly asked questions under following broad categories, which were captured in video and camera as evidence/proof for records to be sent along with PDD during project submission.

Land eligibility: Villagers were asked about their proposed land status, whether it was a forest area, and if so since when? For ascertaining land eligibility criteria of the CDM project activities.

Grazing for leakage criteria: Villagers were specifically asked about grazing of their cattle in the proposed

land and also any grazing by migratory cattle from adjoining areas.

A total of 58 farmers from all the 23 selected villages, finally volunteered to give their degraded land, which totally constitutes 225 ha (as per GPS calculations) for the project activity.

F.2. Summary of the comments received:

>> Farmers' understanding on CDM & its benefits

Initially, a thorough discussion was made with the farmers on Clean Development Mechanism (CDM). It was stated that Afforestation / reforestation CDM project activities could be carried out if a certain amount of the land is degraded in nature or not suitable for growing profitable agricultural crops. The team stated that there could be several benefits, as given below from the proposed small-scale A/R CDM project activity -

- Growing timber or fruit crops in the degraded lands, which were otherwise, kept fallow and not utilized for agricultural practices;
- Providing timbers after 10-20 years interval;
- Providing annual fruits after 5 years onwards;

F.3. Report on how due account was taken of any comments received: