Small-Scale AR-CDM

What is Small-scale AR-CDM? Objectives and potential Basic rules Project cycle Project management body Funding Approval procedures AR-CDM pilot project Development of AR-CDM projects in Vietnam



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1. What is the CDM?

The Conference of Parties to the United Nations Framework Convention on Climate Change (UNFCCC) adopted the **Kyoto Protocol** in January 1997 to prevent **global warming** induced by the increasing atmospheric concentration of greenhouse gas (GHG). The increased concentration of GHG was mainly attributed to the economic activities of industrialized countries. However, GHG emissions from developing countries are expected to exceed those from industrialized countries within the next two decades.

One of the most critical issues with regard to climate change is how to abate the increasing GHG emissions from developing countries. The Kyoto Protocol sets legally-binding GHG emission reduction targets to Annex I parties (mostly industrialized countries). The Protocol also introduced three mechanisms to abate GHG emissions in the most cost-effective manner.

Clean Development Mechanism (CDM) is one of the mechanisms for assisting Annex I parties in achieving compliance with their GHG emission reduction targets. In the CDM, Annex I Parties which have emissions reduction targets assist non-Annex I Parties (developing countries) to implement project activities to reduce GHG emissions (or remove via sinks). **Carbon credits,** called certified emission reduction units (**CERs**) will be issued based on emission reductions (or removal via sinks) achieved by the project activities. Annex I countries can use CERs to meet their GHG emission reduction targets. Meanwhile, project activities in developing countries are expected to contribute to sustainable development.



Vietnam is one of the countries vulnerable to climate change, and so it ratified the Kyoto Protocol in September 2002. It then set up the Clean Development Mechanism National Authority (CNA) under Ministry of Natural Resources and Environment (MONRE). As a result of efforts made by the government and private sector, two CDM projects are registered; eight projects are at validation; and more projects are under preparation as of December 2007. All are energy sector CDM projects (reduction of GHG emission).

2. What is the AR-CDM?

The afforestation and Reforestation Clean Development Mechanism (AR-CDM) is one type of CDM that the Vietnamese government has tried to promote (to remove GHG via forests). There are about 5.6 million hectares of unused bare land in the whole country. It is anticipated that part of the unused bare land could be developed for AR-CDM projects for sustainable development of poor communities in rural areas of the country.

AR-CDM projects are similar to regular reforestation projects. The differences are that AR-CDM projects have to be formulated, registered, implemented/monitored, and verified according to certain rules and procedures set by the UNFCCC.



3. Objectives and Potential of AR-CDM

AS FORESTRY PROJECTS:

- Environmental improvement (watershed and coastal protection, biodiversity restoration, etc.).
- Sustainable development in rural areas (creation of additional income sources for impoverished people).

AS AR-CDM:

- International contribution to prevent global warming.
- Increase in investment opportunities in forest development by foreign countries.
- Additional economic benefit through the sales of CER generated.
- Improvement of forestry projects in terms of planning, stakeholder participation, benefit sharing and monitoring.

AR-CDM can be the subject of CSR activities for foreign private companies as they have increased CSR investment for environmental protection, poverty reduction, sustainable development, actions against global warming, etc.

4. Basic rules of AR-CDM

AR-CDM projects shall be formulated according to the basic rules set out below:

1.	AR-CDM is limited to afforestation and reforestation.				
Land Eligibility	[Afforestation] is the direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding and/or the human induced promotion of natural seed sources.				
	[Reforestation] is the conversion of non-forested land to forested land, on land that was forested but that has been converted to non-forested land. For the 1st commitment period, reforestation activities will be limited to reforestation of lands that did not contain forest on 31 December 1989.				
	In Vietnam, "forest" for AR-CDM is defined:				
	(1) An area of at least 0.5ha ; with				
	(2) A minimum crown cover of 30% ; and				
	(3) A minimum tree height at maturity of 3m .				
	Project participants (PPs, i.e., project developers) shall provide one of the following verifiable evidences to <u>prove</u> that the land within the project boundary is eligible for AR-CDM project activities (i.e., at the moment the project starts, the land does not contain forest and the activities are either afforestation or reforestation).				
	(a) Aerial photographs or satellite imagery complemented by ground reference data; or				
	 (b) Land use or land cover information from maps or digital spatial datasets; or (c) Ground based surveys (land use permits, land use plans or information from local registers such as cadastre, owners register, land use or land management register). 				
	 (d) If options (a), (b) and (c) are not available/applicable, PPs shall submit a written testimony that has been produced by following a Participatory Rural Appraisal (PRA) methodology or a standard PRA as practiced in the host country. 				
2.	PPs shall prove "Additionality," in other words,				
Additionality	"In the project, GHG is additionally removed compared with baselin scenario." and "In case of absence of AR-CDM, the project cannot be implemented."				
	For normal scale AR-CDM (>16,000 t-CO ₂ /year), PPs shall prove additionality using "Tool for the demonstration and assessment of additionality for AR-CDM project activities." <u>http://cdm.unfccc.int/methodologies/ARmethodologies/AdditionalityTools/Additionality_tool.</u> pdf				
	For small-scale AR-CDM (<16,000 t-CO ₂ /year) [#] , PPs shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of seven (7) barriers. <u>http://cdm.unfccc.int/methodologies/SSCmethodologies/SSCAR/approved.html</u> #: It was decided by COP/MOP3 in December 2007 that the limit for small-scale AR-CDM shall be revised to 16.000 t-CO ₂ /year from 8.000 t-CO ₂ /year.				
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3. Project Boundary	The geographically-defined area for the AR-CDM project activity under the control of the project participants. The project boundary contains more than one discrete area. It shall be clearly indicated on project maps.
4. Baseline Scenario	 The Scenario that reasonably presents the change in carbon stocks in carbon pools within the project boundary that occur in the event that A/R-CDM project activity is not implemented. It shall be presented in Project Design Document (PDD). <<i>Carbon pools: (a) above ground biomass, (b) below ground baimass, (c) litter, (d) dead wood, and (e) soil organic carbon.></i> Project participants can select one of the following approaches as the most appropriate baseline scenario of the project activity. (1) Existing of historical, as applicable, changes in carbon stocks. (2) Changes in carbon stocks from a land use that represents an economically attractive course of action. (3) Changes in carbon stocks from the most likely land use at the time the project starts.
5. Estimation of GHG removal	Net anthropogenic GHG removal by sinks (=CER) shall be : CER= A - B - C - D where: (A) Actual net greenhouse gas removal by sinks (B) Baseline net GHG removal via sinks (C) Leakage (D) Project GHG emission

6. Leakage	The increase of GHG emissions attributable to (as a result of) the implementation of the project. Leakage occurs outside of the project boundary.				
	<examples></examples>				
	 a) People will have to move outside the project boundary and develop new settlements by clearing forest. The decrease of carbon stocks in the settlements (outside of the project boundary) has to be considered as leakage b) Grazing of cattle conducted within the project boundary will be done outside the project boundary via the implementation of AR-CDM project. As a result, emission of GHG by cattle will increase outside of the project boundary. c) Firewood collection within the project boundary will be conducted outside via the implementation of AR-CDM project. 				
	<note> Estimation of leakage in small-scale AR-CDM is simplified. (Refer to approved methodology.)</note>				
7. Credit Period	This begins at the start of the AR-CDM project activity. PPs can select one of the following crediting periods:				
	 (1) Renewable crediting period: maximum 20 years and may be renewed two times at most (maximum 60 years in total). (2) Fixed crediting period: maximum 30 years; cannot be renewed. 				
	The first verification and certification of an AR-CDM project activity may be undertaken at a time selected by the PPs. Thereafter, verification and certification shall be carried out every 5 years until the end of the crediting period.				
8. Non- permanence	The most significant difference between the emission reduction CDM and AR-CDM is non-permanence. Once GHG emission reductions are achieved, this is a permanent reduction. On the other hand, in AR-CDM, CO_2 once sequestered in trees could be released back into the atmosphere in the event of a forest fire or die back from pests. The issue of non-permanence is addressed by creating different type of CERs for AR-CDM, namely temporary CERs (tCERs) and long-term CERs (ICERs).				
9. tCER	tCER shall be issued based on the net anthropogenic GHG removal achieved by the project activity since the project start date.				
	Expiration> Each tCER shall expire at the end of the commitment period subsequent to the commitment period for which it was issued.				
B B Con-CO2) Project Start	Commitment Period 2nd Commitment Period 3rd Commitment Period Image: Commitment Period Period Image: Commitment Period </th				



5. Project Cycle of AR-CDM

1. Plan preparation (6~12 months depending on scale and complexity of the project)	 PPs select sites in consultation with local stakeholders considering land eligibility, additionality, baseline scenario, etc. PP develop AR-CDM project activities. PPs prepare PIN (Project Idea Note) if necessary. PPs prepare a PDD based on an approved baseline and monitoring methodology. PPs obtain written approval by DNA of Vietnam (and investment country)
2. Application for new baseline and monitoring methodology	 PPs develop new baseline and monitoring methodology and apply for approval of CDM-EB IF NO APPROVED METHODOLOGY APPLIES FOR THE PROJECT. (note: it will take a long time to obtain approval from CDM-EB)
3. Application for validation	 PPs select a DOE from the list of DOEs and contract with them for validation. PPs submit PDD and supporting documents to the contracted DOE.
4. Validation (3~6 months)	 DOE reviews the PDD and conducts a site survey to confirm that the requirements for the CDM have been met. DOE makes the PDD publicly available on a web site in the PDF format. DOE receives comments from Parties (that ratify KP), stakeholders and accredited NGOs within 30 days. DOE makes the decision to accept or not.
5. Registration (3~6 months for SSC AR-CDM)	 DOE prepares a validation report and submits it with all required documents for a request for registration to the UNFCCC secretariat. RIT member of CDM-EB makes an appraisal and reports to CDM-EB. Registration goes ahead if there is no objection by EB or a Party.
6. Monitoring	 PPs carry out monitoring necessary for calculation of GHG emission reductions in accordance with the monitoring plan written in the PDD. PPs prepare a monitoring report for verification.
7. Verification and certification	 PPs contract with a DOE for verification and certification. DOE implements verification based on the monitoring report and prepares a verification report. DOE certifies the verified amount of GHG emission reduction and submits reports to the UNFCCC secretatiat.
8. Issuance of CERs	 RIT member of CDM-EB appraises the reports and sends an appraisal report to EB. Issuance of CER if there is no objection by EB or a Party.

DOE: Designated operational entity that will conduct validation, verification and certification;. CDM-EB: CDM Executive Board under UNFCCC; RIT: Registration and Issuance Team of CDM-EB

Small-scale AR-CDM : GHG removal < 16,000 ton-CO₂/year

(The limit was revised to 16,000 t-CO2/year from 8,000 t-CO2/year at COP/MOP3 in December 2007)

In Vietnam, development of small-scale AR-CDM is more recommended than normal scale AR-CDM because modalities and procedures are simpler, it is easier to reach an agreement among landowners, and the exemption from payment of registration fees etc. The problem of higher validation and verification costs could be minimized by the bundling of several small-scale AR-CDM projects.

The following table compares the requirements of small-scale and normal scale AR-CDM.

ltem	Small Scale AR-CDM	Normal Scale
Baseline and Monitoring Methodology	Simplified baseline and monitoring methodology can be applied. [version 4 of simplified B&M methodology for SSC AR- CDM] http://cdm.unfccc.int/methodologies/SSCmethodologies/ SSCAR/approved.html	→ Approved methodologies are rather complicated.
(Additionality)	PPs shall provide <u>an explanation</u> to show that the project activity would not have occurred anyway due to at least one of seven (7) barriers mentioned in the simplified B&M methodology for SSC AR-CDM.	→ PPs shall prove this using "Tool for the demonstration and assessment of additionality for AR-CDM project activities." –not easy
(Leakage)	Estimation of leakage is simplified.	→ Estimation of leakage is complicated.
Bundling	It is possible to bundle several projects into one for the process of validation, verification, certification and monitoring. With bundling, transaction costs of CDM per project could be reduced.	→ Bundling is not permitted.
PDD	Requirements of PDD are simpler than those of normal scale AR-CDM.	
Validation, Verification and Certification	This can be conducted by the same DOE. This would result in avoidance of misunderstanding of the project by the DOE and facilitation of verification.	→It must be conducted by different DOEs.
Participation of low income people	Participation of low income people to the project is necessary. (PPs shall provide a written declaration that the AR-CDM project is developed or implemented in low-income communities as determined by Vietnam.)	→Not necessary
Registration fee	No registration fee has to be paid for CDM project activities with an expected average annual emission reduction over the crediting period below 15,000 t-CO ₂ .	→Shall be paid based on the expected average annual emission reduction.
Share of proceeds	For assistance to developing country Parties: Exempted For management of CDM-EB: Entitled to a reduced rate of the share for proceeds.	 →deducted 2% of share of proceeds →not reduced

7. Project Management Body

Organizations that will implement and manage AR-CDM projects shall be legal entities, e.g.,

- a. Private companies: Forest companies or any other companies
- b. State agencies: Management boards of protection forest or special use forests, universities, research institutes
- c. NGOs: International or local NGOs,
- d. NPO: Charity funds, social funds, and associations of farmers

In the event the project land is allocated to local communities and they will provide land and labor for AR-CDM project activities, there shall be a written agreement or contract between local communities and the project organization. The agreement or contract shall clearly state:

- a. The rights for CER,
- b. Contribution to the project implementation by the local community and the project organization,
- c. Sharing of forest products and non-forest products from the project (such as firewood, timber, honey, etc.), and
- d. A penalty should the local community violate the conditions of the agreement.

Technical assistance by CDM consultants is necessary for a field survey, plan formulation, PDD preparation, validation, monitoring and verification of AR-CDM projects.

Cooperation of and assistance from local governments such as DARD, forestry subdepartment of district and communes concerned is also necessary for smooth formulation and implementation of the projects.

8. Funds for AR-CDM Projects

Kind of fund	Explanation	Remarks
Government fund	DNA (MONRE) will judge if CDM projects can use particular government funds (such as 661 program).	Sharing of benefits among the project owner, the State, and local communities shall be clarified.
Bank loan	Vietnam Bank for Social Policies provide soft loans for reforestation projects.	Borrowers (private companies or local communities) shall provide collateral and bear all risks.
ODA	ODA can be used for formulation and implementation of CDM projects as long as resulting CERs will be purchased using different funds.	Sharing of benefits among the project owner, the State, and local communities shall be clarified. Funds for validation and verification shall be secured from different sources.
Carbon fund (such as BCF: Bio Carbon Fund)	Only few carbon funds provide upfront long-term finance for AR-CDM projects. BCF provides assistance for PDD preparation.	Eligibility is rather strict.
Private fund	It is either a refundable (upfront long-term financing for CERs) or a non-refundable fund.	Some companies provide non- refundable funds to environmental projects for CSR purposes.

9. Approval Procedure of CDM Projects in Vietnam

In Vietnam, the International Cooperation Department of MONRE is designated as a DNA (Designated National Authority). The National Steering Committee for UNFCCC, Kyoto Protocol (NSC) has been formed to appraise applications for CDM projects.

MONRE Circular No: 10/2006/TT-BTNMT dated 12th December 2006 provides detailed guidance for the preparation, formulation, certification and approval of CDM projects in Vietnam. According to the circular, the approval procedure for PIN (Project Idea Note) and PDD (Project Design Document) is as illustrated below. Approval for PIN is necessary only when investors request certification from DNA. PIN and PDD shall be prepared both in Vietnamese and English. Documents that shall be submitted to the DNA together with PIN or PDD are:

- a. Official letter from the project implementer to request for consideration of the project.
- b. Official letter from concerned ministry, sector, people's committee under central government which manages the project, to request for examination of the project and acceptance.
- c. Comments made by the concerned parties in the project (such as the district government where the project will be implemented, the organization/community which will use the project's results or be affected directly by the project activities).



Source: MONRE Circular No:10/2006/TT-BTNMT dated 12th December 2006

10. A Small-scale AR-CDM Pilot Project

The JICA Study team and it's counterpart have formulated a small-scale AR-CDM pilot project in order to practice the AR-CDM project formulation process as well as to provide lessons learned for succeeding AR-CDM projects in Vietnam.

The project site is located in two communes; namely Xuan Phong and Bac Phong, Cao Phong district, Hoa Binh Province.

Xuang Phong commune		
Site-1	23.5 ha	
Site-2	73.5 ha	
Site-3	106.6 ha	
Sub-total	203.6 ha	
Bac Phong commune		
Site-4	71.7 ha	
Site-5	90.0 ha	
Sub-total	161.6 ha	
TOTAL	365.3 ha	

Silent features of the pilot project are shown below. PDD and other information on the pilot project will be uploaded to the AR-CDM web site later.

http://ar-cdm.vfu.edu.vn/



Land area:	365.3 ha (net area planted : 308.5 ha)		
Classification of the land:	Production forest land		
Land owners:	329 households and 2 cooperatives		
Present land use:	Unused bare land and bush/shrub land (IA and IB)		
Vegetation:	Grass (Cao lao, Co tranh) and bush/shrub		
Land eligibility:	It was proved by PRA (interview with land owners) and satellite data analysis that the land was not forested as of December 31 1989.		
Additionality:	 The AR-CDM project activity would not have occurred due to: No funding mechanism attractive to impoverished farmers is available. (Investment barriers) Degraded soils as well as biotic pressure such as firewood collection and grazing prevent regeneration of trees (barriers to local ecological conditions) 		
Baseline scenario:	Change in carbon stocks within the project boundary will be insignificant because current land use that has been continued for more than 20 years would be maintained.		

Baseline and monitoring methodology applied:	AR-AMS0001/ Version 4 (only methodology approved by CDM-EB for small-scale AR-CDM)			
Planting design	Acacia mangium:15 year rotation with one thinning (50%) at 8th YearAcacia auriculformis:15 year rotation with two thinnings at 8th and 12th Year			
Net planting area (ha)	Year 1	Year 1 Year 2 Total		
Acacia mangium	140.2 ha	140.2 ha 140.2 ha 280.4 ha		
Acacia auriculformis	-	- 28.1 ha 28.1 ha		
Total	140.2 ha 168.3 ha 308.5 ha			
Other plans included	Green fodder production: 30ha outside of the project boundary (the project subsidizes the material costs.)			
	Extension & demonstration: reforestation technique, use of crop residues for animal feed, and promotion of biogas tank installation			
Credit and credit period:	tCER, 16 years	tCER, 16 years		
Estimated tCER obtained:	61,504 tCER in 16 years	61,504 tCER in 16 years		
50,000 50,000 30,000 3rd verification: 37,546 t-CO2 37,546 t-CO2 0 5 10,000 15 End of credit period 20 0 5 10 Year Year 16				



Site-2 in Xuan Phong commune



Site-5 in Bac Phong commune

Project cost over 17 years	Total:	14.73 billion		
(Reforestation cost includes the	Reforestation:4.71 billion VNDon cost includes theThinning/harvesting:4.83 billion VND			
cost of all labors contributed by	Greed fodder production:	4.83 billion VND 0.86 billion VND		
local communities.)	Extension & demonstration:			
	CDM related expenses:	1.43 billion VND		
	Project Management:	2.08 billion V	ND	
	Contingency (5%):	0.75 billion V	ND	
Project revenues over 17	Total: 25.49 billion VND			
years	Sales of forest products:	22.54 billion	VND	
	Sales of tCER (\$3.0/tCER):	Sales of tCER (\$3.0/tCER): 2.95 billion VND		
	In addition, a total of 3.74 billion VND will be provided as non-refundable funds from JICA (cost of validation) and a Japanese private company (3 billion VND).			
Project FIRR:	15% when the non-refundable fund is considered as revenue.			
	7% when the non-refundable	fund is not co	nsidered as reven	ue.
Sharing of cost and benefit k	between Social fund and parti	cipants	Social Fund	Participants
Sharing of project cost	Labor for reforestation (Year	1~4)	30%	70%
	Reforestation materials		100%	-
	Tending, harvesting and transportation of forest products		-	100%
	Labor for green fodder production		-	100%
	Farm manure for green fodder production		50%	50%
	Fertilizers for green manure production		100%	-
	Cost for extension and demonstration		100%	-
	CDM related cost		100%	-
	Project management cost		100%	-
Sharing of project benefit	Firewood		-	100%
	Chip wood and round wood		25%	75%
	Carbon credit (tCER)		50%	50%
	Others (such as from livestock raising)		-	100%
Estimated revenue of	Cash incentives for reforesta	Cash incentives for reforestation 3.1~3.3 mil. VND/ha		D/ha
participants	Materials for reforestation 1.7~2.1 mil. VI		1.7~2.1 mil. VN	D/ha
	Materials for green fodder pro	oduction 1.8 mil VND/ 0.1 ha		l ha
	Income from forest products firewood) – 75%	(except	ot 55 mil VND/ha in 17 years	
	Carbon credit – 50%	4.8 mil. VND/ha in 16 years		in 16 years
Project management body:	A social fund (NPO) to be es RCFEE.	tablished jointly	y by VFU, Cao Ph	ong DPC, and

11. Development of AR-CDM Projects in Vietnam

The potential for AR-CDM project development in Vietnam is large. There are 3.2 million hectares of bare land (Ia+Ib) awaiting forestry development in the forest land of the whole country. Among these, small-scale AR-CDM projects could be developed on land that satisfies the AR-CDM requirements below:

- a. Land eligibility: it shall be proved that land use on 31 December 1989 and present land use was not "forest" according to the definition of forest;
- b. Additionality: AR-CDM project activities would not have occurred due to one of seven (7) barriers such as no funding mechanism available, and degraded soils prevent regeneration of trees.

In addition to above, project developers shall take the following into account when selecting the project sites:

- c. Baseline biomass: the lower the baseline biomass, the higher the CER obtained;
- d. Size of a project site: this will require higher costs for survey and project monitoring if many small dispersed sites are included.
- e. Land ownership: More time for project formulation will be required if land ownership is not officially defined.
- f. Involvement of local governments: cooperation from DPC and CPC is a must for site selection, project formulation and implementation.

Land use of forest land has changed year by year. It is essential for project developers to select AR-CDM project sites based on updated information provided by local governments.





Check the AR-CDM web site for more information in both English and Vietnamese: <u>http://ar-cdm.vfu.edu.vn/</u>

For inquiries related to AR-CDM projects in Vietnam, please contact the AR-CDM Helpdesk by e-mail: vfuhtqt@hn.vnn.vn

If you wish to contact Helpdesk members directly for technical assistance, please contact:

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