

An Institutional Design for Sustainable Foreign Forest Carbon  
Projects in Developing Countries

Een institutioneel design voor duurzame bosprojecten ter  
reductie van broeikasgassen in ontwikkelingslanden

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## ABBREVIATIONS

A/R	Afforestation and Reforestation
AAU	Assigned Amount Unit
AWG-KP	Ad Hoc Working Group on Further Commitments from Annex I Parties under the Kyoto Protocol
AWG-LCA	Ad Hoc Working Group on Long-Term Cooperative Action Under the Convention
CBD	Convention of Biological Diversity
CCB	Climate, Community and Biodiversity
CCBA	Climate, Community and Biodiversity Association
CCBS	Climate, Community and Biodiversity Standard
CCER	Chinese Certified Emission Reductions
CCS	Carbon Capture and Storage
CDM	Clean Development Mechanism
CDM A/R	Afforestation and Reforestation projects under the Clean Development Mechanism
CDM EB/ CDM-EB	CDM Executive Board
CER	Certified Emission Reduction
CFCS	China National Forest Certification Scheme
CICERO	Centre for International Climate and Environmental Research
CIFOR	Centre for International Forestry Research
CMP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
CO <sub>2</sub>	Carbon Dioxide
COAG	Council of Australian Governments
COP	Conference of the Parties
CPC	Communist Party of China
CSOs	Civil Society Organizations

DECC	(UK) Department of Energy and Climate Change
DGM	Dedicated Grant Mechanism
DNA	Designated National Authorities
DOE	Designated Operational Entities
EIA	Environmental Impact Assessment
EKC	Environmental Kuznets Curve
ERU	Emission Reduction Units
ETS	Emission Trading System
FAO	Food and Agriculture Organization of the United Nations
FCPF	Forest Carbon Partnership Facility
FIP	Forest Investment Programme
FSC	Forest Stewardship Council
FTEM	Forest Trends' Ecosystem Marketplace
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gases
IBRD	International Bank for Reconstruction and Development
IET	International Emission Trading
IFC	International Finance Corporation
IIED	International Institute for Environment and Development
INC	Intergovernmental Negotiating Committee
INDC	Intended Nationally Determined Contributions
IPCC	Intergovernmental Panel on Climate Change
ISFL	Initiative for Sustainable Forest Landscapes
IUCC	Information Unit on Climate Change
IUCN	International Union for Conservation of Nature

JI	Joint Implementation
JNR	Jurisdictional and Nested REDD+
KP	Kyoto Protocol
kt	Kilotonnes
ICERs	long-term Certified Emission Reductions
LoA	Letter of Approval
LULUCF	Land Use, Land-Use Change, and Forestry
MRV	Monitoring, Reporting and Verification
MtCO <sub>2e</sub>	Million Metric Tonnes of CO <sub>2</sub> Equivalents
NDRC	National Development and Reform Committee
NGO	Non-Governmental Organisation
NPC	National People's Congress
ODA	Official Development Aid
OECD	Organization for Economic Cooperation and Development
PDD	Project Design Document
PEFC	Programme for the Endorsement of Forest Certification
PES	Payments for Ecosystem Services
REDD+	Reducing Emissions from Deforestation and Forest Degradation Plus the Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries
RIT	Registration and Issuance Team
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technological Advice
SCF	Standing Committee on Finance
SFA	State Forestry Administration
SFM	Sustainable Forest Management
SIA	Social Impact Assessment
STAP	Scientific and Technical Advisory Panel

tCERs	temporary Certified Emission Reductions
UK	United Kingdom
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFA	Uganda National Forestry Authority
UNFCCC	United Nations Framework Convention on Climate Change
UNPFII	UN Permanent Forum on Indigenous Issues
UN-REDD	United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
US	United States
US\$	US Dollars
VCS	Verified Carbon Standard
VVM	Validation and Verification Manual
VVS	Validation and Verification Standards
WMO	World Meteorological Organization



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# 1 INTRODUCTION

## 1.1 Climate Change, Forests, and Sustainable Development

With its disastrous impacts on human beings and protracted disputes in science, climate change is regarded as one of the ‘greatest challenges’ of this era.<sup>1</sup> Climate cataclysms, such as violent typhoons, large-scale wildfires, and intense droughts have caused massive losses of properties and human lives and will affect the future of our children.<sup>2</sup> Hence international policy makers have hastened to take effective measures to address this worldwide environmental threat. The 1992 United Nations Framework Convention on Climate Change (UNFCCC) was the first international agreement that international policy makers agreed on.<sup>3</sup>

The UNFCCC recognised forests as both carbon “sinks” and “sources”, for the reason that forests can store and release greenhouse gases (GHGs).<sup>4</sup> On the one hand, forests contain vegetation and soil that can enhance removals of GHGs by absorbing and storing carbon dioxide (CO<sub>2</sub>) through the photosynthesis process.<sup>5</sup> On the other hand, forests are also “sources” of GHGs emissions because the CO<sub>2</sub> absorbed by the forests can be released back into the atmosphere through natural respiration or by human actions such as logging, biofuel consumption and forest fires.<sup>6</sup> As reported by the Intergovernmental Panel on Climate Change (IPCC), forestry and other land uses activities accounted for the second biggest source of global emissions from 1970 to 2010.<sup>7</sup> For the reason that forests can both store and release GHGs, special rules were developed under the legal framework established by

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<sup>1</sup> Oliver C. Ruppel and Cord Luedemann, *Climate Finance Mobilizing Private Sector Finance for Mitigation and Adaptation*, Situation Report (Institute for Security Studies, 2013), accessed 12 July 2017, [https://www.files.ethz.ch/isn/164236/SitRep2013\\_6May.pdf](https://www.files.ethz.ch/isn/164236/SitRep2013_6May.pdf): 1.

<sup>2</sup> Michael Oppenheimer and Jesse K Anttila-Hughes, "The Science of Climate Change," *The Future of Children* 26, no. 1 (2016): 26.

<sup>3</sup> "United Nations Framework Convention on Climate Change," UN (1992), Public Law No. 102-38 (1992). 1771 U.N.T.S.108. (May 9, 1992): S. Treaty Doc., accessed 12 February 2017, [http://unfccc.int/essential\\_background/convention/items/6036.php](http://unfccc.int/essential_background/convention/items/6036.php).

<sup>4</sup> Art. 2, and 4 (1) d and c, *ibid*.

<sup>5</sup> R.K. Dixon et al., "Carbon Pools and Flux of Global Forest Ecosystems," *Science* 263, no. 5144 (1994): 187. CO<sub>2</sub> is a type of greenhouse gas. CDM, "GHG Removal: CDM Glossary of Terms", accessed 15 April 2017, [http://cdm.unfccc.int/Reference/Guidclarif/glos\\_CDM.pdf](http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf).

<sup>6</sup> Sandra Brown et al., "Changes in the Use and Management of Forests for Abating Carbon Emissions: Issues and Challenges under the Kyoto Protocol," *Philosophical Transactions of the Royal Society of London A: Mathematical, Physical and Engineering Sciences* 360, no. 1797 (2002): 1594. Alla Golub et al., "The Opportunity Cost of Land Use and the Global Potential for Greenhouse Gas Mitigation in Agriculture and Forestry," *Resource and Energy Economics* 31, no. 4 (2009): 300.

<sup>7</sup> IPCC, *Climate Change 2014: Mitigation of Climate Change - Summary for Policymakers*, ed. O. Edenhofer, R., Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J., Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx, Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (Cambridge, United Kingdom and New York, USA: IPCC, 2014): 7.

the UNFCCC to implement forest carbon projects to enhance the storage of GHGs and mitigate GHGs emissions in forests.<sup>8</sup>

For all climate change activities, including forestry, sustainable development has been recognised as an essential principle.<sup>9</sup> The contemporary definition of sustainable development was initially enunciated by the 1987 Brundtland Report, as development ‘that meets the needs of the present without compromising the ability of future generations to meet their own needs’.<sup>10</sup> In line with this definition, the concept of sustainable forestry also evolved from simply replacing old trees with young ones to conserving natural forests for their multiple ecosystem services.<sup>11</sup>

Although definitions are established, there are no binding international rules to guarantee full implementation of the sustainable development principle in climate change activities. Many studies have questioned whether climate-related forestry activities are actually contributing to the sustainable development of developing countries. After defining foreign forest carbon projects in developing countries in Section 1.1.1, Section 1.1.2 examines their adverse impact on sustainable development in developing countries. The analysis shows that although forest carbon projects have the potential to offer considerable environmental and social benefits, they are in fact causing environmental and social problems in the project areas in developing countries. Lastly, Section 1.1.3 draws attention to increasing international collaborate efforts to promote sustainable forest carbon projects in developing countries, which reinstates the significance of directing such activities to deliver sustainable results.

### **1.1.1 Conceptualisation of Foreign Forest Carbon Projects**

A forest carbon project is defined in this study as a project comprising forests plantations and/or forest management activities with objectives to mitigate or to adapt to climate change.<sup>12</sup> Such a project may have the following characteristics: it (a) aims to plant trees or conserve existing forests; or (b) aims to enhance removals of GHGs through the ecological processes in a forest. Such activities include

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<sup>8</sup> Forest carbon projects refer to forest activities that are expected to have an impact on greenhouse gases emissions. An overview of the international legal framework on forest carbon projects is provided in Chapter 2.

<sup>9</sup> Art. 2, "United Nations Framework Convention on Climate Change," UN (1992); Art. 12, para. 2, "Kyoto Protocol to the United Nations Framework Convention on Climate Change," (1997), 37 ILM (1998) 22, accessed 31 August 2017, <http://unfccc.int/resource/docs/convkp/kpeng.pdf>.

<sup>10</sup> Para. 27, World Commission on Environment and Development, *Our Common Future*, Oxford University Press (World Commission on Environment and Development, 1987): 43. Jacobus A. Du Pisani, "Sustainable Development – Historical Roots of the Concept," *Environmental Sciences* 3, no. 2 (2006): 83-96.

<sup>11</sup> Para. 7 (f), "The Forest Principles: Report of the United Nations Conference on Environment and Development," UN (1992), A/CONF.151/26 (Vol. III), accessed 15 April 2017, <http://www.un.org/documents/ga/conf151/aconf15126-3annex3.htm>.

<sup>12</sup> Liwei Lin et al., "Site Selection for Forest Carbon Projects," in *Analysing REDD+: Challenges and Choices*, ed. Arild Angelsen, et al. (CIFOR, 2012), 213. Molly Peters-Stanley et al., *Covering New Ground: State of the Forest Carbon Markets 2013* (Washington, DC: Forest Trends' Ecosystem Marketplace, 2013): 37.

afforestation, reforestation, reducing deforestation and forest degradation, sustainable forest management, and forest conservation.<sup>13</sup>

Forestry activities that can reduce atmospheric GHGs and increase carbon storage are regarded as an important climate mitigation strategy.<sup>14</sup> Currently, there are three types of forest carbon projects under the UNFCCC employing forests for carbon storage. The first covers land use, land-use change and forestry (LULUCF) activities in industrialised countries. The other two types are for developing countries and are the focus of this study: Afforestation and Reforestation projects under the Clean Development Mechanism (CDM A/R) and the REDD+ (plus) activities.<sup>15</sup> "REDD+" refers to Reducing Emissions from Deforestation and Forest Degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.<sup>16</sup> This study focuses on the tree-planting and forest management activities in REDD+ programmes on the site.<sup>17</sup>

Forest carbon projects in developing countries can be divided into two groups: one group applies domestic rules on carbon certification and receives funding from domestic sources; the other group applies international rules on carbon certification or receives funding from foreign resources (foreign forest carbon projects). Sustainability issues are the same for both foreign-invested and locally funded projects. However, to receive internationally credible and tradable forest-based carbon credits, foreign investors mostly require that forest carbon projects use international certification schemes. Such schemes have special rules on sustainability. The current research focuses on foreign forest carbon projects in developing countries. Because foreign forest carbon projects are located in developing

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<sup>13</sup> Isabel Melo, Esther Turnhout, and Bas Arts, "Integrating Multiple Benefits in Market-Based Climate Mitigation Schemes: The Case of the Climate, Community and Biodiversity Certification Scheme," *Environmental Science & Policy* 35 (2013): 49.

<sup>14</sup> Niklas Höhne et al., "The Rules for Land Use, Land Use Change and Forestry under the Kyoto Protocol - Lessons Learned for the Future Climate Negotiations," *ibid.* 10, no. 4 (2007): 359.

<sup>15</sup> The CDM is regulated at Art. 12, "Kyoto Protocol to the United Nations Framework Convention on Climate Change," UN (1997); The CDM A/R is also regulated at Art. 12, Para. 13-14, Annex, "Decision 11/CP.7: Land Use, Land-Use Change and Forestry," UNFCCC (2001), FCCC/CP/2001/13/Add.1. A detailed discussion of the CDM forest carbon projects legislative history is provided in Chapter 2, Section 2.5.2.

<sup>16</sup> REDD+ activities in this research refer to activities included in Para. 70, "Decision 1/CP.16: The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention," (2010), FCCC/CP/2010/7/Add.1. Some scholars also consider that earlier experience is important particularly from projects avoiding deforestation and launched before the term "REDD+" was formed in international legal negotiations. Susan Caplow et al., "Evaluating Land Use and Livelihood Impacts of Early Forest Carbon Projects: Lessons for Learning About REDD+," *Environmental Science & Policy* 14, no. 2 (2011): 153.

<sup>17</sup> As further elaborated in Chapter 2, the decisions under the UNFCCC framework stipulate three phases of REDD+ activities. Phase 1 includes designing and implementing policy reforms in developing countries. Phase 2 and 3 are about actual forest plantation or forest management activities on the site, which are the focus of this study. More detailed discussions about the legislation on the CDM A/R and the REDD+ are provided in Chapter 2, Section 2.5.

countries, such projects need to comply with both international certification schemes and relevant national regulations.

A carbon certification scheme refers to a certifying scheme using a particular methodology to measure GHG removals. International carbon certification schemes can be categorised into two groups. The first includes international, regional or national certifying schemes that only certify carbon removals for compliance or voluntary carbon markets, which can be called “pure carbon certification schemes”. The CDM belongs to this category, which certifies carbon removals for the international compliance carbon market under the UNFCCC legal regime. The Verified Carbon Standard (VCS) also falls in this category, but offers quantified carbon credits for the global voluntary carbon markets.<sup>18</sup> The second group includes carbon certification schemes that assess not only GHGs’ removals but other environmental and social impacts. This group can be called “complex carbon certification schemes”. Such schemes include the Climate Community and Biodiversity Standards (CCBS).<sup>19</sup> The VCS and the CCBS can certify REDD+ projects for the global voluntary carbon markets.<sup>20</sup>

### **1.1.2 The Adverse Impact of Foreign Forest Carbon Projects on Sustainable Development**

The Kyoto Protocol to the UNFCCC required all CDM projects to contribute to the sustainable development of developing countries.<sup>21</sup> Decisions after the Kyoto Protocol on REDD+ activities also encouraged enhancing forest carbon stocks by the sustainable management of forests.<sup>22</sup> On the one hand, forest carbon projects can contribute both to mitigating climate change and to the sustainable

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<sup>18</sup> VCS, "Who We Are," accessed 2 March 2017, <http://www.v-c-s.org/about-vcs/who-we-are/>. An example for a national pure carbon certification scheme is the American Carbon Registry Forest Carbon Project Standard. It is a national carbon certification scheme for the US national pre-compliance carbon market. Some voluntary carbon markets also recognise this standard. See American Carbon Registry, "American Carbon Registry Forest Carbon Project Standard," accessed 2 March 2017, <http://americancarbonregistry.org/carbon-accounting/standards-methodologies/forest-carbon-project-standard>.

<sup>19</sup> Other examples in this group include Plan Vivo and the CarbonFix. As the Plan Vivo defines itself, it is “an environmental service certificate represents the long-term sequestration or reduction of one tCO<sub>2</sub>, plus additional environmental and social benefits.” See Plan Vivo, "Why Support Plan Vivo Projects?: Plan Vivo Certificates Are Much More Than Just Carbon," accessed 2 March 2017, <http://www.planvivo.org/plan-vivo-certificates/>. The CarbonFix was acquired by the Gold Standard A/R Requirements and the Plan Vivo in 2012. See Molly Peters-Stanley, "Gold Standard Acquires Carbonfix in Bid to Reshape Forest Carbon Landscape," *Ecosystem Marketplace: a Forest Trends Initiative*, 18 September 2012, accessed 15 April 2017, <http://www.ecosystemmarketplace.com/articles/gold-standard-acquires-carbonfix-in-br-bid-to-reshape-forest-carbon-landscape/>. The Gold Standard Foundation, "The Gold Standard Transition Guideline for Carbonfix Projects," accessed 2 March 2017, <http://www.goldstandard.org/sites/default/files/ar-guidelines-transition-carbonfix.pdf>.

<sup>20</sup> CCBA, "Governance of the Standards," accessed 14 October 2017, <http://www.climate-standards.org/ccb-standards/governance-of-the-standards/>; VCS, "Supporting Land Use Projects in Addressing Climate Change, Supporting Local Communities, and Smallholders and Conserving Biodiversity," accessed 14 October 2017, <http://www.v-c-s.org/project/ccb-program/>.

<sup>21</sup> Art. 12, Para. 2, "Kyoto Protocol to the United Nations Framework Convention on Climate Change," UN (1997).

<sup>22</sup> Para. 3, "Decision 2/CP.13: Reducing Emissions from Deforestation in Developing Countries: Approaches to Stimulate Action," UNFCCC (2007), FCCC/CP/2007/6/Add.1.



use of forest resources.<sup>23</sup> On the other hand, forest carbon projects can have negative impacts on the sustainable development of developing countries.

With regard to environmental sustainability, the CDM has intended to afforest barren lands since 1990.<sup>24</sup> However, scholars claim that many projects plant industrial trees that are harmful for the local environment.<sup>25</sup> Policies that “promote larger-scale tree plantations should be re-appraised”, because the monocultures replace the ecosystems that local inhabitants depend upon.<sup>26</sup> A CDM tree plantation project in Uganda, financed by the Swedish Energy Agency, is criticised for destroying original savanna and grassland with exotic *Pinus* and *Eucalyptus* trees and altering the chemistry and micro fauna in the local land.<sup>27</sup> Additionally, the projects may increase illegal logging outside the project area, known as “leakage”, to the detriment of local lands and biodiversity.<sup>28</sup>

Some scholars point out the adverse socio-economic impacts of the projects. First, land titles of the project area are preferentially granted to key corporations rather than to local smallholders.<sup>29</sup> The rights of poor and non-documented tenant farmers are ignored and rural populations are excluded from sharing the benefits or decision-making in projects.<sup>30</sup> Second, many forest carbon projects replace

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<sup>23</sup> Eveline Trines, "History and Context of LULUCF in the Climate Regime," in *Climate Change and Forests: Emerging Policies and Market Opportunities*, ed. Charlotte Streck, et al. (London: Royal Institute of International Affairs, 2008), 33.

<sup>24</sup> 1990 is the base year for most Annex I countries. Art. 3, para. 5, "Kyoto Protocol to the United Nations Framework Convention on Climate Change," UN (1997). UNFCCC, "Kyoto Protocol Base Year Data," accessed 2 March 2017, [http://unfccc.int/ghg\\_data/kp\\_data\\_unfccc/base\\_year\\_data/items/4354.php](http://unfccc.int/ghg_data/kp_data_unfccc/base_year_data/items/4354.php). Para. 14, Annex, "Forestry Action Plan on Addressing Climate Change," China State Forestry Administration (2009), accessed 9 May 2017, <http://www.chinanews.com/cj/cj-gncj/news/2009/11-06/1951154.shtml>. The title of this document is also translated as “China Forestry Action Plan to Deal with Climate Change”, in Xiaohui Yang, Xiaoping Wang, and Nuyun Li, "Combating Climate Change: What Will China's Forestry Industry Do?," *Ambio* 39, no. 4 (2010): 340.

<sup>25</sup> Julien-François Gerber, "Conflicts over Industrial Tree Plantations in the South: Who, How and Why?," *Global Environmental Change* 21, no. 1 (2011): 165-76. Following Gerber, the concept ‘industrial tree plantation’ refers to ‘large-scale monocultures of tree crops, mainly eucalyptus, pines rubber tree and oil palm’. For more discussions about the harm of industrial tree plantations, please see Maohua Ma et al., "Integrating Ecological Restoration into CDM Forestry Projects," *Environmental Science & Policy* (2013): 145. Andrew Long, "Global Climate Governance to Enhance Biodiversity & Well-Being: Integrating Non-State Networks and Public International Law in Tropical Forests," *Environmental Law* 41, no. 1 (2011): 131. Toby A Gardner et al., "A Framework for Integrating Biodiversity Concerns into National REDD+ Programmes," *Biological Conservation* 154 (2012): 62.

<sup>26</sup> Julien-François Gerber, "An Overview of Resistance against Industrial Tree Plantations in the Global South," *Economic and Political Weekly* 45, no. 41 (2010): 31.

<sup>27</sup> Carbon Market Watch, "Engos and Scientists Challenge the Swedish Energy Agency – ‘Stop Supporting False Climate Change Solutions in Uganda’," accessed 15 April 2017, <http://carbonmarketwatch.org/engos-and-scientists-challenge-the-swedish-energy-agency-stop-supporting-false-climate-change-solutions-in-uganda/>.

<sup>28</sup> By protecting the forests inside the project area, the project may drive the illegal loggers to other unprotected forests. This phenomenon is so called the “leakage” of forest carbon projects. For more details about “leakage”, please see Para. 1(e), Annex, "Decision 5/CMP.1: Modalities and Procedures for Afforestation and Reforestation Project Activities under the Clean Development Mechanism in the First Commitment Period of the Kyoto Protocol (Former COP Decision 19/CP.9)," UNFCCC (2005), FCCC/KP/CMP/2005/8/Add.1

<sup>29</sup> Markus Köger, "The Expansion of Industrial Tree Plantations and Dispossession in Brazil," *Development and Change* 43, no. 4 (2012): 948.

<sup>30</sup> Friends of the Earth International, *Position Paper: Destructive Logging* (Amsterdam: Friends of The Earth International, 2009), accessed 18 April 2017, <http://www.foei.org/wp-content/uploads/2014/08/tala-destructiva-ingles-final.pdf>: 1.

original agricultural activities with industrial tree plantations on a large scale, which provide fewer employment opportunities and cannot sufficiently provide local farmers with a livelihood.<sup>31</sup> Third, forest carbon projects are regarded as a new form of colonialism, because the needs and rights of indigenous people are frozen for decades by a project contract.<sup>32</sup> Their lands are used by developed countries to make up for their previous or future GHG emissions and are left with no choice themselves but to leave their home village to make a living elsewhere. Lastly, a CDM project in Honduras is reported to have led to the death of forty-two people with five of them suspected of having been killed by the security forces of the project developer.<sup>33</sup>

Following a methodological tool published in 2014 by the CDM Executive Board (CDM EB) for describing the co-benefits of CDM projects on sustainable development, this study considers three aspects of sustainable development and forest sustainability: social, environmental and economic.<sup>34</sup> Environmentally, developing countries possess most of the tropical forests that contain the greatest territorial biodiversity on the earth.<sup>35</sup> Forests encompass around eighty percent of terrestrial biodiversity.<sup>36</sup> In terms of society, forests in developing countries are the major livelihood of poor people;<sup>37</sup> the survival of 1.6 billion people depends upon forests, among which are the poorest in the world.<sup>38</sup> Thus, this study considers biodiversity conservation and poverty alleviation for the poorest in a local area as essential elements of sustainable forest carbon projects. Economically, it considers the direct economic returns for the contracting parties of the projects.

Overall, a sustainable forest carbon project in developing countries is deemed as a forest plantation or management project that can contribute to, or at least has no negative impact, on biodiversity conservation and poverty alleviation in the local area. Accordingly, this study assesses the success of

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<sup>31</sup> Ricardo Carriere, Lawrence Lohmann, and Larry Lohmann, *Pulping the South: Industrial Tree Plantations and the World Paper Economy* (Zed books, 1996), 102.

<sup>32</sup> Anil Agarwal and Sunita Narain, *Global Warming in an Unequal World: A Case of Environmental Colonialism* (New Delhi, India: Centre for Science and Environment, 1991), 16-17.

<sup>33</sup> Carbon Market Watch, "Open Letter to Honduran DNA: Approval of Project 3197, Aguán Biogas Recovery from Palm Oil Mill Effluent," accessed 2 March 2017, <http://carbonmarketwatch.org/open-letter-to-honduran-dna-approval-of-project-3197-aguan-biogas-recovery-from-palm-oil-mill-effluent-pome-2/>.

<sup>34</sup> "The CDM Sustainable Development Tool: Why 'Highlighting' Will Not Deliver," 12 July 2012. The three-pillars definition is also adopted in other international documents. See OECD, "Guidance on Sustainability Impact Assessment," accessed 27 June 2017, <http://dx.doi.org/10.1787/9789264086913-en>: 4. "Principles and Criteria for Forest Stewardship," FSC (2014), FSC-STD-01-001 V5-1 EN: 2. Para. 2 (b), "The Forest Principles: Report of the United Nations Conference on Environment and Development," UN (1992).

<sup>35</sup> Norman Myers et al., "Biodiversity Hotspots for Conservation Priorities," *Nature* 403, no. 6772 (2000): 855.

<sup>36</sup> Manny Mogato, "U.N. Calls on Asian Nations to End Deforestation," *Reuters*, 20 June 2008, accessed 17 March 2017, <http://www.reuters.com/article/us-philippines-biodiversity-idUSMAN18800220080620>.

<sup>37</sup> "Ninety percent of the world's 1.1 billion poor—those living on US\$1 per day or less—depend on forests for at least some of their income", World Resources Institute in collaboration with United Nations Development Programme and World Bank United Nations Environment Programme, *The Wealth of the Poor—Managing Ecosystems to Fight Poverty* (Washington, DC: World Resources Institute, 2005), 35.

<sup>38</sup> Mogato, "U.N. Calls on Asian Nations to End Deforestation."

projects based on whether they are environmentally and socially sustainable, which narrows down to whether projects contribute to biodiversity conservation and poverty alleviation.<sup>39</sup> This study focuses on enhancing these two elements in foreign forest carbon projects to deliver more sustainable results to developing countries.

### 1.1.3 Increasing Global Focus on Sustainable Forestry Carbon Projects

The concept of integrated conservation and development has arisen in many countries in Asia and southern Africa since the mid-1980s.<sup>40</sup> Discussions have been heated in recent years in international negotiations regarding regulatory solutions using forest activities to jointly address climate change, biodiversity loss, and poverty alleviation of local people.<sup>41</sup> Pressured by the irreversible and global nature of climate change and biodiversity loss, policy makers and Non-Governmental Organisations (NGOs) are seeking effective and efficient measures.<sup>42</sup>

Recent efforts taken by the international community include an international scientific conference on “Biological Reactions of Forests to Climate Change and Air Pollution” in May 2012.<sup>43</sup> This conference gathered experts in a variety of disciplines from mainly Europe and North America. The topics included how to integrate scientific studies about the impacts of air pollution and climate change on forests, ecosystems, biodiversity and sustainability, and how forests can adapt and mitigate the predicted climate changes.

In addition, the 2013 United Nations’ report on the Millennium Development Goals, pointed out that the global resource base is ‘in serious decline’, with unceasing deforestation, loss of biodiversity and fish stocks ‘at an ever-faster rate’.<sup>44</sup> One initiative to address forest loss adopted by the UN is the UN-

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<sup>39</sup> For further discussion on why sustainable development is selected here as the primary criterion for forest carbon projects, please see Section 1.5.1.

<sup>40</sup> See for instance, Anju Singh et al., "Role of India's Forests in Climate Change Mitigation through the CDM and REDD," *Journal of Environmental Planning and Management* 56, no. 1 (2013): 61-87. Irmeli Mustalahti et al., "Can REDD+ Reconcile Local Priorities and Needs with Global Mitigation Benefits? Lessons from Angai Forest, Tanzania," *Ecology and Society* 17, no. 1 (2012): 16.

<sup>41</sup> Pamela S. Chasek and Lynn M. Wagner, *The Road from Rio: Lessons Learned from Twenty Years of Multilateral Environmental Negotiations* (Routledge, 2012), 92-93.

<sup>42</sup> See for instance, Joint Liaison Group of the Rio Conventions, "Forest: Climate Change, Biodiversity and Land Degradation," accessed 17 July 2017, [http://unfccc.int/resource/docs/publications/rio\\_20\\_forests\\_brochure.pdf](http://unfccc.int/resource/docs/publications/rio_20_forests_brochure.pdf): 5-9. Fern, *Fern's Contribution to 2015 Climate Change Agreement : Shaping International Climate Policy Beyond 2020* (Fern, 2013), accessed 17 March 2017, <http://www.fern.org/publications/ferns-contribution-2015-climate-change-agreement>: 4-5.

<sup>43</sup> Rainer Matussek et al., "Biological Reactions of Forests to Climate Change and Air Pollution," *European Journal of Forest Research* 133, no. 4 (2014): 671-73.

<sup>44</sup> See UN, *Millennium Development Goals Report 2013* (2013), accessed 18 April 2017, <http://www.un.org/en/development/desa/publications/mdgs-report-2013.html>: 3.

REDD programme, which has attracted dozens of countries from Africa, Asia-Pacific, and Latin America and the Caribbean region.<sup>45</sup>

Furthermore, in May 2014, Southeast Asian ministers gathered in Indonesia on the Forest Asia Summit for the “Sustainable Landscape for Green Growth in Southeast Asia”. The summit recognised that in the 21<sup>st</sup> century, South and Southeast Asia had become the world’s largest source of GHG emissions from land-use change,<sup>46</sup> mainly from industrial tree plantations such as oil palm and rubber which are the primary drivers of deforestation in Southeast Asia.<sup>47</sup>

## **1.2 The Goal of This Research**

The goal of this research is to develop an institutional design for sustainable foreign forest carbon projects in developing countries. Specifically, the design is to constrain the adverse environmental and social impacts of foreign forest carbon projects in developing countries on sustainable development. More importantly, the design aims to provide incentives for devising forest carbon projects with sustainable results in developing countries.

To this end, the study aims to identify pitfalls in the current international institutional framework by reviewing relevant international policies and laws, international implementation rules, and international regulatory and private sustainability assessments. In addition, this study aims to review the international incentive schemes and financial streams that are formed under the current international institutional framework. Furthermore, this study aims to provide insights from a practical perspective through a case study of China, in which national regulations, incentives, and the sustainability results of projects in China will be discussed. Finally, armed with conclusions from the analysis above, this research aims to propose an institutional design that can address the problems in the international institutional framework and the incentive schemes to deliver sustainable results in foreign forest carbon projects in developing countries.

## **1.3 Research Questions**

To achieve its goal, this study formulates the central research question as below:

*How to design institutional reforms for sustainable foreign forest carbon projects in developing countries?*

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<sup>45</sup> UN-REDD, "Regions and Countries Overview," accessed 2 March 2017, [http://www.unredd.net/index.php?option=com\\_unregions&view=overview&Itemid=495](http://www.unredd.net/index.php?option=com_unregions&view=overview&Itemid=495).

<sup>46</sup> CIFOR, *Forest Asia Summit 2014: Sustainable Landscapes for Green Growth in Southeast Asia-Concept Note* (Jakarta, Indonesia: CIFOR, 2014), accessed 15 March 2017, <http://www.cifor.org/forestsasia/wp-content/uploads/files/forest-asia-concept-note-en.pdf>: 6.

<sup>47</sup> Ibid.

To answer it, this study addresses three sub-questions defined as follows. The first one is *how the international institutional framework addresses sustainable forest carbon projects in developing countries*. To answer this question, this study discusses relevant international policies and laws, implementation rules, and sustainability assessments on forest carbon projects in developing countries from a historic and legal doctrinal perspective. The discussion covers the legislative process and public debates that are triggered by, and which may have influence on this process. The discussions can contribute to identifying the features of foreign forest carbon projects in developing countries, clarifying the political goals of setting the international institutional framework, and examining whether the framework has pitfalls that have not addressed the features successfully and lead to unsustainable results.

The second sub-question is *how foreign forest carbon projects in developing countries are incentivised and financed?* Provided that there are various actors involved in the operation of foreign forest carbon projects in developing countries, the study further examines the motivations these actors may have under the current international institutional framework, which can affect the final results of a project. In addition, this study explores what financial methods these actors use to deliver funding from developed to developing countries. Investments from developed countries are one of the major incentives for foreign forest carbon projects existing in developing countries. Investors may use financial methods to achieve their goals in a project. Therefore, this study investigates whether the funding comes with additional requirements on sustainability and whether financial intermediaries are involved to secure a successful delivery of funding.

The third sub-question is *how foreign forest carbon projects are assessed on sustainability issues and financed in China?* Based on the theoretical discussions above about the international institutional and financial framework, this part intends to conduct a case study of China, discussing how international rules are incorporated into the national legal system and examines projects' practices in China. The case study can test empirically whether the theoretical discussions about international institutional and financial framework correspond with practices in China. By reviewing the financial status and sustainability performances of actual projects, the case study can provide evidence-based insights for the institutional design.

The answers to the previous three sub-questions will build up a solid foundation to answer the central research question: they reveal the pitfalls of current public and private regulations at international and national levels, and the risks in the incentive schemes. These regulatory pitfalls and incentive risks present the institutional necessities that the institutional design should meet. An institutional mix of multiple instruments and actors are to be designed, targeting the problems identified in the international

institutional framework, incentive schemes, and national practices in China, to enhance institutional monitoring and financial support to sustainable forest carbon projects in developing countries.

#### **1.4 Literature Review: The Theoretical Framework**

In pursuing an institutional design to achieve sustainable results in forest carbon projects in developing countries, this study draws theoretical support from three aspects. The first is previous literature that sheds light on the sustainability of forest carbon projects by discussing their various impacts on sustainable development. Second, this study takes advantage of theoretical schools of thought on environmental regulations and particularly on forest protection. Furthermore, this study presents the analysis assessing various regulatory instruments for environmental protection. Lastly, this study draws valuable insights from scholarly discussions on mixed and smart environmental policy design.

##### **1.4.1 Scholarly Discussions on the Sustainability of Forest Carbon Projects**

Previous literature about the sustainability of the CDM forest projects can be divided into three groups. Firstly, the extensive discussions about the general contribution of CDM to sustainable development point to CDM projects failing to assist sustainable development in developing countries.<sup>48</sup> Secondly, the literature on forest governance can provide valuable insights on monitoring forest sustainability.<sup>49</sup> Thirdly, NGOs' reports and studies present the potential positive and negative impacts of forest carbon projects in developing countries on ecosystems and human life.<sup>50</sup> Those discussions demonstrate clearly the unsustainable practices in forest carbon projects in developing countries. The associated adverse impact on biodiversity and poverty are emphasised in the reports with strong policy recommendations.

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<sup>48</sup> See for instance, Lambert Schneider, "Is the CDM Fulfilling Its Environmental and Sustainable Development Objectives? An Evaluation of the CDM and Options for Improvement," *Öko-Institut for Applied Ecology* 248 (2007): 1685. Karen Holm Olsen and Jørgen Fenhann, "Sustainable Development Benefits of Clean Development Mechanism Projects: A New Methodology for Sustainability Assessment Based on Text Analysis of the Project Design Documents Submitted for Validation," *Energy Policy* 36, no. 8 (2008): 2819. Karen Holm Olsen, "The Clean Development Mechanism's Contribution to Sustainable Development: A Review of the Literature," *Climatic Change* 84, no. 1 (2007): 59. Christoph Sutter and Juan Carlos Parreño, "Does the Current Clean Development Mechanism (CDM) Deliver Its Sustainable Development Claim? An Analysis of Officially Registered CDM Projects," *ibid.*: 75. Johannes Alexeew et al., "An Analysis of the Relationship between the Additionality of CDM Projects and Their Contribution to Sustainable Development," *International Environmental Agreements: Politics, Law and Economics* 10, no. 3 (2010): 233.

<sup>49</sup> Benjamin Cashore and Michael W Stone, "Can Legality Verification Rescue Global Forest Governance?: Analyzing the Potential of Public and Private Policy Intersection to Ameliorate Forest Challenges in Southeast Asia," *Forest Policy and Economics* 18 (2012): 13.

<sup>50</sup> See section 1.1.2, and Chapter 5, Section 5.3.

#### 1.4.2 Economic Rationale of Environmental Regulations

Environmental resources such as clean air and forests are categorised as common-pool resources by economists.<sup>51</sup> The common resources have two features. The first is that they have non-excludable users.<sup>52</sup> For instance, the clean air in the atmosphere is for all human beings. It is impossible to exclude anyone or any industrial plant from using the clean air. Therefore, the users of clean air are non-excludable. This feature distinguishes environmental resources with private goods.

The second feature is rivalry in consumption, which distinguishes common-pool resources from public goods. Both public goods and common-pool resources have non-exclusive users.<sup>53</sup> However, one's consumption of public goods is not done in rivalry with another; in other words, one's consumption of public goods does not lead to smaller amounts available for others. The marginal cost of providing public goods to an additional consumer is zero. National defence, for example, is a typical example of public goods. It is difficult to exclude anyone from enjoying national defence and the cost does not vary much when the population of the country slightly changes. Environmental resources, on the contrary, are rivals in consumption because they are limited in amount.

As explained by Aristotle, because everyone in the society cares about their own benefits more than others, the common-pool resources have the tragedy of being overused.<sup>54</sup> Hardin (1968) asserts that people may overuse common resources in two forms: either by taking an excessive amount from the common pool or by polluting the common pool. When clean air is heavily polluted by industrial plants, there will be less clean air available for human beings. The consumption by industrial plants of clean air and that by human beings are in rivalry. Excessive emissions of GHGs cause climate change.<sup>55</sup> People's excessive consumption of wood and rare species, or destroying forests and species' habitats by land-use changes, combine to cause forest and biodiversity loss.

In economic terminology, the uncompensated impacts of market behaviours on the environment are "externalities". Externality has been rigorously discussed by economists of great renown including Marshall (1879), Pigou (1920), Bator (1958), Buchanan & Stubblebine (1962), and Baumol & Oates

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<sup>51</sup> See for instance, Garrett Hardin, "The Tragedy of the Commons," *Science* 162, no. 3859 (1968): 1243-48; James E. Krier, "Tragedy of the Commons, Part Two," *Harv.JL & Pub. Pol'y* 15 (1992): 335 and 44. This category is also called "common-property resources". See David Feeny et al., "The Tragedy of the Commons: Twenty-Two Years Later," *Human Ecology* 18, no. 1 (1990): 3.

<sup>52</sup> Vincent Ostrom and Elinor Ostrom, "Public Goods and Public Choices," in *Alternatives for Delivering Public Services; toward Improved Performance*, ed. E. S. Savas (Boulder, Colorado, United States: Westview, 1977), 43-44.

<sup>53</sup> Elinor Ostrom, "How Types of Goods and Property Rights Jointly Affect Collective Action," *Journal of Theoretical Politics* 15, no. 3 (2003): 239-70.

<sup>54</sup> Aristotle, 'What is common to the greatest number has the least care bestowed upon it. Everyone thinks chiefly of his own, hardly at all of the common interest', *Politics*, Book II, Chapter 3, cited in *Governing the Commons: The Evolution of Institutions for Collective Action* (Cambridge university press, 1990), 2.

<sup>55</sup> Preface, "United Nations Framework Convention on Climate Change," UN (1992).

(1988).<sup>56</sup> A definition of externality that is relatively easy for non-economists to understand is the “effects of production and consumption that are not directly reflected in the market”.<sup>57</sup> Externality is a type of market failure. It exists because private parties seek to maximise their own interests and have no incentive to internalise the marginal social cost or to pay for the marginal social benefits. It is a divergence between private and social cost.<sup>58</sup>

An externality can be positive and negative. In the case of forest carbon projects, both positive and negative externalities exist. We assume that forest carbon projects are established to achieve GHG emission reductions and to mitigate climate change. If appropriate trees are planted in the projects, the projects may also halt land degradation, enhance water and air purification, and conserve biodiversity, which are positive externalities. However, negative externalities may exist if harmful trees are planted or planted improperly in a project, as discussed in Section 1.1.2. Regarding socio-economic impacts, if the interests of the local people in the project area are properly addressed, the project may bring additional income to alleviate poverty. Otherwise, the local people may be evicted from their own lands and become poorer because of the establishment of the project.<sup>59</sup> In the current carbon market, most buyers of forest-based carbon offsets are only paying for GHG emission reductions generated by the projects.<sup>60</sup> The price per unit of GHG emission reductions in most carbon markets is irrelevant to whether the project is generating positive or negative externalities to the environment or to the society.

To tackle an externality problem, some economists believe that bringing governmental interference into the market is necessary though governments may fail to do so.<sup>61</sup> Following this rationale, a range

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<sup>56</sup> Book IV, Chapter X, Alfred Marshall, *Principles of Economics* (London: Macmillan and Co., Ltd, 1890 (8th edition 1920)), 138-54. Arthur Cecil Pigou, *The Economics of Welfare*, 4 ed. (Palgrave Macmillan, 1932), 108. William J. Baumol and Wallace E. Oates, *The Theory of Environmental Policy* (Cambridge University Press, 1988), 17. Francis M Bator, "The Anatomy of Market Failure," *The Quarterly Journal of Economics* 72, no. 3 (1958): 351-79. See the definition of "Pareto-relevant externality" at James M Buchanan and William C Stubblebine, "Externality," in *Classic Papers in Natural Resource Economics* (Springer, 1962), 374.

<sup>57</sup> Robert Willis and Brad A Finney, *Environmental Systems Engineering and Economics* (Springer Science & Business Media, 2012), 109.

<sup>58</sup> Ralph Turvey, "On Divergences between Social Cost and Private Cost," *Economica* 30, no. 119 (1963): 309-13. Carl J Dahlman, "The Problem of Externality," *The Journal of Law and Economics* 22, no. 1 (1979): 141.

<sup>59</sup> See Section 1.1.2.

<sup>60</sup> The incentives of buyers are discussed in detail in Chapter 5, Section 5.3.

<sup>61</sup> Adam Smith asserted that it is effective to promote the well-being of the society by ‘every individual...pursuing his own interest’, if all the following conditions are fulfilled. The first condition is that all goods must be private; Second, there is no externality; third, any information related to the market should be free and accurate; and lastly, each market participant must be a price taker. See Book IV, Chapter 2, Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations, 1st Edition in 1776*, ed. AS Skinner and WB Todd RH Campbell, vol. 2, The Glasgow Edition of the Works and Correspondence of Adam Smith (Oxford University Press, 1976), 488-89. In the case of forest carbon projects, we assume the participants of carbon markets are price takers based on the Rational Choice theory. However, forest carbon projects do not fulfil the other three conditions. First, relevant environmental resources such as clean air, forests, and biodiversity are not private goods. Second, projects have externalities on sustainable development. Third, there is asymmetric information between the project operators, the buyers of the emission reductions, and the regulators. Like any other industry involving with specialised business, the information of forest carbon projects is costly. Therefore, governmental intervention is necessary. Externality is a type of market failure, for which both market and governmental



of regulatory instruments are suggested and employed in environmental policies as illustrated in the following paragraphs.

### 1.4.3 Assessment of Environmental Regulatory Instruments

Governmental intervention has two basic approaches to internalise externalities. Regarding market behaviour with positive externalities, regulations can support them through economic benefits. On the contrary, regarding behaviour with negative externalities, regulations can deter them with sanctions. In the case of forest carbon projects, the potential benefits for the environment, namely positive externalities, should be supported, or at least not restrained, by policies and laws. The potential environmental and social risks, on the contrary, should be controlled.

A variety of institutional measures have been developed and applied in environmental regulations in history. In the early stages, more attention was given to regulations for deterring industrial pollution. Policy makers in the United States initially applied “command and control” regulations to tackle externalities in the early 1970s;<sup>62</sup> “command” refers to regulatory limits and technology standards for certain pollutants and “control” refers to regulatory agencies monitoring the compliance of the industries.<sup>63</sup> Such regulations are also called direct regulations or end-of-the-pipe environmental regulations because they aim at prohibiting environmentally harmful activities directly. The success and necessity of “command and control” were confirmed at the beginning by an immediate environmental improvement. However, after several years of enforcement, it started to show shortcomings in flexibility, costs, market barriers, and responsiveness in dealing with new and complex environmental threats. First, “command and control” regulations contain fixed standards that are adopted through cumbersome and protracted rule-making processes, which lack flexibility and may easily become overdue.<sup>64</sup> In addition, the strict standards were castigated for having the risk of shifting pollution to unmonitored areas rather than reducing them.<sup>65</sup> Moreover, compared with taxing, “common-and-control” regulations can create a barrier for new firms and benefit existing firms in the

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solutions have been offered and overruled. See more at Art Carden and Steven Horwitz, "Is Market Failure a Sufficient Condition for Government Intervention?," Library of Economics and Liberty, accessed 17 December 2016, <http://www.econlib.org/library/Columns/y2013/CardenHorwitzmarkets.html>. Economist Arthur Cecil Pigou argued that externalities can be addressed by government intervention. However, governmental authorities are subject to “ignorance, to sectional pressure and to personal corruption by private interest”. Like the Public Choice Theory asserts, the government itself may have institutional problems. See Part II, Chapter 20, Para. 4, Pigou, *The Economics of Welfare*. William F Shughart II, "Public Choice," in *The Concise Encyclopedia of Economics*, ed. David R. Henderson (Library of Economics and Liberty, 2008).

<sup>62</sup> Winston Harrington and Richard D Morgenstern, "Economic Incentives Versus Command and Control: What's the Best Approach for Solving Environmental Problems?," in *Acid in the Environment* (Springer, 2007), 233.

<sup>63</sup> Neil Gunningham, Peter Grabosky, and Darren Sinclair, *Smart Regulation: Designing Environmental Policy*, Oxford Socio-Legal Studies (Clarendon Press Oxford, 1998), 38-50.

<sup>64</sup> Ibid.

<sup>65</sup> Ibid.

market because of information asymmetry.<sup>66</sup> Lastly, such regulations demand intense monitoring on market behaviour.<sup>67</sup> The cost of monitoring may be higher in a flourishing market with increasing pollution.

The limitations of the “command and control” model triggered scholarly discussions. Various alternative instruments were suggested to replace the “command and control” model or mitigate its weaknesses. Such alternative measures are elaborated below and include market incentives, scientific and technical measures, information provision and exchange, and cooperation with other actors.

One of the alternatives, market incentives, is deemed to be more efficient in response to diffuse and sophisticated environmental threats.<sup>68</sup> There are three widely used incentive-based legal instruments, one of which is charging in the forms of taxes or fees. Charging puts a price on pollution activities to motivate industrialists to internalise the social cost of pollution.<sup>69</sup> Pigou (1920) suggested imposing a tax on activities creating negative externalities and providing subsidies to activities creating positive externalities.<sup>70</sup> The second is tradable permits, the theory of which can be traced back to Coase (1960), Dales (1968) and Calabresi & Melamed (1972).<sup>71</sup> It was initially put into practice in 1990 by the United States (US) Clean Air Act governing sulphur dioxide (SO<sub>2</sub>) emissions.<sup>72</sup> The transaction of tradable permits is based on the property rights of the permits. The third form of an incentive-based legal instrument is financial compensation to the victims of the pollution through tort law.<sup>73</sup> The former two instruments are precautionary *ex ante* measures, while the latter one about financial compensation to the victims is an *ex-post* approach and must be enforced by the law.

The third type of legal instrument is scientific and technical measures. It comprises measures that support and employ scientific discoveries and technological innovations to address environmental problems. On the one hand, developments in science and technology can dramatically improve a

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<sup>66</sup> Michael G Faure, "Designing Incentives Regulation for the Environment," in *Global Environmental Commons: Analytical and Political Challenges in Building Governance Mechanisms*, ed. E. Brousseau, et al. (Oxford University Press, 2012), 297.

<sup>67</sup> A. L. Alm, "Tools to Protect the Environment: A Need for New Approaches," *EPA Journal* 18, no. 2 (1992): 6-11.

<sup>68</sup> Lawrence H. Goulder, "Markets for Pollution Allowances: What Are the (New) Lessons?," *The Journal of Economic Perspectives* 27, no. 1 (2013): 87-102.

<sup>69</sup> H. Spencer Banzhaf, Timothy Fitzgerald, and Kurt Schnier, "Non-Regulatory Approaches to the Environment: Coasean and Pigouvian Perspectives," *Review of Environmental Economics and Policy* 7, no. 2 (2013): 7.

<sup>70</sup> Part II, Chapter 4, Para. 17 and 18, Pigou, *The Economics of Welfare*.

<sup>71</sup> Ronald Harry Coase, "The Problem of Social Cost," *Journal of Law and Economics* 3 (1960): 87-137. John H. Dales, *Pollution, Property and Prices: An Essay in Policy-Making and Economics* (Edward Elgar Publishing, 1968), 82. Guido Calabresi and A Douglas Melamed, "Property Rules, Liability Rules, and Inalienability: One View of the Cathedral," *Harvard Law Review* 85 (1972): 1089-128.

<sup>72</sup> Richard Schmalensee et al., "An Interim Evaluation of Sulfur Dioxide Emissions Trading," *The Journal of Economic Perspectives* 12, no. 3 (1998): 53-68.

<sup>73</sup> Jonathan Baert Wiener, "Global Environmental Regulation: Instrument Choice in Legal Context," *The Yale Law Journal* 108, no. 4 (1999): 706.

government's capacity of monitoring environmental contaminants. On the other hand, industries equipped with green and energy-efficient technologies can reduce pollution.<sup>74</sup>

The fourth instrument is information provision and exchange. Such measures can enhance the awareness of environmental harmful behaviour and self-protection methods. Improving the accessibility of information contributes to establishing a self-regulation system and public supervision system.<sup>75</sup>

The fifth regulatory instrument is cooperation with other actors, for example related jurisdictions and policy-making departments.<sup>76</sup> This will help deal with cross-border environmental issues and complex matters touching upon different sectors, such as climate change, across a variety of departments in a national government, including the agriculture, energy and transportation departments.

Among the regulatory options mentioned above, three have been employed in the international climate change legal regime. First, the carbon market is established on the property rights of GHG emission reductions (carbon credits).<sup>77</sup> There are transactions in carbon markets of GHG emission reductions generated by forest carbon projects. Furthermore, scientific and technological measures are implemented by the establishment of several scientific and technological organs such as the Subsidiary Body for Scientific and Technological Advice (SBSTA) of the UNFCCC and the Intergovernmental Panel on Climate Change (IPCC). Lastly, the UNFCCC established an information exchange platform, the Technology Information Clearing House. For particularly projects, such as CDM A/R projects and REDD+, there are also special web platforms.<sup>78</sup>

These instruments are not used to their full potential in the current international climate change legal regime. Critics make various arguments. Some scientists question the accuracy and adequacy of the reports of SBSTA on the impacts of forest carbon projects on biodiversity.<sup>79</sup> Others suggest that information exchange should be enhanced among the organs of the UNFCCC and among the parties to all of the Rio conventions.<sup>80</sup> Literature assessing the function of those instruments can provide a

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<sup>74</sup> Alm, "Tools to Protect the Environment: A Need for New Approaches," 6-11.

<sup>75</sup> Gunningham, Grabosky, and Sinclair, *Smart Regulation: Designing Environmental Policy*, 5.

<sup>76</sup> Alm, "Tools to Protect the Environment: A Need for New Approaches," 6-11.

<sup>77</sup> Goulder, "Markets for Pollution Allowances: What Are the (New) Lessons?," 87-102.

<sup>78</sup> For CDM A/R projects, see CDM, "Project Search," accessed 2 March 2017, <https://cdm.unfccc.int/Projects/projsearch.html>. For REDD+ projects, see UNFCCC, "The UNFCCC REDD+ Web Platform," accessed 2 March 2017, <http://redd.unfccc.int/>.

<sup>79</sup> Guy F. Midgley et al., "Terrestrial Carbon Stocks and Biodiversity: Key Knowledge Gaps and Some Policy Implications," *Current Opinion in Environmental Sustainability* 2, no. 4 (2010): 264-70.

<sup>80</sup> Nicole E. Heller and Erika S. Zavaleta, "Biodiversity Management in the Face of Climate Change: A Review of 22 Years of Recommendations," *Biological Conservation* 142, no. 1 (2009): 14-32. The Rio Conventions are adopted at the "Rio Earth Summit" in 1992, which refer to the United Nations Framework Convention of Climate Change (UNFCCC), the Convention of Biological Diversity (CBD), and the United Nations Convention to Combat Desertification (UNCCD).

solid foundation for formulating a practical institutional design which can enhance the functions of those legal instruments and improve the interaction of relevant instruments to promote the sustainability of forest carbon projects. These legal instruments will be further discussed and assessed from a historical perspective in Chapter 2.

#### 1.4.4 Theoretical Foundations on Environmental Policy Design

This research intends to draw upon two fundamental and resourceful works on mixed and smart environmental policy design. Baumol and Oates (1975, 1988) are among the pioneer economists who proposed to complement “command and control” environmental regulation with the use of economic incentives to tackle environmental problems.<sup>81</sup> Deriving from externality theories, they first discussed that the application of Pigouvian taxes raises worrying concerns because of imperfect competition and imperfect information about marginal social costs and abatement costs. Furthermore, they asserted that the application of economic analysis in environmental policy should be a ‘substantial range of instruments’ rather than simply introducing ‘a uniform effluent fee’.<sup>82</sup> An effective instrument mix should integrate the strengths and avoid the weaknesses of an individual instrument.

Gunningham et al. (1998)’s study is one of the most fundamental and resourceful works on smart regulatory design.<sup>83</sup> This work discusses how to combine the strengths of different approaches and actors, and how to counteract their shortcomings through a smart regulatory mix to deliver complex political goals in environmental policies.<sup>84</sup> The smart regulation theory transcends the pro- or anti-regulatory ideologies.<sup>85</sup> This theory considers measures including “command and control” regulations, incentive-based measures, and self-regulations.<sup>86</sup> Actors embrace regulators, firms, commercial and non-commercial third parties.<sup>87</sup>

Although the smart regulation theory is highly relevant, the current study needs to apply it with adjustments. The existing theory suggests policy makers make choices based on the specific situation of the environmental problem in a specific social and legal context.<sup>88</sup> This study focuses on developing countries, where development and immediate economic growth may be more important to policy makers compared with their counterparts in the US and other developed countries. Therefore, policy

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<sup>81</sup> Baumol and E.Oates, *The Theory of Environmental Policy*.

<sup>82</sup> *Ibid.*, 3.

<sup>83</sup> Gunningham, Grabosky, and Sinclair, *Smart Regulation: Designing Environmental Policy*.

<sup>84</sup> *Ibid.*, 15-20.

<sup>85</sup> John Mendeloff, "Overcoming Barriers to Better Regulation," *Law & Social Inquiry* 18, no. 4 (1993): 711-29.

<sup>86</sup> Neil Gunningham and Darren Sinclair, "Regulatory Pluralism: Designing Policy Mixes for Environmental Protection," *Law & Policy* 21, no. 1 (1999): 50.

<sup>87</sup> Joel B Eisen, "Smart Regulation and Federalism for the Smart Grid," *Harv. Envtl. L. Rev.* 37, no. 1 (2013): 22-23.

<sup>88</sup> Gunningham, Grabosky, and Sinclair, *Smart Regulation: Designing Environmental Policy*, 382.

makers in developing countries may prefer economic growth over environmental protection. Second, Gunningham et al. (1998)'s approach focuses on legal pluralism at a horizontal level.<sup>89</sup> In their work, the mix of instruments and actors is either at the international law level, or in the national domain across sectors.<sup>90</sup> Considering that forest carbon projects located in developing countries need to comply with both relevant international laws and national laws, it is essential for this study to look for a mechanism to combine international and national institutional measures and actors.

This study applies the theories on combining alternative instruments and actors, whose functions in regulations have similarities in countries with different social, economic and institutional contexts.<sup>91</sup> This study intends to comprehensively consider incentive-based measures, self-regulation, the private sector, and third parties in the institutional design and be aware of the economic and institutional features of developing countries.

### **1.5 Methodology**

The task of this study is to develop an institutional design for sustainable foreign forest carbon projects in developing countries. To this end, this study follows the smart regulatory design theory and identifies relevant political goals, characteristics of the sustainability problem, regulatory participants and instruments, and opportunities for public participation.<sup>92</sup> Therefore, this study first examines the international institutional framework on forest carbon projects in developing countries with a legal doctrinal and historical approach. The international institutional framework includes international climate policies and laws, implementation rules, and regulatory and private sustainability assessments.

Furthermore, the trade-off between short-term economic returns and long-term sustainable results presents challenges to regulations and the market. It also exemplifies a divergence between public and private interests. Therefore, economic analysis of the effectiveness and efficiency of relevant regulations is employed to draw lessons for the institutional design.

Lastly, to present evidence-based discussion, this study reviews empirical results in literature about relevant practices in developing countries and conducts a case study of China based on projects' online documents, project-site visits, and interviews. The rest of this section further elaborates on the normative criteria of this study, the approaches to analyse sustainability issues, assumptions, and the reasons for focusing on developing countries and China.

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<sup>89</sup> Ibid., 37-92.

<sup>90</sup> Gunningham and Sinclair, "Regulatory Pluralism: Designing Policy Mixes for Environmental Protection," 61 and 71.

<sup>91</sup> Darren Sinclair, "Self-Regulation Versus Command and Control? Beyond False Dichotomies," *ibid.* 19, no. 4 (1997): 539.

<sup>92</sup> Gunningham, Grabosky, and Sinclair, *Smart Regulation: Designing Environmental Policy*, 378-87.

### 1.5.1 Normative Criteria: What is Successful Regulation?

A fundamental issue of a regulatory design is how to evaluate or to what extent a regulation is optimal? There is not a canonical answer. The Organisation for Economic Co-operation and Development (OECD) identifies environmental effectiveness, economic efficiency, equity, administrative feasibility and cost, and acceptability as the criteria for selecting suitable economic mechanisms for environmental policies.<sup>93</sup> The Australian National Strategy for Ecologically Sustainable Development adds a few more items to the list including community involvement, and maintaining the international competitiveness of domestic industries in an environmentally sound manner.<sup>94</sup>

Since there is no consensus on the evaluating criteria for successful regulation, Gunningham selects and limits the criteria to four widely-recognised ones to make it practical and avoid possible redundant settings in policy design.<sup>95</sup> They are effectiveness (successfully delivering the political goal behind the environment regulation), efficiency (achieving the environmental target at the lowest administrative cost), equity (fairly distributing burdens among players), and political acceptability. Effectiveness and efficiency are the primary principles because they ensure a yield of substantial regulatory outcome at an acceptable cost. Choosing effectiveness and efficiency is a convincing selection of normative criteria for evaluating regulations because this selection leaves the weightings of the criteria to the policy makers. By choosing effectiveness, a study would only focus on whether the current regulations successfully deliver the political goals set by the policy makers. By choosing efficiency, a study would concentrate on the cost of the delivery.

As discussed, groups with different interests have different claims on what constitutes the criteria for successful regulation and the weightings among criteria are also different. Facing this problem, this research selects a set of criteria for its own purpose: to conduct an institutional design to achieve more environmentally and socially sustainable results in foreign forest carbon projects in developing countries. The criteria include sustainable development, equity, public participation, and effectiveness and efficiency. The meanings of these criteria and the reasons to choose them are provided below.

First, the current study follows the principles set out by the Rio Declaration and the three Rio conventions and takes “sustainable development” as the primary criterion.<sup>96</sup> Even in cases where the

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<sup>93</sup> II. 9 (iii), "Recommendation of the Council on the Use of Economic Instruments in Environmental Policy," OECD (1991), C(90)177/FINAL, accessed 27 June 2017, <http://webnet.oecd.org/OECDACTS/Instruments/ListNoGroupView.aspx?order=title>.

<sup>94</sup> Part I, "National Strategy for Ecologically Sustainable Development," Australian Ecologically Sustainable Development Steering Committee (1992), accessed 31 April 2017, <http://www.environment.gov.au/about/esd/publications/strategy/intro.html#WhatsInIt>.

<sup>95</sup> Gunningham, Grabosky, and Sinclair, *Smart Regulation: Designing Environmental Policy*, 26.

<sup>96</sup> Principle 1, "Rio Declaration on Environment and Development," UN (1992), accessed 17 March 2017, <http://www.unep.org/Documents.Multilingual/Default.asp?documentid=78&articleid=1163>.

goal of sustainable development may conflict with that of achieving efficient emission reductions in forest carbon projects, this research asserts the priority of sustainable use of natural resources in forests.<sup>97</sup> This is because, in order to achieve efficient emission reductions, people often consider that it is best to plant industrial trees which grow faster and can absorb carbon rapidly with lower costs.<sup>98</sup> However, the harvesting of this type of trees brings considerable risks to humans; irrespective of harvesting, there is a significant risk that the trees will die. This is because forest carbon projects are often operated on barren land, where the trees' large demand for water consumption cannot be met.<sup>99</sup> In either case, the money spent on industrial trees in forest carbon projects can only achieve temporary carbon storage and will lead eventually to no benefits in terms of climate change if and when private companies sell the wood (the profit to be made from selling the wood explains why currently a large number of projects are financed by private companies). Instead, efficient emission reduction should be a primary criterion for other types of projects which have fewer reversible risks, such as those managed by the energy industries. For the energy-related industries, achieving emission reductions will motivate them to invent and use more energy-efficient technologies, or to discover green energy resources. Therefore, forest carbon projects should take sustainable development as the primary criterion and plant trees in a sustainable manner. Sustainable forest carbon projects may plant trees that are unsuitable for the large-scale production of wood products. The trees will remain in the ground for a long period, benefit the ecosystem, and bring sustainable economic benefits to the local people.<sup>100</sup> Therefore, I suggest that sustainable development should be the prior criterion and should regard efficient emission reduction as one of many other co-benefits of forest carbon projects.

In addition, this study also chooses equity for evaluating the current institutional framework on forest carbon project in developing countries. This criterion plays an important role in many other normative discussions about climate change and forest protection.<sup>101</sup> In this study, it refers to inter-generational equity, income equality between rich and poor local people, and indigenous peoples' rights on the environment.

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<sup>97</sup> Some policy-makers and scholars assert that planting industrial trees costs much less and results in carbon being absorbed more quickly than in the case when planting sustainable tree species. For more details, see Chapter 2, section 2.4.2.1.

<sup>98</sup> For more details see Chapter 2, section 2.4.2.1.

<sup>99</sup> See Chapter 8, Section 8.5.1.

<sup>100</sup> If land is retained for forest restoration, the local people will lose the opportunity to use the land for other purposes, such as developing industries for economic growth; therefore, the international beneficiaries should compensate the local people for this loss. This is one of the main rationales for establishing REDD+ programmes. See Chapter 2, Section 2.5.3 for relevant discussions.

<sup>101</sup> Stephen Dovers, "Information, Sustainability and Policy," *Australasian Journal of Environmental Management* 2, no. 3 (1995): 142-56.

Furthermore, public participation in decision-making and policy acceptability are also considered because local stakeholders in developing countries are less informed about legal terms. Multiple scholars and authorities have stated a point of view to increase local participation in decision-making for forest and environment conservation. For instance, Ostrom and Nagendra (2006) believe that transferring decision-making power to local farmers and increasing local autonomy will increase the probability of local people complying with the rules and monitoring each other in reducing deforestation and forest degradation.<sup>102</sup> The European Commission also stressed that ‘public participation in decision-making’ is essential to environmental matters.<sup>103</sup> Melo et al. (2014) asserted that the participation of the local farmers or stakeholders may enhance the equity and transparency of the certification schemes and counteract the market orientation and technocracy.<sup>104</sup>

Lastly, this study chooses effectiveness and efficiency as essential criteria, albeit with a different perspective on the concept of efficiency. This study defines effectiveness as delivering the goal to deter unsustainable activities and promote sustainable activities in foreign forest carbon projects in developing countries. Following Opschoor and Turner (1994), this study defines efficiency as achieving that goal at the lowest administrative cost and containing dynamic and flexible mechanisms to induce and diffuse relevant scientific and technological innovations.<sup>105</sup> This study pays attention to the dynamic and flexible mechanisms in the institutional design, given the significance of scientific and technological knowledge in monitoring carbon offsets and biodiversity loss in forest carbon projects.

### **1.5.2 Sector-Specific Approach and Threat-Specific Approach**

Environmental policies have some common characteristics and principles. However, the unique ecological processes of particular environmental problems and specific social, economic and legal contexts for the formulation and application of specific environmental regulations should be taken into

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<sup>102</sup> Elinor Ostrom and Harini Nagendra, "Insights on Linking Forests, Trees, and People from the Air, on the Ground, and in the Laboratory," *Proceedings of the National Academy of Sciences of the United States of America* 103, no. 51 (2006): 19224.

<sup>103</sup> European Commission, "Environmental Impact Assessment (EIA)," accessed 15 April 2017, <http://ec.europa.eu/environment/eia/eia-legalcontext.htm>; "Environmental Assessment", accessed 18 June 2017, [http://ec.europa.eu/environment/eia/index\\_en.htm](http://ec.europa.eu/environment/eia/index_en.htm).

<sup>104</sup> Melo, Turnhout, and Arts, "Integrating Multiple Benefits in Market-Based Climate Mitigation Schemes: The Case of the Climate, Community and Biodiversity Certification Scheme," 54.

<sup>105</sup> Kerry Turner and Hans Opschoor, "Environmental Economics and Environmental Policy Instruments: Introduction and Overview," in *Economic Incentives and Environmental Policies: Principles and Practice*, ed. Hans Opschoor and Kerry Turner (Dordrecht: Springer Netherlands, 1994), 11. Opschoor and Turner (1994) state that the efficiency of a regulatory instrument is concerned with two aspects. One aspect is relatively static including the administrative cost of the chosen instrument. The other aspect is concerned with dynamic issues, such as evaluating to what extent the chosen instrument could motivate, incorporate, and broadcast scientific and technological developments.



account as well.<sup>106</sup> To do so, this study principally adopts the sector-specific and threat-specific approaches.

The sector-specific approach targets all relevant environmental problems of a particular industrial sector; for instance, the chemical industry, agriculture, or forest.<sup>107</sup> Another dimension is the threat-specific approach, which targets a particular environmental threat that is induced by humans; for instance, climate change and biodiversity loss.<sup>108</sup> Such a threat may be caused by and affects multiple industrial sectors.

This study adopts both approaches to limit the scope of the research and to produce a tailored institutional design to achieve the objectives stressed in section 1.2. Sector wise, this study focuses on the forest sector. Threat wise, this study concentrates on climate change, biodiversity loss, and land degradation. More specifically, this study deals with forest activities formed under the climate change legal framework that may lead to biodiversity loss and land degradation.

In addition, this study accentuates that environmental policies should not only consider how to address the pollutants of a particular industry or a particular environmental threat. With sustainable development as the central normative criteria, this study asserts that environmental policies on climate change should also take into account their possible impacts on other aspects of the environment and their socio-economic consequences. Social problems are certainly not the goal of environmental policies, as they should contribute to poverty alleviation and reduction of income inequality to their full potential.

### **1.5.3 Top-Down and Bottom-Up Approaches**

Gunningham and Grabosky (1999)'s smart regulation theory puts forward a pragmatic, four-stage regulatory design process.<sup>109</sup> Namely, the design needs to identify the political goals to be achieved (Stage One), then define characteristics of the environmental problem (Stage Two), explore the major actors and potential instruments (Stage Three), and finally identify opportunities for public participation (Stage Four).

This study adopts both top-down and bottom-up approaches to obtain the information needed at each stage of the design. Foreign forest carbon projects in developing countries apply international institutional rules on carbon certification, receive funding from foreign sources, and are subject to

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<sup>106</sup> Ibid., 35.

<sup>107</sup> Gunningham, Grabosky, and Sinclair, *Smart Regulation: Designing Environmental Policy*, 32.

<sup>108</sup> Ibid.

<sup>109</sup> Ibid., 378-87.

relevant national laws of the host developing country. From a top-down perspective, this study examines the effects of international institutional and financial framework on the sustainability of foreign forest carbon projects in developing countries. When reviewing the international institutional framework, the study examines the international policies and laws on forest carbon projects in developing countries to identify political goals and the characteristics of forest carbon projects (Stages One and Two A). Furthermore, this study examines the international implementation rules to identify major actors (Stage Three A). In addition, this study reviews the international regulatory and private sustainability assessments to identify existing monitoring instruments (Stage Three B), and the opportunity for public participation in the assessments (Stage Four A). Subsequently, this study reviews the incentive schemes of major actors (Stage Three C) including local stakeholders (Stage Four B). Moreover, this study looks at the international financial streams from the developed countries to developing countries for foreign forest carbon projects to explore to what extent financial measures can be employed in the institutional design (Stage Three D).

From a bottom-up approach, this study looks at country-specific evidence from China to enhance the acceptability and effectiveness of the institutional design.<sup>110</sup> Relevant discussion can provide insights on the project's impacts and characteristics (Stage Two B), national laws and sustainability assessments (Stage Three E), and public participation in national practices (Stage Four C).

Lastly, armed with the resulting discussions, this study designs institutional reforms to address identified problems in the existing institutional framework and incentive schemes that can lead to unsustainable results in foreign forest carbon projects.<sup>111</sup> This study intends to identify an entity (or entities) in the existing institutional and financial framework with the institutional advantages to address the problems.<sup>112</sup> The institutional design will provide specific reforming measures that are tailored to address identified problems, inserted in a workable existing system, and based on evidence from practice.

#### **1.5.4 Assumptions**

This study makes four assumptions. First, it assumes that all participants in the carbon market respond to prices and try to minimise their costs.<sup>113</sup> Price takers are unlikely to invest in sustainable forest carbon projects with high costs but low return without regulatory obligations. In the meanwhile, price

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<sup>110</sup> "Smart Regulation," in *Regulatory Theory: Foundations and Application*, ed. Peter Drahos (Oxford, 1998), 115.

<sup>111</sup> Robert E Goodin, *The Theory of Institutional Design* (Cambridge University Press, 1998), 55.

<sup>112</sup> Gunningham and Grabosky (1999) assert to "empower participants" in "the best position to act as surrogate regulators". See Gunningham, Grabosky, and Sinclair, *Smart Regulation: Designing Environmental Policy*, 408-12.

<sup>113</sup> Robert W Hahn, "Designing a Market in Transferable Property Rights: A Review of the Experimental Evidence," in *Implementing Tradable Permits for Sulfur Oxides Emissions*, ed. Glen R. Cass, Robert W. Hahn, and Roger G. Noll (Pasadena, California: Environmental Quality Laboratory California Institute of Technology, 1982), D-73.

takers may take insufficient precautionary measures to save costs regardless of the possible damages to the environment. Therefore, for every rational trader of this transaction, the main goal is to produce as many credits with the lowest costs possible. As discussed, biodiversity loss and land degradation are externalities in the transaction of carbon credits generated by forest carbon projects. These externalities cause marginal social damage. This study assumes that the parties of a transaction of forest-based carbon offsets will hardly take these externalities into account when there are no regulatory obligations.

Second, this study assumes that more success can be achieved in environmental protection when the government and the market cooperate. As Mendeloff (1993) concluded, many of the most valuable policies were adopted when the government can creatively shape the policies without the package of pro- or anti-regulation ideologies.<sup>114</sup> An institutional design employing the strengths of and sharing regulatory powers among different actors can reduce the chance that any one of the actors abuses its power.

Thirdly, this study assumes that it is a task of both the North (developed countries) and the South (developing and least developed countries) to tackle the potential positive and negative externalities of forest carbon projects on biodiversity.<sup>115</sup> The negative externalities of forest carbon projects, for instance biodiversity loss, would largely be an irreversible loss for the whole world. Therefore, projects in furthering forest biodiversity are sorely needed everywhere and human-induced activities damaging biodiversity should be prohibited no matter where the projects are located.

The last assumption of this study is that international policy makers act in good faith, in the public interest and take the most optimal approaches to deliver environmental political goals. In practice however, it is almost inevitable that ignorance, personal corruption, and sectional pressure will affect policy making in some circumstances.<sup>116</sup> Participants in governments are deemed to incline towards advancing their own interests and represent economically powerful special interest groups. Therefore, when analysing the incentive schemes of the project actors, this research considers the unsustainable

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<sup>114</sup> Mendeloff, "Overcoming Barriers to Better Regulation," 711-29.

<sup>115</sup> Charles Perrings, *Biodiversity Loss: Economic and Ecological Issues* (Cambridge University Press, 1997), 338.

<sup>116</sup> Part II, Chapter 20, Para. 4, Pigou, *The Economics of Welfare*; *ibid.* Part II, Chapter 20, Para. 4,

risks resulting from “self-interested national policy-makers” in order to provide a realistic analysis.<sup>117</sup> The institutional design that will be proposed at the end of this book will also address such risks.<sup>118</sup>

This assumption only serves to add to the feasibility of the institutional design. Accordingly, this study assumes that international and national policy-makers will adopt or support this design if they consider that it can facilitate the achievement of more sustainable results in forest carbon projects. Although not always realistic, this assumption allows me to focus on the topic of this research: to tackle the unsustainable risks in forest carbon projects. It is also an essential precondition to realising a functional combination of multiple instruments and actors in environmental policies.<sup>119</sup> In addition, empirical studies show that a model can predict government decisions better if it accounts for the influence of broad-based interests and the tendency of public officials to do a better job.<sup>120</sup> Therefore, this study assumes that relevant international policy makers on climate change will eventually act for the interest of the public due to the irreversible nature of environmental threats and the variety in the composition of the international negotiators.<sup>121</sup>

### **1.5.5 Why Focus on Developing Countries?**

The intention to choose developing countries as the main subject for this study is twofold. On the one hand, most developing countries are located in sub-tropical and tropical zones with large areas of forests and high deforestation rates.<sup>122</sup> On the other hand, the environment is comparatively less protected in developing countries as shown in the studies which follow.

The environmental quality in developing countries highly depends on the legislation and enforcement of environmental law. With theoretical and empirical evidence, Gunningham et al. (1998) suggest that

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<sup>117</sup> For more details on the unsustainable risks resulting from self-interested national policy-makers, please see Chapter 5, Sections 5.3.1 and 5.3.4. In addition, there are policy makers who chose to implement unsustainable forest carbon projects to solve hunger problems, rather than benefiting themselves. For instance, a policy advisor from Indonesia once stated that they knew about the environmental risks of industrial trees in forest carbon projects. However, they chose to resolve hunger problems as a priority over environmental restoration. For developing countries, where the majority of people have poor living conditions, policy makers may pay more attention to economic growth and improving living conditions. Although with different intentions, these policy makers made the same choice as those who aim to establish a political career in a short time: plant industrial trees, earn economic benefits in a short term, and ignore the negative environmental and social impacts in the long term. In comparison with restoring forests for the benefit of all humans in the world and future generations, such policy makers only care about the current circumstances in their own countries; therefore, they could also be referred to as “self-interested”.

<sup>118</sup> For more details on the institutional design of this research addressing the unsustainability risks, please see Chapter 9, Section 9.3.

<sup>119</sup> Gunningham, Grabosky, and Sinclair, *Smart Regulation: Designing Environmental Policy*. 22-35

<sup>120</sup> Daniel A Farber and Philip P Frickey, *Law and Public Choice: A Critical Introduction* (University of Chicago Press, 1991), 5.

<sup>121</sup> Robert Howse, J. Robert S. Prichard, and Michael J. Trebilcock, "Smaller or Smarter Government," *The University of Toronto Law Journal* 40 (1990): 533.

<sup>122</sup> Frédéric Achard et al., "Determination of Deforestation Rates of the World's Humid Tropical Forests," *Science* 297, no. 5583 (2002): 999.

industrialised countries are more advanced in environmental regulation, which implies that environmental policies in developing countries are comparatively less successful.<sup>123</sup> In addition, the effect of environmental law on environmental improvement varies upon the economic features of the country. The correlation between environmental quality and economic status is illustrated in the controversial literature of the Environmental Kuznets Curve (EKC), a U-shape curve named after the 1971 Nobel Economics Prize winner Simon Kuznets.<sup>124</sup> The central idea of the EKC literature indicates that environmental quality in developing countries is generally low and that environmental improvement may emerge together with material economic progress in the form of industrialisation, high income, and a high level of living standards.<sup>125</sup> The analysis shows a pattern that at the primary stage of industrialisation, economic development leads to more environmental pollution.<sup>126</sup> However, when industrialisation progress arrives at a point where both income and pollution levels are high, the environmental pollution of an industrialised country will peak and start to decrease.<sup>127</sup>

Strand (2002) summarised five economic theories explaining in what circumstances industrial development eventually leads to lower pollution levels.<sup>128</sup> However, Strand (2002) also examined empirical data showing that this pattern does not apply to all countries or to all relevant variables.<sup>129</sup> Therefore, one cannot simply assume that environmental improvement will automatically correspond with economic growth.<sup>130</sup>

The EKC analysis has three implications for this institutional design. First, the low environmental quality in developing countries is relevant to their less successful legislation and less effective implementation of environmental regulation. The quality of environmental regulation plays a significant role in determining the environmental quality of developing countries with similar economic status.<sup>131</sup> Panayotou's study (1997) shows that regulations are essential to mitigate

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<sup>123</sup> Gunningham, Grabosky, and Sinclair, *Smart Regulation: Designing Environmental Policy*, 32.

<sup>124</sup> Michael G Faure and Jan M. Smits, eds., *Does Law Matter? On Law and Economic Growth*, vol. 100, Ius Commune Europaeum and Comparative Law Series (Antwerp: Intersentia, 2011), 386-88.

<sup>125</sup> Jon Strand, *Environmental Kuznets Curves: Empirical Relationships between Environmental Quality and Economic Development* (Norway: Department of Economics, University of Oslo, 2002), 4. Michael G Faure, Morag Goodwin, and Franziska Weber, "Bucking the Kuznets Curve: Designing Effective Environmental Regulation in Developing Countries," *Virginia Journal of International Law* 51, no. 1 (2010): 100.

<sup>126</sup> Faure and Smits, *Does Law Matter? On Law and Economic Growth*, 385.

<sup>127</sup> Strand, *Environmental Kuznets Curves: Empirical Relationships between Environmental Quality and Economic Development*, 5.

<sup>128</sup> *Ibid.*

<sup>129</sup> *Ibid.*, 15.

<sup>130</sup> Robert U Ayres, "Economic Growth: Politically Necessary but Not Environmentally Friendly," *Ecological Economics* 15, no. 2 (1995): 97-99. Jeffrey R Vincent, "Testing for Environmental Kuznets Curves within a Developing Country," *Environment and Development Economics* 2, no. 04 (1997): 417-31.

<sup>131</sup> Daniel C Esty and Michael E Porter, "National Environmental Performance: An Empirical Analysis of Policy Results and Determinants," *ibid.* 10 (2005): 393.

environmental deterioration in countries with low- or high-income levels.<sup>132</sup> Faure et al. (2010) suggest that better environmental regulation can result in better environmental protection in the short and medium term. The reasoning behind this is twofold. First, a country with weak environmental regulations attracts more polluting industries.<sup>133</sup> Second, properly designed environmental regulations can stimulate innovations, which can reduce production costs and eventually lead to enhanced competitiveness of nations and industries.<sup>134</sup>

In addition, and contrary to the idea of “grow first, then clean up”, economists suggest protecting the environment by preventing massive material consumption and soaring population.<sup>135</sup> Although poverty alleviation and economic growth may contribute to improving the environmental performance of developing countries in the long term, economists advocate to conserving the ‘very basis of our existence, the Earth’ before it is too late.<sup>136</sup> However, a less-developed economic status affects environmental regulation because poor countries may prioritise alleviating poverty over environmental protection.

Lastly, when it comes to global environmental threats, a multilateral policy initiative is needed. Multilateral actions can reduce errors in standards, hence preventing the adverse impact from increasing monotonically, and lower the turning point from where the adverse impact starts to decrease.<sup>137</sup> In the case of forest carbon projects, climate change and biodiversity loss are both irreversible and global environmental threats. Hence, multilateral institutional measures are necessary.

### **1.5.6 Why Choose China for the Case Study?**

As one of the outcomes of the Paris Conference of the Parties to the UNFCCC in 2015, China has committed greatly to combat climate change.<sup>138</sup> China is selected as the subject of the case study based on the following considerations. First, China is in the top five in each of these three categories: countries with most projects, the biggest total project area and the highest production of carbon credits, among twenty-three developing countries that have operated or are operating CDM forest projects.<sup>139</sup>

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<sup>132</sup> Theodore Panayotou, "Demystifying the Environmental Kuznets Curve: Turning a Black Box into a Policy Tool," *ibid.* 2 (1997): 465-84.

<sup>133</sup> Faure and Smits, *Does Law Matter? On Law and Economic Growth*, 386.

<sup>134</sup> Michael E Porter and Claas Van der Linde, "Toward a New Conception of the Environment-Competitiveness Relationship," *The Journal of Economic Perspectives* 9, no. 4 (1995): 98.

<sup>135</sup> Strand, *Environmental Kuznets Curves: Empirical Relationships between Environmental Quality and Economic Development*, 3.

<sup>136</sup> *Ibid.*

<sup>137</sup> Matthew A Cole, Anthony J Rayner, and John M Bates, "The Environmental Kuznets Curve: An Empirical Analysis," *Environment and Development Economics* 2, no. 04 (1997): 401-16.

<sup>138</sup> See a briefing of China's commitment in 2015 at Kate Sheppard, "China Announce Deepened Partnership on Climate," *the Huffington Post*, 27 September 2015.

<sup>139</sup> See projects' data at CDM, "Project Search."

As a result, collecting and reviewing information on forest carbon projects in China would contribute considerably to the overall study of forest carbon projects in developing countries.

In addition, China is one of a few countries identified by scholars with little publicly available information about governing laws and implementation details on CDM projects.<sup>140</sup> This study intends to fill this information gap by reviewing relevant laws and regulations comprehensively and collecting information from practitioners and project sites. To collect thoroughly the laws and regulations on this matter in China, this study searched the most comprehensive legislation database in China, Lawinfochina, with the following key words: forest, land, carbon, air, climate and environment.<sup>141</sup>

Third, the Chinese government has the motivation and suitable conditions to develop considerably more forest carbon projects in the future. From the motivation perspective, China, as an emerging economy, has urgent needs to reduce greenhouse gases emissions in the future. China is considered as one of the key players of climate mitigating activities because China's Gross Domestic Product (GDP) per capita was one-fourth of the world in 2012, with one-fifth of the world population, and with high economic growth.<sup>142</sup> Scholars assert that China will manage to surpass the average GDP per capita of the world between 2030 and 2050 and limit CO<sub>2</sub> emissions at a level lower or equal to OECD countries.<sup>143</sup> To give incentives for emission reduction, China is establishing emission-trading systems, which is considered to be potentially the second biggest carbon market in the world.<sup>144</sup> Forest carbon sequestration is regarded by Chinese scholars and practitioners as one of the most cost-effective ways to reduce atmospheric carbon dioxide.<sup>145</sup> Therefore, the Chinese government has set ambitious political goals to increase forest cover significantly in the coming decades.<sup>146</sup> Furthermore, China has an enormous amount of land which is suitable for tree planting activities across the country.<sup>147</sup> In

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<sup>140</sup> Ritika Tewari, "Mapping of Criteria Set by DNAs to Assess Sustainable Development Benefits of CDM Projects," CDM Policy Dialogue, accessed 2 May 2017, [http://www.cdmpolicydialogue.org/research/1030\\_mapping.pdf](http://www.cdmpolicydialogue.org/research/1030_mapping.pdf): 32.

<sup>141</sup> The database is Peking University's Legal Information Center, "Chinalawinfo," accessed 13 October 2017, <http://www.lawinfochina.com/index.aspx>.

<sup>142</sup> Carlo Carraro and Emanuele Massetti, "Energy and Climate Change in China," *Environment and Development Economics* 17, no. 06 (2012): 1.

<sup>143</sup> *Ibid.*

<sup>144</sup> Until 2014, seven pilot carbon exchange platforms have been approved in China. Four in main municipalities: Beijing, Tianjin, Shanghai, Chongqing and three in industrial regions: Hubei, Guangdong and Shenzhen. See more at David Stanway and Kathy Chen, "China Mulls National Pollution Permit Trading System," *Reuters*, 10 January 2014, accessed 15 April 2017, <http://uk.reuters.com/article/uk-china-environment-pollution-idUKBREA0906J20140110>.

<sup>145</sup> Zigui Zhou et al., "Development Status, Problems and Suggestions to Forestry Carbon Sequestration in Zhejiang Province (浙江省林业碳汇发展现状, 存在问题及对策建议 Zhe Jiang Sheng Lin Ye Tan Hui Fa Zhan Xian Zhuang, Cun Zai Wen Ti Ji Dui Ce Jian Yi)," *Journal of Zhejiang Agricultural Sciences* 1, no. 7 (2014): 980.

<sup>146</sup> For more details, see the policy analysis in Chapter 7, section 7.2.

<sup>147</sup> For instance in Heilongjiang Province in the north of China and in Zhejiang Province at the south of China. Shanshan Xu, "Forest Carbon Sequestration Programme Swot Analysis: A Case Study of Forest Industrial State-Owned Region in Heilongjiang Province (森林碳汇项目态势分析——以黑龙江省森工国有林区为例 Sen Lin Tan Hui Xiang Mu Tai Shi Fen Xi - Yi Hei Long Jiang Sheng Sen Gong Guo You Kin Qu Wei Li)," *Ecological Economy* 3 (2012): 114. Zhou et al., "Development Status, Problems and Suggestions to Forestry Carbon Sequestration in Zhejiang Province (浙江省林业

addition, two new forms of CDM vegetation plantation projects also exist in China, tea and bamboo plantations.<sup>148</sup>

The problems identified in forest carbon projects in China may appear in other developing countries as well, given the various development levels and social circumstances in different regions of China.<sup>149</sup> The financing approaches of forest carbon projects in China are diverse and include both public and private sectors from Annex I countries.<sup>150</sup> Therefore, lessons learned in China may be relevant for other developing countries in their future practice.

In the case study, the political and legal circumstances of China have been taken into account when reviewing the operation of forest carbon projects. In addition, the case study comprises three empirical elements: 1) projects' documents study, 2) project-site visits, and 3) interviews. When studying the projects, I do not aim for a systematic comparison of different projects. Instead, this study focuses on the features of projects with different financial resources and forest carbon certifications. More details about the methodology of the case study are provided in the Introduction to Part III.

This study has identified three sources for collecting project information. The CDM official website provides documents of all CDM forestry projects including those in China.<sup>151</sup> The second source is the official websites of carbon sequestration and carbon trading in China which provides limited information about forest carbon projects in China.<sup>152</sup> The third source is the official websites of international voluntary carbon certification schemes including the Verified Carbon Standard (VCS) and the Climate, Community and Biodiversity Standard (CCBS).<sup>153</sup>

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碳汇发展现状、存在问题及对策建议 Zhe Jiang Sheng Lin Ye Tan Hui Fa Zhan Xian Zhuang, Cun Zai Wen Ti Ji Dui Ce Jian Yi," 981.

<sup>148</sup> Arun Jyoti Nath and Ashesh Kumar Das, "Ecological Implications of Village Bamboo as Global Climate Change Mitigation Strategy: A Case Study in Barak Valley, Assam, North East India," *International Journal of Climate Change Strategies and Management* 4, no. 2 (2012): 201-15. Hui Xue et al., "Assessment of Private Economic Benefits and Positive Environmental Externalities of Tea Plantation in China," *Environmental Monitoring and Assessment* (2013): 1-16.

<sup>149</sup> VCS, "Project 1162: Jiangxi Province Le'an County Forest Farm Carbon Sink Project," (2014), Validation Report, accessed 6 January 2018, [http://www.vcsprojectdatabase.org/#/vcus/p\\_1162](http://www.vcsprojectdatabase.org/#/vcus/p_1162): 17.

<sup>150</sup> Annex I countries refer to the industrialised countries that are listed in Annex I to the UNFCCC. Annex I countries' commitments for the first commitment period (2008-2012) are listed in Annex B to the Kyoto Protocol. Art. 3, "Kyoto Protocol to the United Nations Framework Convention on Climate Change," UN (1997). Their commitments for the second commitment period (2013-2020) are listed in the Doha Amendment to the Kyoto Protocol. The Doha Amendment was adopted in 2012, has been ratified by 76 countries by April 2017, and has not entered into force. See more about Doha Amendment at UNFCCC, "Status of the Doha Amendment," accessed 2 March 2017, [http://unfccc.int/kyoto\\_protocol/doha\\_amendment/items/7362.php](http://unfccc.int/kyoto_protocol/doha_amendment/items/7362.php). See more about the political goals behind the CDM at "What Is the Clean Development Mechanism?," accessed 2 March 2017, <http://cdm.unfccc.int/about/index.html>.

<sup>151</sup> CDM, "Project Search."

<sup>152</sup> "碳排放交易 Tan Pai Fang Jiao Yi," accessed 31 August 2016, <http://www.tanpaifang.com/tanhui/>. "中国林业碳汇交易网 Zhong Guo Lin Ye Tan Hui Jiao Yi Wang," accessed 31 August 2013, [www.zhlyth.com](http://www.zhlyth.com).

<sup>153</sup> The "Voluntary carbon market" refers to a carbon market with buyers and sellers who trade carbon credits on a voluntary basis without national or international emission reduction obligations. See the official website of the VCS,



## 1.6 Contribution and Limitations

Rather than merely seeking a high yield of GHG emission reductions, this study aims to achieve a balance between climate change mitigation and sustainable development. Hence, the standard by which to judge the success of a forest carbon project in this study is not by achieving cheaper emission reductions. Instead, I consider the adverse impact of producing emission reductions on biodiversity, land, and on the society. This study asserts that emission reductions should be achieved in a more sustainable way in forest carbon projects in developing countries, even if it may lead to a higher operational cost for the projects.

Previous studies on the sustainability of CDM projects lacked a focus on forest carbon projects, which have even been excluded in some studies because of forests' ecological features and the high uncertainty of relevant data.<sup>154</sup> With regards to the regions studied, some scholars have studied Africa and Latin America.<sup>155</sup> This study can contribute by analysing climate-related forest policies, laws, and practices of forest carbon projects in China. Furthermore, the literature on forest governance lacks consideration of forest projects under the climate legal regime.<sup>156</sup> Some forest scholars discuss forest management in Southeast Asia.<sup>157</sup> However, China, a major host country of CDM forest projects, has not been included in relevant studies.

This study aims to fill these gaps in the literature by focusing on forest projects in China under the international climate change legal regime. This research aims at an institutional design also applicable to similar unsustainable problems in foreign forest carbon projects in other developing countries. Hence, the study generalises the nature of unsustainable problems and sheds light on where and in what circumstances the institutional design would work. Details are discussed in chapter 9.

Regarding limitations, this research only addresses forest carbon projects. This study does not address other types of climate-related (carbon) projects such as energy or waste. It does not address other types of land-use carbon projects either, such as projects aiming to reduce emissions in agriculture. It should

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"Project Database," accessed 2 March 2017, <http://www.vcsprojectdatabase.org/#/home>. CCBA, "Project Database," accessed 2 March 2017, <http://www.climate-standards.org/category/projects/>.

<sup>154</sup> Martina Jung, "Host Country Attractiveness for CDM Non-Sink Projects," *Energy Policy* 34, no. 15 (2006): 2174.

<sup>155</sup> Christiana Figueres, *Institutional Capacity to Integrate Economic Development and Climate Change Considerations. An Assessment of Dnas in Latin America and the Caribbean* (Washington, DC: Environment Division, Sustainable Development Department, Inter-American Development Bank, 2004): i. Harald Winkler, Ogunlade Davidson, and Stanford Mwakasonda, "Developing Institutions for the Clean Development Mechanism (CDM): African Perspectives," *Climate Policy* 5, no. 2 (2005): 209. Liana Morera, Olga Cabeza, and Thomas Black-Arbeláez, "The State of Development of National Clean Development Mechanisms Offices in Central and South America," in *Greenhouse Gas Emissions Trading and Project-Based Mechanisms* (OECD, 2004), 30-39.

<sup>156</sup> See Section 1.4.1.

<sup>157</sup> Cashore and Stone, "Can Legality Verification Rescue Global Forest Governance?: Analyzing the Potential of Public and Private Policy Intersection to Ameliorate Forest Challenges in Southeast Asia," 13.

be noted that this study merely addresses forest projects with one of the goals to reduce atmospheric GHGs and with the activities of planting trees or forest management.

More importantly, this research only addresses forest carbon projects in developing countries with foreign elements. “Foreign elements” here refer to: a) a forest carbon project is financed by foreign public or private entities; or b) a forest carbon project applied or is applying for an international carbon certification scheme such as the CDM or VCS.<sup>158</sup> If a forest carbon project possesses either of these elements, it will be considered as a foreign forest carbon project in a developing country.

Finally, the institutional design provided by this study may not be optimal. It would be too ambitious and unrealistic to claim a set of newly designed regulations are optimal without quantitative assessments. As Mendeloff (1993) pointed out, ‘when a policy is comparatively new or untried, no objective measures of success or failure will be available’.<sup>159</sup> Therefore, the current study aims to propose a set of institutions that are theoretically more effective and efficient than the existing policies to address the problems identified empirically.

## **1.7 Structure**

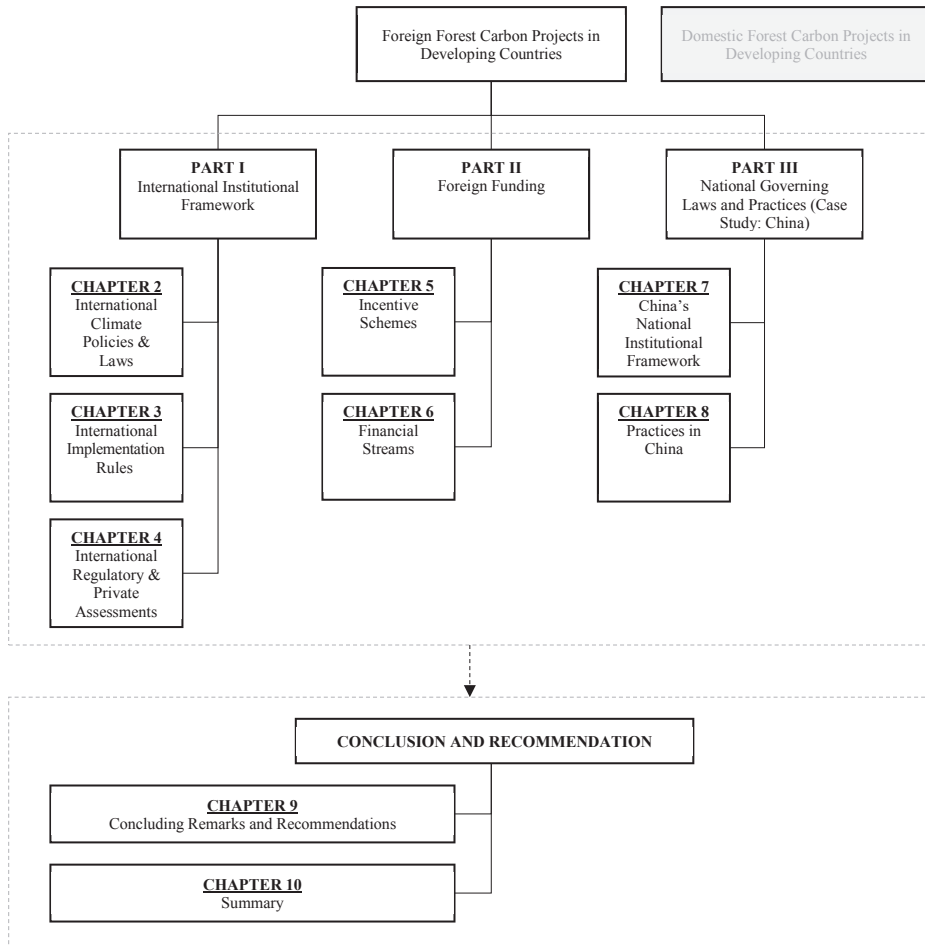
The rest of this study is divided into three main parts and the conclusion. Following the introduction, Part I, composed of Chapters 2, 3 and 4, answers the first sub-question: how does the international institutional framework address sustainable forest carbon projects in developing countries? Part II, consisting of Chapters 5 and 6, answers the second sub-question by discussing the incentive schemes and the financial streams in foreign forest carbon projects in developing countries. Part III, consisting of Chapters 7 and 8, answers the third sub-question by discussing a case study of China. Finally, Chapter 9 draws conclusions and proposes recommendations for an institutional design, which is followed by a summary of this study in Chapter 10. The structure of this study is presented in Figure 1-1 below.

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<sup>158</sup> A “carbon certification scheme” refers to a scheme using a particular methodology to measure and certify GHG removals. A carbon certification scheme can be legally binding such as the CDM or applied on a voluntary basis such as the VCS.

<sup>159</sup> Mendeloff, "Overcoming Barriers to Better Regulation," 711-29.

**Figure 1-1: Structure**



### 1.7.1 Part I: The International Institutional Framework of Forest Carbon Projects in Developing Countries

**Chapter 2** reviews the current international policies and laws on forest carbon projects in developing countries with a legal doctrinal and historical approach. By presenting the milestones in relevant international political negotiations and scholarly debates, this part sketches a clear development path for internationally binding decisions. This chapter aims to explore the problems in international climate policies and laws that may lead to unsustainable results in developing countries.

**Chapter 3** discusses the implementation rules and the main actors in forest carbon projects. This chapter provides the current international implementing details of CDM A/R and REDD+ projects in

developing countries, which paves the way for the next chapter about the sustainability assessments in the implementation process. In addition, this chapter ends with a critical analysis of the implementation rules.

**Chapter 4** focuses on international regulatory and private sustainability assessments, which are designed to deter unsustainable results in forest carbon projects in developing countries.<sup>160</sup> Equipped with insights provided in the previous two chapters, this chapter discusses the specific problems of international regulatory and private sustainability assessments in practice.

### **1.7.2 Part II: Incentives Schemes and Financial Streams of Foreign Forest Carbon Projects in Developing Countries**

The international climate legal regime allows various actors to participate in forest carbon projects.<sup>161</sup> The actors may have different goals: to achieve different economic, social and environmental results in forest carbon projects in developing countries. **Chapter 5** analyses the incentives of main actors and aims to investigate which actors' incentives may lead to unsustainable results in foreign forest carbon projects in developing countries.

The actors may play different roles in the financial streams to achieve their goals. **Chapter 6** further reviews the financial streams among main actors shaped by the current international climate regime. The funding of a foreign-invested forest carbon project may be delivered in a variety of ways. Financial intermediaries may be involved at different stages of the financial streams. This chapter aims to review the current financial streams in forest carbon projects in developing countries and the roles of financial intermediaries.

### **1.7.3 Part III: A Case Study: Forest and Climate Change in China**

Part III discusses a case study in China, which intends to test and complement the theoretical findings in previous chapters. Previous parts analyse the international institutional and financial framework on foreign forest carbon projects in developing countries from a top-down perspective. Part III adopts a bottom-up approach and provides a country-specific analysis of China. **Chapter 7** first discusses the national political and legal framework on climate change and forest in China. Specifically, this chapter discusses relevant milestone policies and laws in China, implementation rules, and the sustainability assessments on foreign forest carbon projects in China.

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<sup>160</sup> A substantial portion of Chapter 4 is adopted from Yixin Xu, "From Host to Investor: Enhancing the Sustainability of CDM Forest Carbon Projects," in *Eu Environmental and Planning Law Aspects of Large-Scale Projects*, ed. Bernard Vanheusden and Lorenzo Squintani (Cambridge, Antwerp, and Portland: Intersentia, 2016), 57-77.

<sup>161</sup> See Chapter 3, Section 3.2.1.

**Chapter 8** reviews foreign forest carbon projects in China based on their published project documents online, project-site visits, and interviews. This chapter discusses seventeen projects in China: five registered CDM A/R projects, four terminated at the CDM validation stage, and eight projects applying alternative carbon certification schemes. This chapter examines their financial status and their sustainability performances.

#### **1.7.4 Conclusion and Recommendation**

Lastly, conclusions and recommendations are drawn in **Chapter 9**. Armed with the findings of the theoretical analysis and the case study, Chapter 9 develops an institutional design to effectively and efficiently restrict unsustainable results and to promote sustainable results in foreign forest carbon projects in developing countries. The institutional design follows the smart regulatory design theory and considers various related instruments and actors to integrate their strengths and make up for their weaknesses. This chapter aims to recommend a regulatory mix that is tailored to address problems identified in previous chapters, based on evidence from the case study, and workable for existing institutions and actors.

**Chapter 10** summarises the main findings of the study.



**PART I:**  
**THE INTERNATIONAL INSTITUTIONAL FRAMEWORK**  
**OF FOREST CARBON PROJECTS IN DEVELOPING**  
**COUNTRIES**

## **INTRODUCTION TO PART I**

From the late 1980s, the focus of international environmental negotiations has altered from reversible environmental threats to longer-term, irreversible and global environmental threats. Such threats include climate change, the loss of biological diversity and desertification. The latter type of threats have various causes and international environmental law also responds with various regulatory instruments, including regulations, liability rules and enforcement. At this stage, the objective of such environmental policies and laws is no longer merely mitigating the environmental threat, but balancing the long-term economic, social and ecological impacts of the legal measures. In other words, sustainability has become a significant criterion for assessing environmental activities.

This part examines the international institutional framework of forest carbon projects under the climate change legal regime. Chapter 2 first reviews the current international policies and laws on forest carbon projects and forest-based tradable permits with a legal doctrinal and historical approach. Furthermore, Chapter 3 provides an overview of the implementation rules and the main actors in forest carbon projects in developing countries. Lastly, Chapter 4 is the vital chapter of this part, which focuses on the current international regulatory and private monitoring systems that are designed to deter unsustainable results in forest carbon projects in developing countries.





## **2 INTERNATIONAL CLIMATE POLICIES AND LAWS ON FOREST CARBON PROJECTS IN DEVELOPING COUNTRIES**

### **2.1 Introduction**

Due to scientific uncertainties, climate change issues have been at the centre of international political debates. This chapter traces back to the international documents before the climate change convention to up-to-date UNFCCC decisions and reviews public debate along the decision-making process. This chapter describes and analyses relevant international policies and laws with a legal doctrinal and historical approach. In designing institutional reforms, this chapter aims to identify potential institutional problems which may lead to unsustainable results in foreign forest carbon projects in developing countries. International policies and laws on climate change constitute the legal basis for forest carbon projects. Deriving from that a market for forest-based carbon offsets is established, demand for forest-based carbon offsets from developing countries are created, and foreign forest carbon projects in developing countries are implemented.

This chapter will start with a rather descriptive discussion of the international political and legislative history on forest carbon projects, to unfold the background and current meanings of special terms that are often used in relevant legislation, practices and academic discussion. The former sections will also untangle the controversial decision-making process and consider public debates in international climate change negotiations regarding forest carbon stocks. These sections pave the way for the subsequent analysis that aims to streamline arguments from previous policy-makers and scholars, particularly those concerning projects' environmental and social sustainability, and provides analytical discussions correspondingly.

The rest of this chapter is structured as follows. Section 2.2 discusses the early development of the international climate change legal regime until formulation of the UNFCCC. Then, Section 2.3 focuses on the terms in the UNFCCC concerning the forest sector. Section 2.4 elaborates the international compliance carbon market of forest-based tradable permits, established in the Kyoto Protocol to the UNFCCC. Section 2.5 reviews decisions that were adopted after the Kyoto Protocol on forest carbon projects in developing countries. Section 2.6 discusses the synthesis and conflicts between the climate change legal regime and the Convention on Biological Diversity over forest carbon projects in developing countries. Section 2.7 assesses the weaknesses of international climate policies and laws in ensuring sustainable results in foreign forest carbon projects in developing countries. Finally, Section 2.8 summarises and concludes this chapter.

### **2.2 Pre-UNFCCC: Formulating the International Climate Change Legal Regime**

The existing binding international laws and policies on forest carbon projects are formulated under the climate change legal regime. Following Bodansky (2001), this research divides the development of international climate change legal regimes into three phases (Appendix I) prior to the adoption of the Convention.<sup>162</sup> Furthermore, the second and third sections discuss two fundamental documents in formulating the Convention, the Noordwijk Declaration and the IPCC's first report in 1990.

The first phase is the "scientific foundation period" from 1950 to 1978. The climate change legal regime is a legal framework based and developed upon innovation in science and technology. The issue of climate change initially emerged as a scientific topic in the early 18th century. However, most of the climate change scientific literature was not published until the 1950s.<sup>163</sup> Several severe climatic natural disasters in the 1960s and 1970s raised public awareness of the vulnerability of humans facing extreme weather.<sup>164</sup> The increasing scientific evidence made it impossible to ignore the adverse impacts of growing concentrations of greenhouse gases, especially atmospheric carbon dioxide. As a result, the international community started to take measures to tackle this global environmental threat.

The second period is the "pre-negotiation phase" from 1979 to 1990, when climate change was transformed from a scientific issue to a policy issue with increasing governmental involvement. The milestone that marked the beginning of this new period is the First World Climate Conference, which is regarded as the first action of the international community to address climate change at policy level.<sup>165</sup> One major result of this conference was that a declaration was issued calling upon governments to prevent human-induced activities which would lead to harmful changes in the climate. Another was that it led to establishment of the first international authoritative scientific programme on the issue in 1979, the World Climate Programme.<sup>166</sup> One drawback of this conference was that there were no high-level policy makers participating.<sup>167</sup>

Subsequently, eight inter-governmental conferences were convened from 1985 to 1990 as shown in Appendix I.<sup>168</sup> These conferences attracted more policy makers, raised international concerns and

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<sup>162</sup> Daniel Bodansky, "The History of the Global Climate Change Regime," *International Relations and Global Climate Change* 161 (2001): 23-40. Different from Bodansky, this research amalgamates the second (1979-1988) and third period (1988-1990) of his division into one, because both periods have the same feature of increasing governmental involvement in international climate change conferences.

<sup>163</sup> IPCC, *Climate Change 2007: The Physical Science Basis*, ed. S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller, Contribution of Working Group I to the Fourth Assessment Report of the IPCC (Cambridge, United Kingdom and New York, USA: IPCC, 2007): 98.

<sup>164</sup> See more details at WMO, "World Climate Conferences," accessed 2 March 2017, [https://www.wmo.int/pages/themes/climate/international\\_wcc.php](https://www.wmo.int/pages/themes/climate/international_wcc.php).

<sup>165</sup> Paige Brown, *Climate, Biodiversity, and Forests* (Washington, DC: World Resources Institute and IUCN, 1998): 2.

<sup>166</sup> See more details at WMO, "World Climate Programme," accessed 2 March 2017, <http://www.wmo.int/pages/prog/wcp/wcp.html>.

<sup>167</sup> Bodansky, "The History of the Global Climate Change Regime," 24.

<sup>168</sup> See Appendix I.

moved forward considerably to reaching an international political consensus on this issue. The Second World Climate Conference involved some heads of governments as participants. Furthermore, the World Meteorological Organization (WMO) and the United Nations Environmental Programme (UNEP) worked together to establish an ad hoc intergovernmental organisation to provide scientific assessments of climate change in 1988, the Intergovernmental Panel on Climate Change (IPCC).<sup>169</sup> The milestone at the end of the pre-negotiation period was the ministerial Noordwijk Declaration elaborated the section below.

The third period was the “formal intergovernmental negotiations phase” from 1990 to 1992, when the UNFCCC was adopted. In this period, a scientific report produced by the Intergovernmental Panel on Climate Change (IPCC) paved the way for adoption of the UNFCCC. Therefore, in the following section the Noordwijk Declaration and the IPCC’s first report will be discussed.

### **2.2.1 The Noordwijk Declaration**

This Declaration on Atmospheric Pollution and Climate Change was signed at a ministerial level international conference in November 1989, in Noordwijk, the Netherlands. This Declaration is deemed to be the first high-level intergovernmental conference specifically on the issue of climate change.<sup>170</sup> Representatives from 67 countries attended this conference including the Commission of the European Community and 11 international organisations.<sup>171</sup>

Industrialised countries, including the US, agreed to take measures on concentrating GHGs as soon as possible.<sup>172</sup> Many industrialised countries attending were also ready to make concerted commitments to emission reduction targets.<sup>173</sup> However, Bodansky (2001) disclosed that a major divergence in standpoints emerged between Western countries during the Noordwijk conference.<sup>174</sup> Mostly European countries, as well as Canada, Australia and New Zealand, proposed adopting quantitative limitations on national GHG emissions as the approach used to combat the problems of acid rain and ozone depletion. The US, however, questioned fixed emission reduction targets and timetables, arguing that targets were too rigid, lacked consideration of different national circumstances and would largely

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<sup>169</sup> WMO, “International Collaborations and Partnerships on Climate Change”, accessed 2 June 2016, [https://www.wmo.int/pages/themes/climate/international\\_background.php](https://www.wmo.int/pages/themes/climate/international_background.php).

<sup>170</sup> Bodansky, "The History of the Global Climate Change Regime," 28.

<sup>171</sup> IUCC, "The Noordwijk Ministerial Declaration on Climate Change," accessed 2 March 2017, <http://unfccc.int/resource/ccsites/senegal/fact/fs218.htm>. IUCC stands for Information Unit on Climate Change.

<sup>172</sup> George Bush, "White House Statement on the Ministerial Conference on Atmospheric Pollution and Climate Change," *The American Presidency Project*, 7 November 1989, accessed 15 March 2017, <http://www.presidency.ucs.edu/ws/?pid=17765>.

<sup>173</sup> IUCC, "The Noordwijk Ministerial Declaration on Climate Change."

<sup>174</sup> Bodansky, "The History of the Global Climate Change Regime," 29.

become symbolic eventually. The US, instead, claimed that the focus should be on further scientific research and developing national emission reduction strategies rather than international programmes.

Regarding the forest section, the Noordwijk Declaration proposed to increase global forest cover as a cost-effective method to combat climate change.<sup>175</sup> The Declaration also asked the IPCC to consider the feasibility of achieving a net forest growth of 12 million hectares a year by the beginning of the 21st century.<sup>176</sup>

Regarding sustainable development, the Declaration recognised it as a key principle of a climate treaty.<sup>177</sup> It first recognised the positive impacts of biodiversity protection on climate change mitigation. Second, this declaration noted that stable development of the world economy is a priority in the process of combating climate change. The Declaration also noted the common, but differentiated, responsibilities of states, the sovereign right of states in managing the national natural resources, and the concept of climate change as a common concern of humankind.

More specific work was left to the IPCC and the Second World Climate Conference. The two institutions were asked to set out the issues of negotiations for future climate treaty and protocols. By November 1990, the IPCC and the Second World Climate Conference were expected to come out with the concentration goals for industrialised countries before the year 2000, as the first step of combating climate change. Other issues included actions to deal with GHG emissions, the effects of global warming, financial assistance to developing countries, technology transfer from the North to the South, and sustainable management of forests.

### **2.2.2 The IPCC and its 1990 Report**

Propelled by the overwhelming developments in climate science, the IPCC was established by the UNEP and the World Meteorological Organization in 1988. By officially acknowledging the scientific basis of climate change, the first report of the IPCC in 1990 initially introduced this issue into the international political world after more 100 years of scientific controversies.

The IPCC has three basic working groups with separate missions. Working Group 1 oversees information on climate change. Working Group 2 investigates the potential impacts of climate change

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<sup>175</sup> Höhne et al., "The Rules for Land Use, Land Use Change and Forestry under the Kyoto Protocol - Lessons Learned for the Future Climate Negotiations," 360.

<sup>176</sup> IUCC, "The Noordwijk Ministerial Declaration on Climate Change."

<sup>177</sup> Ibid.

and frames strategies to mitigate or to adapt to climate change.<sup>178</sup> The third working group concentrates on the economic and social dimensions of climate change issues.

The IPCC 1990 report confirmed that fossil fuel combustion from vehicles and industrial activities is one of the main sources of additional carbon dioxide emissions. It also recognised the historic, current and future potential of forestry to combat climate change, emphasising emissions from deforestation and the uptake from reforestation.<sup>179</sup>

This report was later accepted by the United Nations (UN) General Assembly. The UN General Assembly established the Intergovernmental Negotiating Committee (INC) to commence negotiations on the terms of a Framework Convention on Climate Change. The final draft of the Framework Convention on Climate Change was set to be completed at the United Nations Conference on Environment and Development (“the Earth Summit”) held in Rio in 1992. At the Earth Summit 154 governments signed the UNFCCC (the Convention). The Convention set the basic concepts, principles and rules for the climate change issue. This chapter will now focus on the terms of the Convention concerning the forest sector.

### **2.3 The UNFCCC and Forest Carbon Sinks**

The ultimate goal of the Convention was to “stabilise greenhouse gas concentrations in the atmosphere at the level that would prevent dangerous, human-induced climate change”.<sup>180</sup> When looking back, the UNFCCC secretary recognises that there was scientific uncertainty about climate change in 1994, when the UNFCCC entered into force.<sup>181</sup> However, in the interest of human safety, policy makers took initiatives and established the UNFCCC to bind member states to act together. To deal with this most complicated and urgent of environmental issues, the Conference of the Parties (COP) to the UNFCCC and its subsidiary bodies have carried out numerous international environmental negotiations in the past 25 years (1990-2015). As discussed below, the forest sector has been an essential issue in those meetings.

This section first examines the UNFCCC provisions on forest carbon sinks in Section 2.3.1. Then Sections 2.3.2 reviews the decision-making mechanism of the UNFCCC legal framework, which paves

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<sup>178</sup> Alan D Hecht and Dennis Tirpak, "Framework Agreement on Climate Change: A Scientific and Policy History," *Climatic Change* 29, no. 4 (1995): 371-402.

<sup>179</sup> IPCC, "Climate Change: The IPCC Scientific Assessment," accessed 2 March 2017, [http://www.ipcc.ch/publications\\_and\\_data/publications\\_ipcc\\_first\\_assessment\\_1990\\_wg1.shtml#UndkUPlwo2h:xxxii](http://www.ipcc.ch/publications_and_data/publications_ipcc_first_assessment_1990_wg1.shtml#UndkUPlwo2h:xxxii).

<sup>180</sup> Art. 2, "United Nations Framework Convention on Climate Change," UN (1992).

<sup>181</sup> UNFCCC, "First Steps to a Safer Future: Introducing the United Nations Framework Convention on Climate Change," accessed 15 April 2017, [https://unfccc.int/essential\\_background/convention/items/6036.php](https://unfccc.int/essential_background/convention/items/6036.php). Art. 3 (3), "United Nations Framework Convention on Climate Change," UN (1992), states that "... lack of full scientific certainty should not be used as a reason for postponing such measures..."

the way for discussions in the following sections about decisions on forest carbon projects. Sections 2.3.3 and 2.3.4 review how the forest sector is stipulated in the two regulatory instruments of the UNFCCC: national communications and parties' commitments.

### 2.3.1 Forest Carbon Sinks: Mitigation and Adaption

The UNFCCC embraces a broad range of human activities and environment that may contribute to climate change mitigation and adaptation. Climate change mitigation refers to reducing emissions and enhancing sinks.<sup>182</sup> Climate change adaptation refers to enhancing the natural and human capacities to adapt to the effects of climate change.<sup>183</sup> Adaption activities aim at enhancing climate resilience and are more important for the least developed countries that are most vulnerable to catastrophes caused by climate change.

The UNFCCC stipulates sectors that can contribute to climate change mitigation and adaption. Those sectors can be categorised into two groups. The first group is *sinks and reservoirs* of GHGs that can absorb and remove GHGs from the atmosphere.<sup>184</sup> The second group is *sources* of greenhouse gas emissions, which generate GHGs. Sectors in the sources' group include energy, transport, industry, agriculture, forestry and waste management. Sinks and reservoirs mainly comprise processes or components of the ecosystems such as biomass, forests and oceans that can remove GHGs from the atmosphere and store them in the terrestrial, coastal and marine ecosystems.<sup>185</sup>

As shown above, the forest sector is in both the sources and sinks groups. That is because forests can both absorb and emit carbon dioxide. The vegetation and soil in the forests can absorb and store carbon through the photosynthesis process. Carbon dioxide is a major human-induced GHG resulting from fossil fuel consumption. In the global carbon cycle, which refers to carbon flux among maritime ecosystems, territorial ecosystems, and the atmosphere, forests play a significant role.<sup>186</sup> The remaining forest ecosystems in the world, which cover approximately thirty percent of the Earth's land surface (just over four billion hectares), contain fifty percent more carbon than that in the

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<sup>182</sup> The IPCC provided a more comprehensive definition, mitigation: "technological change and substitution that reduce resource inputs and emissions per unit of output. Although several social, economic and technological policies would produce an emission reduction, with respect to Climate Change, mitigation means implementing policies to reduce greenhouse gas emissions and enhance sinks." Glossary, IPCC, *Climate Change 2007: Synthesis Report* (IPCC, 2007), accessed 15 March 2017, [https://www.ipcc.ch/publications\\_and\\_data/ar4/syr/en/annexessglossary-j-p.html](https://www.ipcc.ch/publications_and_data/ar4/syr/en/annexessglossary-j-p.html).

<sup>183</sup> The IPCC provided a more comprehensive definition, adaptation: "initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects. Various types of adaptation exist, e.g. *anticipatory* and *reactive*, *private* and *public*, and *autonomous* and *planned*. Examples are raising river or coastal dikes, the substitution of more temperature-shock resistant plants for sensitive ones, etc." Ibid.

<sup>184</sup> Preface, Art. 1 (7), (8), "United Nations Framework Convention on Climate Change," UN (1992).

<sup>185</sup> Art. 3 (3) and 4 (c), (d), *ibid*.

<sup>186</sup> Rémi D'Annunzio, Erik Lindquist, and Kenneth G MacDicken, *Global Forest Land-Use Change from 1990 to 2010: An Update to a Global Remote Sensing Survey of Forests* (FAO, 2014): 2.

atmosphere.<sup>187</sup> Conversely, the stored carbon in the forest flora and fauna can be released back into the atmosphere through the cellular respiration process, fire or decay. When releasing carbon back to the atmosphere, the forests increase the global warming effects.

Forests can contribute to both climate change mitigation and adaptation as recognised by the IPCC report.<sup>188</sup> Forest carbon projects are currently being developed for climate change mitigation. Corresponding with the source-and-sink distinction, the UNFCCC adopts two basic approaches for climate change mitigation.<sup>189</sup> One is to reduce GHGs from emitting sources. The other is to enhance the sequestration of GHGs in sinks. Forestry can reduce emissions from deforestation and enhance carbon sequestration by afforestation and reforestation.

### **2.3.2 The Decision-Making Mechanism of the UNFCCC**

The UNFCCC designed a decision-making system for the Conference of the Parties (COP) to the UNFCCC to communicate and update decisions at least annually to promote enforcement of the Convention. The UNFCCC bodies consist of four permanent bodies and temporary subsidiary bodies.<sup>190</sup> The four permanent bodies were established by the Convention. Their mission and work continue as long as the Convention is in force. The temporary subsidiary bodies, on the contrary, work only for special purposes.

Among the four permanent bodies there are two decision-making bodies. The supreme decision-making body is the Conference of the Parties to the Convention (COP). From 1995 to 2016, it has held twenty-two conferences and the documents produced are called COP decisions and COP reports.<sup>191</sup> It is in charge of adopting institutional and administrative arrangements to achieve the objectives of the Convention and reviewing the implementation of the Convention.

The second decision-making body is the Conference of the Parties that serves as the Meeting of the Parties to the Kyoto Protocol (CMP), and other protocols in future. The CMP consists only of the

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<sup>187</sup> Robert O'Sullivan Charlotte Streck, Toby Janson-Smith, and Richard Tarasofsky, "Climate Change and Forestry: An Introduction," in *Climate Change and Forests: Emerging Policy and Market Opportunities*, ed. Robert O'Sullivan Charlotte Streck, Toby Janson-Smith, and Richard Tarasofsky (Brookings Institution Press, 2009), 4. FAO, *Global Forest Resources Assessment 2005: Progress Towards Sustainable Forest Management*, FAO Forestry Paper 147 (Rome: FAO, 2005), accessed 16 July 2017, <http://www.fao.org/docrep/008/a0400e/a0400e00.htm>: 147.

<sup>188</sup> Section 3.5, IPCC, *Climate Change 2014: Synthesis Report*, ed. R.K. Pachauri and L.A. Meyer (Geneva, Switzerland: IPCC, 2014), accessed 15 March 2017, <http://www.ipcc.ch/report/ar5/syr/>: 90.

<sup>189</sup> Art. 4, para. 1 (a), (b) and para. 2, "United Nations Framework Convention on Climate Change," UN (1992). Art.6 and 7, "Kyoto Protocol to the United Nations Framework Convention on Climate Change," (1997).

<sup>190</sup> See the structure of the UNFCCC bodies at UNFCCC, "Bodies," accessed 2 March 2017, <http://unfccc.int/bodies/items/6241.php>.

<sup>191</sup> "Documents List," accessed 2 March 2017, [http://unfccc.int/documentation/document\\_lists/items/2960.php](http://unfccc.int/documentation/document_lists/items/2960.php).



Parties to the protocol.<sup>192</sup> The CMP meets at the same period with the COP.<sup>193</sup> It makes decisions mainly to promote implementation of the Kyoto Protocol.<sup>194</sup> Parties to the Kyoto protocol, or to any other potential protocols in future, must be parties of the Convention. This assures the unity of the CMP's decisions with the decisions of the COP to the UNFCCC. Since 2005, when the Kyoto Protocol entered into force, the CMP has had 11 rounds. It produces binding documents include CMP decisions, COP/MOP reports and CMP reports.

In addition, there are two permanent subsidiary bodies. One is the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the other is the Subsidiary Body for Implementation (SBI). The SBSTA provides timely information and advice on science- and technology-related issues.<sup>195</sup> The SBI assesses and reviews the effectiveness of implementation of the Convention and its protocol.<sup>196</sup> Since 1995, 44 sessions of SBSTA and SBI reports have been provided.<sup>197</sup> Reports of these two subsidiary bodies must be submitted to the COP to be reviewed and guided.<sup>198</sup> The SBSTA and the SBI also serve the CMP.

The temporary subsidiary bodies can be established by the COP or the CMP for special purposes. For example, the Ad Hoc Working Group on the Durban Platform for Enhanced Action, started from 2012 (ADP); the Ad Hoc Working Group on Long-term Cooperative Action (AWG-LCA) under the Convention from 2008; and the Ad Hoc Working Group on Further Commitments from Annex I Parties under the Kyoto Protocol (AWG-KP) from 2006.<sup>199</sup> Except for these active groups, there were several other special groups once in force: the INC, Intergovernmental Negotiating Committee (1991-1995); and the AG13, Ad Hoc Group on Article 13 (1998-1995); the Ad Hoc Group on the Berlin Mandate (1997-1995). The Ad Hoc groups provide reports, technical chapters, and web-only documents.

### **2.3.3 National Communications of the Parties over the Forest Sector**

The instrument “national communication” is adopted by the Convention to keep track of the Parties’ GHGs inventories and their mitigating measures. All parties, including industrialised developed

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<sup>192</sup> Art. 17. Para. 5. "United Nations Framework Convention on Climate Change," UN (1992).

<sup>193</sup> UNFCCC, "Kyoto Protocol Bodies," accessed 2 March 2017, [http://unfccc.int/kyoto\\_protocol/kyoto\\_protocol\\_bodies/items/2772.php](http://unfccc.int/kyoto_protocol/kyoto_protocol_bodies/items/2772.php).

<sup>194</sup> Art. 17, para. 4, "United Nations Framework Convention on Climate Change," UN (1992).

<sup>195</sup> UNFCCC, "What Is the SBSTA?," accessed 2 March 2017, <http://unfccc.int/bodies/body/6399/php/view/documents.php>.

<sup>196</sup> "What Is the SBI?," accessed 2 March 2017, <http://unfccc.int/bodies/body/6406.php>

<sup>197</sup> SBSTA and SBI documents are available at "Session Archive: Meetings," accessed 2 March 2017, <http://unfccc.int/meetings/items/6237.php?filtbody=57>.

<sup>198</sup> Art.7 (j), "United Nations Framework Convention on Climate Change," UN (1992).

<sup>199</sup> 'Annex I Parties' refer to parties that are listed in Annex I to the Convention with an emission-reduction or emission-limitation commitment under the Kyoto Protocol and a party to the Convention.

countries and developing countries, are required to report inventories of their GHGs sources and sinks. IPCC issued relevant guidelines to develop internationally agreed formalities for national communications.<sup>200</sup> These guidelines provide comprehensive instructions on formulating an inventory of the emissions and removals from forest and land-use change activities.<sup>201</sup> The land-use change and forest sector is regarded as having “methodological limitations, lack of data or low reliability of data, and leading to higher uncertainty,” for Parties not included in Annex I to the Convention, namely, developing countries.<sup>202</sup>

### **2.3.4 Parties’ Commitments in the Forest Sector**

The second regulatory instrument of the Convention for the Parties is the Parties’ commitments, which comprises various aspects of climate change mitigation and adaption.<sup>203</sup> The Convention recognised forestry activities as a method for the Parties to meet their commitments.<sup>204</sup> The Convention aims to stimulate all Parties to promote and to cooperate in sustainable management, conservation and enhancement of forest sinks of GHGs.<sup>205</sup>

Additionally, industrialised countries are required to provide new and additional financial resources and environmentally sound technologies to developing countries, considering their priorities in poverty eradication.<sup>206</sup> The Convention designated the Global Environment Facility (GEF) as an interim financing mechanism. The GEF was conceived in 1989, with a goal of financing developing countries on global environmental issues, including climate change and biodiversity loss.

The Parties’ commitments on GHG emission reduction are further developed and enforced by the Kyoto Protocol, which was adopted in 1997. The Kyoto Protocol is one of the main drivers of the international mitigating activities towards climate change. More detailed information will be discussed in the following sections.

## **2.4 Kyoto Protocol and Forest Carbon Credits**

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<sup>200</sup> The IPCC 1995 Guidelines for National Greenhouse Inventories was revised in 1996 and 2006. See IPCC, "1996 Guidelines for National Greenhouse Inventories," accessed 2 March 2017, <http://www.ipcc-nggip.iges.or.jp/public/gl/invs1.html>. "2006 Guidelines for National Greenhouse Inventories," accessed 2 March 2017, <http://www.ipcc-nggip.iges.or.jp/public/2006gl/>.

<sup>201</sup> Para. 5 (b), Annex, "Modalities for the Accounting of Assigned Amounts under Article 7, Paragraph 4, of the Kyoto Protocol," UNFCCC (2005): 24. "Decision 24/CP.19: Revision of the UNFCCC Reporting Guidelines on Annual Inventories for Parties Included in Annex I to the Convention," (2013).

<sup>202</sup> UNFCCC Consultative Group of Experts on National Communications from Parties Not Included in Annex I (NAI Parties) to the Convention, "GHG Inventory in Land-Use Change and Forestry Sector: Handbook on Land-Use Change and Forestry Sector," accessed 2 March 2017, [http://unfccc.int/resource/cd\\_roms/na1/ghg\\_inventories/](http://unfccc.int/resource/cd_roms/na1/ghg_inventories/): 5.

<sup>203</sup> Art.4 (1), "United Nations Framework Convention on Climate Change," UN (1992).

<sup>204</sup> Art.4 (1) a, *ibid*.

<sup>205</sup> Art.4 (1) d, *ibid*.

<sup>206</sup> Art.4 (3) and (7), *ibid*.

From 1992, elaboration and implementation of the UNFCCC became the focus of negotiations. This period is the so-called “post-agreement phase”.<sup>207</sup> It lasted until 1997, when the Kyoto Protocol was finally adopted as the implementation rules of the UNFCCC. Afterwards, a few milestone decisions were adopted under the UNFCCC decision-making system to further enforce the Kyoto Protocol, which will be discussed in the next section. This section first briefly reviews the market-based carbon trading mechanisms with a focus on the Clean Development Mechanism. Second, it analyses the public concerns at the time about applying market-based mechanisms on the forest sector in the Kyoto Protocol.

#### **2.4.1 The Kyoto Protocol Market-based Mechanisms**

The Kyoto Protocol to the UNFCCC (the KP) was adopted at COP 3 in 1997 in pursuit of the ultimate objective of the Convention.<sup>208</sup> The KP is the first international agreement that aimed to place quantified GHG emission limits on industrialised countries in the Annex I to the UNFCCC for the first and second commitment periods from 2008 to 2020. To facilitate the Annex I countries to meet their commitments in a cost-effective way, the KP endorsed three market-based mechanisms: The International Emission Trading, the Joint Implementation (JI) and the Clean Development Mechanism (CDM). These three market-based mechanisms constituted the basic legal framework of international carbon exchange and enabled the international transaction of emission reductions between parties to the UNFCCC.

Theoretically, the market-based mechanisms in the Kyoto Protocol are regarded as part of a new managerial system established to enhance compliance with international treaties.<sup>209</sup> They were introduced to replace traditional enforcement approaches, which respond to the non-compliance of a country with blunt and severe sanctions such as military action or economic sanctions.<sup>210</sup> Traditional approaches are based on the notion that countries are sovereign entities with unrestricted freedom and intentionally commit to non-compliance of an international treaty. The new approach recognises that the non-compliance or insufficient compliance by a country may simply result from inadequate complying capacity. As a result, the new approach differentiates the obligations of countries based on their capacity to comply and designs flexible mechanisms for countries to meet their commitments in more cost-effective and cooperative ways.

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<sup>207</sup> Bodansky, "The History of the Global Climate Change Regime," 28.

<sup>208</sup> Para. 4, Art. 17, "Kyoto Protocol to the United Nations Framework Convention on Climate Change," UN (1997).

<sup>209</sup> Michael G Faure and Jurgen Lefevere, "Compliance with Global Environmental Policy: Climate Change and Ozone Layer Cases," in *The Global Environment Institutions, Law and Policy*, ed. Regina S. Axelrod and Stacy D. VanDeveer (Los Angeles, London, New Delhi, Singapore, Washington, DC: CQ Press, 2014), 110-32.

<sup>210</sup> *Ibid.*, 112.

### 2.4.1.1 International Emission Trading

As provided in Article 17 and Annex B of the Kyoto Protocol, the International Emission Trading (IET) mechanism assigns a certain amount of emission limitations to the Parties to the UNFCCC for the first commitment period, 2008 to 2012. The emission caps for the second commitment (2012-2020) are provided in the Doha Amendment.<sup>211</sup> These emission limitations can also be interpreted as the allowance of the parties to emit GHGs.<sup>212</sup>

In the KP IET, the parties can sell their allowances to each other. A single unit of the assigned amount of emission for international emission trading is called the Assigned Amount Unit (AAU). One unit of AAU is equivalent to one tonne of CO<sub>2</sub>. For example, Annex B to the KP shows that Austria is limited to emitting ninety-two percent of the amount it emitted in 1990 every year from 2008 to 2012. It can also be understood as Austria is permitted to emit that amount of GHGs per year by 2012. Austria is authorised to sell its unused assigned amount of emissions to other obligatory countries whose emissions would exceed its limits.

Although the IET entered into force in 1999, the first practiced international level emission trading scheme was the EU Emission Trading System (ETS) in 2005. To have a better understanding of the KP IET, a comparison with the EU ETS is conducted on their regulatory similarities. As Woerdman (2008) concluded, the KP IET and EU ETS share two regulatory similarities.<sup>213</sup>

First, they allocate emission caps to polluters, namely the maximum amount of emissions for a certain period. Within the cap, emissions are free of charge. If the emissions from a polluter are below the cap, the remaining amount of that period can be sold as emission rights to other polluters. If the polluter's emissions exceed the cap, the excess part needs to be bought in an auction. Second, they apply the "grandfathering" method to allocate emission caps. The "grandfathering" method calculates the emission caps based on the historical emissions of the polluters. For the polluters, the higher the emission caps, the more emission rights they could receive. The "grandfathering" method has raised many concerns among scholars. More details are provided in the section 2.6.

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<sup>211</sup> UNFCCC, "Status of the Doha Amendment," accessed 20 June, [https://unfccc.int/kyoto\\_protocol/doha\\_amendment/items/7362.php](https://unfccc.int/kyoto_protocol/doha_amendment/items/7362.php).

<sup>212</sup> "International Emissions Trading," accessed 2 March 2017, [http://unfccc.int/kyoto\\_protocol/mechanisms/emissions\\_trading/items/2731.php](http://unfccc.int/kyoto_protocol/mechanisms/emissions_trading/items/2731.php).

<sup>213</sup> Edwin Woerdman, Alessandra Arcuri, and Stefano Clò, "Emissions Trading and the Polluter-Pays Principle: Do Polluters Pay under Grandfathering?," *Review of Law and Economics* 4, no. 2 (2008): 566.

### 2.4.1.2 Joint Implementation

The Joint Implementation mechanism (JI) is another market-based mechanism regulated in the KP. It is provided in Article 6 of the Kyoto Protocol, which allows Annex I Parties to exchange carbon credits between each other. Those carbon credits are particularly called the Emission Reduction Units (ERUs).<sup>214</sup> An ERU is also equivalent to one tonne of CO<sub>2</sub>. A JI project should be operated in two or more Annex 1 countries by at least two entities. The operating entities can be individuals, non-governmental bodies, academic institutions or other private sectors from Annex 1 countries. To implement a JI project, the project operating entity must pass a rigorous approving procedure. Some pilot activities implemented jointly were launched in developing countries to test the efficacy of JI including forest and land-use change projects, which were analysed by scholars as lessons for REDD+.<sup>215</sup>

### 2.4.1.3 Clean Development Mechanism

The Clean Development Mechanism (CDM) allows an Annex I Party to operate a project in developing countries and earn certified emission reductions (CER).<sup>216</sup> For all the three types of Kyoto units introduced, AAU, ERU and CER, each has a unique electronic serial number, which reveals the original project that produced the units.<sup>217</sup>

The CDM was designed to enhance cooperation between the developing and industrialised Parties to the Convention.<sup>218</sup> On the one hand, it aimed to provide industrialised countries with a more flexible and cost-effective way to meet their emission reduction commitments, and on the other hand, to assist developing countries in achieving sustainable development by transferring finance and technology from the North to the South. Additionality is a criterion for CDM projects, which guarantees that the generated emission reductions from CDM projects would be the offset of the additional emissions from the investing industrialised countries rather than a contribution to climate change.<sup>219</sup>

As much as the flexibility of market-based mechanisms may be praised, the KP is also criticised for its ambiguity on several issues, including forestry.<sup>220</sup> The KP did not clearly stipulate how to

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<sup>214</sup> Art. 6, "Kyoto Protocol to the United Nations Framework Convention on Climate Change," UN (1997).

<sup>215</sup> Brown, *Climate, Biodiversity, and Forests*, 4. Caplow et al., "Evaluating Land Use and Livelihood Impacts of Early Forest Carbon Projects: Lessons for Learning About REDD+," 152-67.

<sup>216</sup> Art. 12, "Kyoto Protocol to the United Nations Framework Convention on Climate Change," UN (1997).

<sup>217</sup> Gurmit Singh, *Understanding Carbon Credits* (Aditya Books Pvt. Ltd., 2009), 310.

<sup>218</sup> UNFCCC, "CDM Benefits," accessed 2 March 2017, [http://cdm.unfccc.int/about/dev\\_ben/index.html](http://cdm.unfccc.int/about/dev_ben/index.html).

<sup>219</sup> Sandra Greiner and Axel Michaelowa, "Defining Investment Additionality for CDM Projects—Practical Approaches," *Energy Policy* 31, no. 10 (2003): 1007-15. Schneider, "Is the CDM Fulfilling Its Environmental and Sustainable Development Objectives? An Evaluation of the CDM and Options for Improvement," 1685-703.

<sup>220</sup> Brown, *Climate, Biodiversity, and Forests*, 1.

implement forestry-related carbon projects due to the doubts on the role of forests in halting global warming. Public concerns on this issue cover various perspectives. The next section reviews debates from four perspectives that would assist in clarifying the role of forest-related activities in mitigating climate change and sustainable development.

#### **2.4.2 Public Concerns on Market-based Forest Carbon Credits**

Although the KP was adopted as early as 1997, it took another eight years for it to come into force in 2005. This long-term preparation period can be attributed to two reasons. First, the protocol's commencement conditions required ratifications by at least fifty-five Parties to the UNFCCC. Amongst these, the Annex I parties accounted for at least fifty-five percent of the global carbon dioxide emissions in 1990. In 2000, the Bush administration replaced the Clinton administration and retracted the US's signature to the KP. The US's withdrawal made meeting the KP's commencement condition such a challenge that all the other Annex I Parties would have to ratify to bring it into force. However, Parties were cautious about ratifying when confronted by the rigid schedule and quantified targets set in the KP. Additionally, the innovative market mechanisms of the KP at that time left many uncertainties.

Before the KP entered into force, much had been argued about whether to endorse the forest sector within the market-based mechanisms. The controversy lasted even to COP 19 in 2013, where parties argued whether to continue applying market-based approaches to the forest sector or to convert to non-market approaches.<sup>221</sup>

Following Brown (1998), this research believes that a study of the historical debates and negotiations will contribute to a better understanding of the existing laws and policies.<sup>222</sup> It will help to recognise the difficulties of regulating the forest carbon project, to analyse the developments of existing laws and policies and to investigate what are the remaining problems in the existing regulation. Therefore, the following sections review the public debates concerning the following four issues: first, whether market mechanisms should be applied to the forest sector; second, whether forest carbon projects can contribute to mitigating climate change; third, what a project's impact is on indigenous peoples' rights; and finally, whether the environmental risks of forest carbon projects can be controlled by policies.

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<sup>221</sup> Liechtenstein Environmental Integrity Group (EIG), Mexico, Monaco, Republic of Korea, Switzerland, "Submission to SBSTA 39: Non-Market-Based Approaches," (2013), 6. Item 12 (b), UNFCCC SBSTA, "Provisional Agenda for SBSTA 38: Views on Non-Market-Based Approaches," (2013).

<sup>222</sup> Brown, *Climate, Biodiversity, and Forests*, 353.

### 2.4.2.1 Disagreements on Employing Market Mechanisms for Forest Protection

Forests provide a variety of ecosystem services to humans, including ecosystem functions such as air purification, nutrient cycling, and cultural and recreational amenities, as well as alleviating land degradation and desertification.<sup>223</sup> Forests harbour the largest proportion of the world's terrestrial biodiversity and provide habitats for various species.<sup>224</sup>

Thus, scholars that favour market-based mechanisms prefer to employ the carbon market to provide funding for forest conservation and sustainable forest management. Robert Bonnie and colleagues (2002) advocated that the Kyoto Protocol market-based mechanisms should provide economic incentives for nations to protect terrestrial ecosystems.<sup>225</sup> Investors and project developers prefer industrial trees plantations because such monoculture plantations can lead to higher, short-term economic benefits from three sources.<sup>226</sup> First, monoculture plantations cost less when planting and tending the saplings of the trees because of uniformity. Second, industrial trees have a high yield of timber or non-timber forest products, such as fibre, which can be received after logging the planted trees at the end of the project period. Third, industrial trees, such as eucalyptus and pine, can rapidly grow and receive more carbon removals within a certain period.

Other scholars and NGOs, however, rebutted this incentive idea. One reason was that applying the CDM market mechanism to forests had caused a deterioration in environmental conditions in developing countries by large-scale monoculture industrial tree plantations which have uniform plantation structure and simple tree species.<sup>227</sup> This type of plantation largely requires mechanical or chemical weeding, pesticides, intensive fertilisation, water and nutrition from the soil, which will destroy the habitats of native tree species.<sup>228</sup> With mechanised harvesting in short rotations and the use of non-native species or even invasive species, the harm to land and biodiversity can be multiplied. The monoculture plantations are more vulnerable to stress (pests, fire, and climate change) than diverse plantations and, therefore, are more likely to become a GHG emission source in an event of major

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<sup>223</sup> Joint Liaison Group of the Rio Conventions, "Forest: Climate Change, Biodiversity and Land Degradation," 3.

<sup>224</sup> J. Parrotta, C. Wildburger, and S. Mansourian, *Understanding Relationships between Biodiversity, Carbon, Forests and People: The Key to Achieving REDD Objectives*, A Global Assessment Report Prepared by the Global Forest Expert Panel on Biodiversity, Forest Management, and REDD+ (Vienna: International Union of Forest Research Organizations (IUFRO), 2012): 5.

<sup>225</sup> R. Bonnie, M. Carey, and A. Petsonk, "Protecting Terrestrial Ecosystems and the Climate through a Global Carbon Market," *Philosophical Transactions of the Royal Society of London Series A: Mathematical, Physical and Engineering Sciences* 360, no. 1797 (2002): 1853-73.

<sup>226</sup> In a forest carbon project, short-term economic benefits include carbon revenues from the sale of forest carbon offsets, the rent for the project land, and the payment for wood products. The long-term social and environmental benefits include improving the local community's livelihood, reducing poverty, and conserving forest biodiversity.

<sup>227</sup> Fern, *Sinking the Kyoto Protocol: The Links between Forests, Plantations and Carbon Sinks* (Fern, 2000), accessed 17 March 2017, <http://www.fern.org/publications/briefing-note/sinking-kyoto-protocol>: 9-11.

<sup>228</sup> *Ibid.*

disturbance.<sup>229</sup> Monoculture industrial tree plantations may displace natural primary forests, which have been proven to store “significantly more” carbon and more resilient to disturbance and perturbation.<sup>230</sup>

#### 2.4.2.2 Disagreements on the Function of Forests in Mitigating Climate Change

The IPCC (2001) estimates that the potential of biomass mitigation by 2050 is equal to approximately ten to twenty percent of projected fossil-fuel emissions in the same period.<sup>231</sup> If forests were kept out of the Kyoto Protocol, people were concerned that the great potential of forests in sequestering carbon would not be used to mitigate climate change.<sup>232</sup> Furthermore, efforts of other mitigating activities may be neutralised by illegal logging.

Oponents contradicted with some compelling ideas: the technological difficulties of measuring carbon flux in forest biomasses; the non-permanent feature of the forest storage of carbon-based GHGs; the diversion that forest carbon projects may cause from private investments in energy-efficiency technology; and the leakage of forest protection outside a project area. The following paragraphs will give more detailed discussions about these ideas.

First, some scholars pointed out that even though forests play a major role in the global carbon cycle, it is almost impossible to artificially take advantage of them in practice. This is because of the technology constraints in measuring carbon exchange between forests and the atmosphere. To trade carbon credits from forest carbon projects, the amount of carbon sequestered and emitted by forest biomasses needs to be accurately measured, precisely reported and fairly verified, for which non-Annex I parties may require technical, financial and institutional assistance.<sup>233</sup> It was suggested that a global measuring system including all terrestrial ecosystems, “both managed and unmanaged”, should be applied to minimise emitting sources and to avoid leakage.<sup>234</sup> However, the current technology of estimating and verifying the carbon flux in forest biomasses remains highly uncertain.

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<sup>229</sup> Parrotta, Wildburger, and Mansourian, *Understanding Relationships between Biodiversity, Carbon, Forests and People: The Key to Achieving REDD Objectives*, 65.

<sup>230</sup> Brian Walker and Will Steffen, "An Overview of the Implications of Global Change for Natural and Managed Terrestrial Ecosystems," *Conservation Ecology* 1, no. 2 (1997): 15.

<sup>231</sup> IPCC, *Climate Change 2001: Synthesis Report*, ed. Robert T. Watson and the Core Writing Team, A Contribution of Working Groups I, II, and III to the Third Assessment Report of The Intergovernmental Panel on Climate Change (Cambridge, United Kingdom, and New York, NY, USA: Cambridge University Press, 2001), 75 and 110.

<sup>232</sup> Sebastian Scholz and Ian Noble, "Generation of Sequestration Credits under the CDM," in *Legal Aspects of Implementing the Kyoto Protocol Mechanisms: Making Kyoto Work*, ed. David Freestone and Charlotte Streck (Oxford: Oxford University Press, 2005), 265-80.

<sup>233</sup> Robert T. Watson et al., *Land Use, Land-Use Change and Forestry: A Special Report of the Intergovernmental Panel on Climate Change - Summary for Policymakers* (Geneva, Switzerland: IPCC, 2000): 12.

<sup>234</sup> IGBP Terrestrial Carbon Working Group, "The Terrestrial Carbon Cycle: Implications for the Kyoto Protocol," *Science* 280, no. 5368 (1998): 1394.



Second, opponents claim that even though a passable technological method can be identified, and a certain amount of stored carbon can be credited, it is still problematic to maintain the actual value of the forest-based emission reductions. This is because the vegetation and soil in forests, which can absorb and store GHGs, can also release the credited emission reductions back into the atmosphere.<sup>235</sup> Natural or human-induced forest disasters such as fires can significantly affect forest carbon stocks.<sup>236</sup> For these reasons, the carbon stored in forests is labelled as temporary, non-permanent storage, or reversible.<sup>237</sup> Therefore, countries bear the responsibility to replace temporary emission reductions after their validities expire. More discussions on this issue will be conducted in Section 2.7.4.

Regarding the non-permanent feature of forest carbon storage, Kirschbaum (2006) argues that the temporary carbon storage of sinks may reduce the cumulative temperature change but it may heavily worsen climate change by releasing the stored carbon in a particular year, when natural disasters happen.<sup>238</sup> In response, Dornburg and Marland (2008) argue that the temporary carbon sequestration of forests can buy some time for technological innovations to address climate change.<sup>239</sup> Dornburg and Marland (2008) believe that the world is at a stage to be open to all possible ways to mitigate climate change. Trees can be planted to temporarily store carbon and be harvested a few years later as biofuels. The stored carbon may be released into the atmosphere. However, biofuel may be a greener substitute for emission-intensive fossil fuels and can prevent burning existing natural forests as fuels. Furthermore, plantations can also be harvested and turned into relatively permanent carbon offsets such as furniture (as long as the furniture is not burned after use). In essence, regardless of the non-permanent feature, forest carbon projects can reduce the adverse impacts of climate change until scientific and technological developments achieve better solutions.

Third, there is the criticism that the inclusion of forest carbon projects may stifle the existing investment in energy efficiency technologies from the private sector. Boyd, Gutierrez et al. (2007) claimed that employing tree plantations to absorb carbon is not a final answer for all climate change

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<sup>235</sup> R.K. Dixon et al., "Carbon Pools and Flux of Global Forest Ecosystems," *ibid.* 263, no. 5144 (1994): 187. Brown et al., "Changes in the Use and Management of Forests for Abating Carbon Emissions: Issues and Challenges under the Kyoto Protocol," 1954.

<sup>236</sup> FAO, *Global Forest Resources Assessment 2010: Main Report*, FAO Forestry Paper (Rome, 2010), accessed 16 July 2017, <http://www.fao.org/forestry/fra/fra2010/en/>: 66.

<sup>237</sup> Watson et al., *Land Use, Land-Use Change and Forestry: A Special Report of the Intergovernmental Panel on Climate Change - Summary for Policymakers*, 10.

<sup>238</sup> Miko U. F. Kirschbaum, "To Sink or Burn? A Discussion of the Potential Contributions of Forests to Greenhouse Gas Balances through Storing Carbon or Providing Biofuels," *Biomass and Bioenergy* 24, no. 4 (2003): 297-310.

<sup>239</sup> Veronika Dornburg and Gregg Marland, "Temporary Storage of Carbon in the Biosphere Does Have Value for Climate Change Mitigation: A Response to the Paper by Miko Kirschbaum," *Mitigation and Adaptation Strategies for Global Change* 13, no. 3 (2008): 211-17.

issues.<sup>240</sup> The reason for this claim is twofold. Primarily, suitable land for forest carbon projects is limited and there is a limit on the amount of carbon that can be sequestered per hectare of land. Moreover, the real challenge to human beings' existence is the limited energy resources of fossil fuels and the main cause of atmospheric GHGs is the increasing consumption of energy products. Therefore, renewable green energy is the future for coming generations. However, for the allure of increasing carbon sequestration while preserving forests, investors from industrialised countries may invest in tree plantations rather than energy efficiency.<sup>241</sup>

Fourth, opponents also assert that forest carbon projects may lead to deforestation and forest degradation outside the project area. This is called leakage. For instance, logging companies and local people may give up their cutting rights in one place on the condition of receiving compensation. But they may legally or illegally log in another place or in the future. To monitor such a leakage will require a high level of disclosure of companies' businesses and close observation of local people's conduct. However, it is unlikely that companies will cooperate or give up their logging business. Moreover, governments with limited resources can hardly cover individual or collective illegal logging in a large area. In fact, more than fifty percent of timber exports from Brazil, Indonesia and Cameroon are from illegal logging.<sup>242</sup> Such deforestation and forest degradation can significantly accelerate carbon emissions from vegetation and soil in forests and lead to considerable biodiversity loss.

The four critical arguments above reveal that forest carbon projects have a risk to release the absorbed carbon back to the atmosphere when the planted trees are burnt. That is why the current Kyoto protocol and the CDM regulate a temporary validity for forest carbon offsets to limit and monitor investments on this type of projects.<sup>243</sup> I disagree with giving all forest carbon offsets temporary credits and with limiting investments on forest carbon projects, whereas my disagreement is based on a precondition that to value forest carbon projects by their contributions to sustainable development and to consider their multiple ecosystem benefits.<sup>244</sup> When taking sustainable development as the benchmark, forest carbon projects should plant trees that have more benefits to the ecosystems, the intention being that the trees remain in the ground for a long time rather than being logged or burned. In this case, emission reduction becomes one of co-benefits of forest carbon projects and policy-makers should properly value other co-benefits from forest carbon offsets for the environment and the local society.

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<sup>240</sup> Emily Boyd, Maria Gutierrez, and Manyu Chang, "Small-Scale Forest Carbon Projects: Adapting CDM to Low-Income Communities," *Global Environmental Change* 17, no. 2 (2007): 250-59.

<sup>241</sup> Richard G. Newell, William A. Pizer, and Daniel Raimi, "Carbon Markets 15 Years after Kyoto: Lessons Learned, New Challenges," *The Journal of Economic Perspectives* 27, no. 1 (2013): 137.

<sup>242</sup> Fern, *Sinking the Kyoto Protocol: The Links between Forests, Plantations and Carbon Sinks*, 11.

<sup>243</sup> See more discussions on the temporary validity in Sections 2.5.2 and 2.7.4.

<sup>244</sup> IPCC, *Climate Change 2007: Synthesis Report*, 61. See further discussion in Chapter 5, Section 5.2.2.

### 2.4.2.3 Disagreements on the Impact on Indigenous peoples' rights

Land in developing countries (sub-tropical and tropical areas) was claimed to have more potential for forest carbon projects.<sup>245</sup> Forest carbon projects in developing countries usually occupy a large piece of land and interfere with the life of local interest groups such as indigenous peoples and farmers.<sup>246</sup> Some scholars and politicians claimed that forest carbon projects would bring multiple socio-economic benefits for the local people by providing new sources of income. The income may come from land tenure, tourism and plantation employment.<sup>247</sup> But some NGOs assert that CDM forest carbon projects can undermine indigenous peoples' socio-economic rights.

The negative socio-economic effects of forest carbon projects are asserted from the following perspectives. First, it is claimed that forest carbon projects may lead to colonialism by allowing industrialised countries to use land in developing countries to meet their reduction obligations.<sup>248</sup> Through a forest carbon project contract, the needs and rights of indigenous peoples of a large area of land will be locked up for the coming decades.<sup>249</sup> During the project period, the use of land would be forbidden for local people and would be limited only to forests to maintain the emission reduction outcome. The result would be that Northern countries (industrialised countries) could occupy land in developing countries to make up for their historical carbon debts to the Southern countries or to emit more GHGs.

Second, forest carbon projects may provoke land conflicts with local populations. This is because large areas of land are required and located in areas where land ownership or land tenure are not clear.<sup>250</sup> The state may prefer to grant land titles to major corporations rather than to smallholders. For instance, in Brazil, such actions of the state have directly caused the exclusion of poor, non-documented tenant farmers and rural populations.<sup>251</sup> Practice has shown that large-scale industrial tree plantations provide

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<sup>245</sup> John M Reilly and Malcolm O Asadoorian, "Mitigation of Greenhouse Gas Emissions from Land Use: Creating Incentives within Greenhouse Gas Emissions Trading Systems," *Climatic Change* 80, no. 1 (2007): 173-97.

<sup>246</sup> Benoit Bosquet, "Specific Features of Land Use, Land-Use Change, and Forestry Transactions," in *Legal Aspects of Implementing the Kyoto Protocol Mechanisms: Making Kyoto Work*, ed. David Freestone and Charlotte Streck (Oxford: Oxford University Press, 2005), 290. "Indigenous peoples" is a special term. The plural form of people, "peoples", emphasises different groups of original inhabitants.

<sup>247</sup> Zenia Salinas and Ellysar Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects* (Washington: the World Bank, 2011): 11.

<sup>248</sup> Agarwal and Narain, *Global Warming in an Unequal World: A Case of Environmental Colonialism*, 16-17.

<sup>249</sup> The project period of forest carbon projects required by the CDM can be 30 years, or 20 years which can be renewed to 60 years. Para. 23, "Modalities and Procedures for Afforestation and Reforestation Project Activities under the Clean Development Mechanism in the First Commitment Period of the Kyoto Protocol," UNFCCC (2004), accessed 18 April 2017, <https://cdm.unfccc.int/Reference/COPMOP/index.html>.

<sup>250</sup> Esteve Corbera et al., "Rights to Land, Forests and Carbon in REDD : Insights from Mexico, Brazil and Costa Rica," *Forests* 2, no. 1 (2011): 305.

<sup>251</sup> Köger, "The Expansion of Industrial Tree Plantations and Dispossession in Brazil," 948.

fewer jobs than the agricultural activities for the poorest in rural society.<sup>252</sup> The local people who rely on natural resources for a living are left no choice but to either become plantation workers or to leave their home village to make a living in other places.<sup>253</sup>

#### **2.4.2.4 Disagreements on How Negative Impacts Could Be Controlled by Policies**

Proponents claim that the potential negative impacts on natural forests, biodiversity and local people, can be addressed by policies.<sup>254</sup> Nevertheless, opponents claim that chances to enforce such policies seem slim and recommend excluding the forest sector from the CDM.<sup>255</sup> This is because, incentive-wise, the conflict between a sound policy and the investors' interests in the carbon market seems irreconcilable. A policy that conserves forest biodiversity and respects local people's rights may increase the cost of delivering emission reductions. When the costs of forest carbon projects are increased, investors may lose interest in forest carbon projects without a comparable increase in the price of forest-based carbon credits. The Convention of Biological Diversity (CBD), the UNFCCC, or other intergovernmental agreements have not solved this conflict between cheap production of emission reductions and the high cost of protecting biodiversity and indigenous peoples' rights. Developing countries also refuted international intervention on sustainability issues arguing that applying international standards on this issue would impinge on their sovereignty.<sup>256</sup>

### **2.5 COP Decisions under the UNFCCC and Categories of Forest Carbon Projects**

This section analyses the COP decisions of UNFCCC on forest carbon projects. The major decisions were formulated from COP 3 in 1997 to COP 21 in 2015. As shown in Table 2-1, the COP decisions above formulated three types of forest carbon projects under the UNFCCC. Section 2.5.1 examines the decisions regarding the land use, land-use change and forestry (LULUCF) activities for industrialised countries. Section 2.5.2 elaborates on the regulatory history of the CDM Afforestation and Reforestation (CDM A/R) projects in developing countries. Lastly, Section 2.5.3 discusses the major COP decisions on reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (REDD+).

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<sup>252</sup> Carriere, Lohmann, and Lohmann, *Pulping the South: Industrial Tree Plantations and the World Paper Economy*, 102.

<sup>253</sup> Köger, "The Expansion of Industrial Tree Plantations and Dispossession in Brazil," 964.

<sup>254</sup> Ibid.

<sup>255</sup> Fern, *Sinking the Kyoto Protocol: The Links between Forests, Plantations and Carbon Sinks*, 10.

<sup>256</sup> Christiana Figueres, "Sectoral CDM: Opening the CDM to the yet Unrealized Goal of Sustainable Development," *McGill Int'l J. Sust. Dev.L. & Pol'y* 2 (2006): 11.

**Table 2-1: Main Decisions on Forestry under the UNFCCC Regime after the KP** <sup>257</sup>

<b>LULUCF</b>	1997	COP 3: carbon accounting for forest carbon projects
	1988	COP 4: clarified carbon accounting for forest carbon projects
	2000	IPCC: special report on land use change and forestry SASTA 13: forest definition
<b>CDM A/R</b>	2001	COP 6: negotiations failed because of disagreement on the forest sector
		COP 6 bis: agreement on principles, limited CDM forestry projects to afforestation and reforestation (A/R) activities and up to 1% of the assigned amount
		COP 7: reached a decision on CDM A/R with definitions and guidelines
	2003	COP 9: more detailed rules for CDM A/R projects, temporary certified emission reductions
2004	COP 10: small-scale CDM projects, IPCC good practice guidance	
<b>REDD+</b>	2005-	COP 11: proposed to discuss REDD in future COP meetings

### 2.5.1 COP 3 and LULUCF Projects

Policies and methodological guidance for LULUCF projects are developed by the decisions of COP 3 in the Kyoto Protocol to the UNFCCC. The KP provides that each Annex I Party shall implement and/or further elaborate policies on LULUCF activities.<sup>258</sup> The KP recognised emission removals from direct human-induced, land-use change, and forestry activities.<sup>259</sup> The countries in Annex B to the KP should account for GHGs emissions and removals from afforestation, reforestation and deforestation activities in their national emissions inventories. The UNFCCC regulated that developed countries can voluntarily select whether to conduct LULUCF activities to account for their annual commitment during the first commitment period (2008-2012). Conducting these activities, however, is mandatory for the second commitment period (2013-2020).<sup>260</sup>

Concretely, LULUCF includes forest management, cropland management, grazing land management, re-vegetation, and wetland drainage and re-wetting. (The last two only apply for 2013-2020).<sup>261</sup> Some scholars assert that forest carbon projects attract more attention than other LULUCF activities, because trees hold larger quantities of carbon than other vegetation.<sup>262</sup>

<sup>257</sup> The table incorporates the study of Höhne et al., "The Rules for Land Use, Land Use Change and Forestry under the Kyoto Protocol - Lessons Learned for the Future Climate Negotiations," 361.

<sup>258</sup> Art. 2, "Kyoto Protocol to the United Nations Framework Convention on Climate Change," UN (1997).

<sup>259</sup> Art. 3.3 and 3.4, *ibid.*

<sup>260</sup> Art. 3.3, *ibid.*

<sup>261</sup> Decisions about the LULUCF include "Decision 16/CMP.1: Land Use, Land-Use Change and Forestry," UNFCCC (2006), FCCC/KP/CMP/2005/8/Add.3 3. "Decision 2/CMP.7: Land Use, Land-Use Change and Forestry," (2012), FCCC/KP/CMP/2011/10/Add.1: 13. Decision 2/CMP.6 "Decision 2/CMP.6: The Cancun Agreements: Land Use, Land-Use Change and Forestry," (2011), FCCC/KP/CMP/2010/12/Add.1: 5.

<sup>262</sup> Josep G Canadell et al., "Contributions to Accelerating Atmospheric Co2 Growth from Economic Activity, Carbon Intensity, and Efficiency of Natural Sinks," *Proceedings of the National Academy of Sciences* 104, no. 47 (2007): 18866-70.

## 2.5.2 COP 6, 7, 9 and CDM A/R Projects

The decisions of the sixth, seventh and ninth sessions of the Conference of the Parties (COP 6, 7 and 9) stipulated special terms for the forest carbon projects in developing countries under the CDM. The Parties to the UNFCCC had vigorous debates prior to COP 6 about how to apply the KP market mechanisms to forests.<sup>263</sup> Some pointed out the low feasibility of measuring and monitoring carbon exchange accurately from forests sinks. Others emphasised the great potential of forests sinks to mitigate climate change with co-benefits in socio-economic and other environmental aspects. Eventually, the COP 6 meeting in The Hague broke down because of this controversy and resumed in Bonn after a few months. The second meeting of COP 6 in Bonn 2001 generally adopted forest carbon projects in CDM. Principles for implementing forest carbon projects were decided in COP 7 in Marrakech, and implementation measures were adopted in COP 9 in Milan.

The COP 7 decisions are also called as the 'Marrakesh Accords'.<sup>264</sup> Scholz and Noble claim that the 'Marrakesh Accords' is a political milestone that 'established the rules for forest sinks projects'.<sup>265</sup> The Marrakesh Accords stipulated that in the first commitment period, only afforestation and reforestation projects (A/R) in developing countries were eligible under the CDM. Annex I Parties were allowed to use up to one percent of carbon offsets from forest carbon projects in developing countries to meet their Kyoto emission targets.<sup>266</sup>

Furthermore, the Marrakesh Accords mandated SBSTA to address issues of non-permanence, additionality, leakage uncertainties, and the socio-economic and environmental impacts of forests sinks for the first commitment period before COP 9.<sup>267</sup> It further regulates that the rules governing forests sinks are to be revised before the second commitment period (2012-2020).<sup>268</sup> These issues were, to some extent, addressed by the decisions of COP 9 in 2003 by shortening the validity of forest-based emission reductions and tightening the verification and certification procedure of forest-based emission reductions.

To address the temporary-sequestration problem of forests sinks, COP 9 provided two solutions. First, a national inventory is required for Annex I Parties to track carbon flux in afforestation, reforestation and deforestation and other land use activities. The release of the sequestration in the subsequent commitment period is supposed to be reflected in the inventory. Second, a crediting system for

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<sup>263</sup> Scholz and Noble, "Generation of Sequestration Credits under the CDM," 265-80.

<sup>264</sup> Para. 1, "Decision 1/CP. 7: The Marrakech Ministerial Declaration," UNFCCC FCCC/CP/2001/13/Add.1. : 3.

<sup>265</sup> Scholz and Noble, "Generation of Sequestration Credits under the CDM," 269.

<sup>266</sup> Para. 7 (a) (b), "Decision 17/CP.7: Modalities and Procedures for a Clean Development Mechanism as Defined in Article 12 of the Kyoto Protocol," UNFCCC (2001), FCCC/CP/2001/13/Add.2: 22.

<sup>267</sup> Para. 10 (b), *ibid.*

<sup>268</sup> Para. 7 (c), *ibid.*

temporary carbon sequestrations is tailor-made for forests sinks. This system provides temporary CERs (tCERs) and long-term CERs (ICERs) to categorise the emission reductions produced by forest carbon projects in developing countries. The tCERs and the ICERs expire after a certain time. The tCERs expire at the end of the commitment period after the one in which they are issued. The ICERs expire at the end of the crediting period of a project.

Furthermore, the verification and certification procedure of a CDM A/R project is different. The verification procedure is an independent review on the GHG removals of forest carbon projects. The certification procedure is a written assurance on the verified GHG removals of forest carbon projects. The first verification and certification of a CDM A/R project can be decided by the project participants. Afterwards, the project should be reviewed every five years until the end of the project's crediting period.

CDM A/R projects that generate less than 8 kilotonnes (kt) of CO<sub>2</sub> per year can apply to be "small-scale CDM project activities".<sup>269</sup> Simplified modalities and procedures are designed to incentivise small-scale CDM A/R projects, which are developed or implemented by low-income communities and individuals as determined by the host Party.<sup>270</sup> If a small-scale afforestation or reforestation project activity under the CDM results in more than 8 kt of CO<sub>2</sub> per year, the excess removals will not be eligible for the issuance of tCERs or ICERs.

### 2.5.3 COP 11-21 and REDD+

Deforestation and forest degradation contribute significantly to global anthropogenic GHGs emissions. Deforestation in only Brazil and Indonesia generates about the same amount of emissions as reduction commitments of Annex I countries in the first commitment period of the Kyoto Protocol.<sup>271</sup> Deforestation releases more carbon dioxide into the atmosphere than the global transport sector.<sup>272</sup>

To address this significant emission sources, an agenda item, "Reducing emissions from deforestation in developing countries: approaches to stimulate action" was initially requested for the meeting of COP 11 in November 2005 by the Coalition for Rainforest Nations.<sup>273</sup> The 24<sup>th</sup> session of SBSTA in June

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<sup>269</sup> Para. 1 (j), "Modalities and Procedures for Afforestation and Reforestation Project Activities under the Clean Development Mechanism in the First Commitment Period of the Kyoto Protocol," (2004).

<sup>270</sup> Bruno Locatelli and Lucio Pedroni, "Will Simplified Modalities and Procedures Make More Small-Scale Forestry Projects Viable under the Clean Development Mechanism?," *Mitigation and Adaptation Strategies for Global Change* 11, no. 3 (2006): 632.

<sup>271</sup> Center for International Forestry Research CIFOR, *CIFOR's Strategy 2008-2018: Making a Difference for Forests and People* (Bogor, Indonesia: CIFOR, 2008): 31. CIFOR refers to the Center for International Forestry Research.

<sup>272</sup> Greenpeace, "Deforestation and Climate Change," accessed 17 March 2017, <http://www.greenpeace.org.uk/forests/climate-change>.

<sup>273</sup> The Government of PNG (Papua New Guinea) and Costa Rica, *Submissions from Parties: Reducing Emissions from Deforestation in Developing Countries: Approaches to Stimulate Action* (Geneva, Switzerland: United Nations Office at

2006 noted the need to consider REDD projects in developing countries as “part of mitigation efforts to achieve the ultimate objective of the Convention”.<sup>274</sup>

Corbera et al. (2010) suggested the reason for excluding the REDD or REDD+ from the CDM is twofold.<sup>275</sup> One is that the indigenous peoples may originally maintain their livelihood by unsustainable forest practices. The conduct of sustainable land management may directly affect their traditional way of living. Another is the “leakage” problem, referring to the fact that the operation of a carbon project results in additional emissions elsewhere or after the project period. For example, a forest management project may enhance the protection of the forest within the project boundary. Nonetheless, the illegal loggers that used to depend on that area of forest may continue their deeds somewhere outside the project boundary within the project period. Furthermore, after the project is completed, the people expelled may come back to the forest area to continue or to even illegally obtain more timber to compensate for their lost earnings during the project period. These two reasons present the concern that CDM A/R projects cannot properly compensate indigenous peoples and control the “leakage” problem. Therefore, the REDD has the mission to address these two problems.

The REDD was initially included in the decisions of COP 13 (2007) in Bali, the so-called Bali Roadmap of UNFCCC, which concluded with the adoption of essential forward-looking decisions regarding the future international climate regime.<sup>276</sup> Decision 2 of COP 13 (Bali Action Plan) states that Parties to the UNFCCC are invited to strengthen and support REDD on a voluntary basis.<sup>277</sup> This decision also recognised that different developing countries have “different national circumstances, multiple drivers of deforestation and forest degradation and the needs of local and indigenous communities”, which should be addressed.<sup>278</sup>

The main progress of COP 13 concerning REDD was as follows. First, it encouraged the Parties to the UNFCCC to use the most recent reporting guideline for emissions from deforestation and encouraged the non-Annex I Parties to apply the “Good Practice Guidance for LULUCF”.<sup>279</sup> Furthermore, it

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Geneva, 2005), accessed 15 April 2017,

[http://unfccc.int/documentation/documents/advanced\\_search/items/6911.php?preref=600003611#beg](http://unfccc.int/documentation/documents/advanced_search/items/6911.php?preref=600003611#beg).

<sup>274</sup> Agenda item 6, "Reducing Emissions from Deforestation in Developing Countries – Draft Conclusions Proposed by the Chair," UNFCCC SBSTA (2006), FCCC/SBSTA/2006/L.8.

<sup>275</sup> Esteve Corbera, Manuel Estrada, and Katrina Brown, "Reducing Greenhouse Gas Emissions from Deforestation and Forest Degradation in Developing Countries: Revisiting the Assumptions," *Climatic Change* 100, no. 3 (2010): 355-88.

<sup>276</sup> UNFCCC, "Bali Road Map," accessed 2 March 2017, [http://unfccc.int/key\\_documents/bali\\_road\\_map/items/6447.php](http://unfccc.int/key_documents/bali_road_map/items/6447.php).

<sup>277</sup> Para.1, "Decision 2/CP.13: Reducing Emissions from Deforestation in Developing Countries: Approaches to Stimulate Action," (2007), FCCC/CP/2007/6/Add.1 8.

<sup>278</sup> Ibid.

<sup>279</sup> The most recent reporting guidelines at that time are in "Decision 17/CP.8: Guidelines for the Preparation of National Communications from Parties Not Included in Annex I to the Convention," (2002), FCCC/CP/2002/7/Add.2. The practice guidance for the LULUCF is in "Decision 13/CP.9: Good Practice Guidance for Land Use, Land-Use Change



requested the SBSTA to invite the Parties to submit their views on certain methodological issues including the assessment of changes in forests, carbon stocks and emissions, on implications of national and sub-national approaches, and on criteria for evaluating actions.<sup>280</sup> The SBSTA should report the outcomes to COP 14.<sup>281</sup> In addition, it requested the secretariat to develop a web platform to share information about REDD between Parties, relevant organisations and stakeholders.<sup>282</sup> The Indicative Guidance issued at COP 13 clarified more issues for REDD+ implementation such as the host country's approval, the results-based approach for estimating changes of GHG emissions, independent expert review, and consistency with other international documents including CBD and UN Forum on Forests.<sup>283</sup>

Before COP 15 in Copenhagen in December 2009, meetings were held in Bonn to prepare the negotiating text for COP 15 of the UNFCCC.<sup>284</sup> However, parties did not reach a consensus on the text and there were four major disagreements about the REDD.<sup>285</sup> The first was about the scope of the REDD activities, namely what should be included in the definition of REDD.

REDD has been referred to as REDD+ (plus) since the 29<sup>th</sup> session of the SBSTA in 2008.<sup>286</sup> This report changed the semi-colon into a comma between the words 'reducing emissions from deforestation and forest degradation in developing countries' and 'the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries' because of pressure from countries who wanted the latter to be given as much priority as the former.<sup>287</sup>

The second issue of controversy was about the rights of indigenous peoples. The UNFCCC AWG-LCA 2009 negotiating text proposed that a REDD+ mechanism is to ensure fair distribution of REDD-

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and Forestry in the Preparation of National Greenhouse Gas Inventories under the Convention," (2003), FCCC/CP/2003/6/Add.1.

<sup>280</sup> Para. 7, "Decision 2/CP.13: Reducing Emissions from Deforestation in Developing Countries: Approaches to Stimulate Action," (2007).

<sup>281</sup> Para. 8, *ibid*.

<sup>282</sup> This Web platform is "The UNFCCC REDD+ Web Platform."

<sup>283</sup> For more details about the Indicative Guidance please see Annex, "Decision 2/CP.13: Reducing Emissions from Deforestation in Developing Countries: Approaches to Stimulate Action," (2007).

<sup>284</sup> "Sixth Session: Negotiating Text," UNFCCC AWG-LCA (2009), FCCC/AWGLCA/2009/8 31-35. "Sixth Session: Revised Negotiating Text," (2009), FCCC/AWGLCA/2009/INF.1, accessed 17 March 2017, <http://unfccc.int/resource/docs/2009/awglca6/eng/inf01.pdf>: 67-145.

<sup>285</sup> "Non-Paper No. 39: Policy Approaches and Positive Incentives on Issues Relating to Reducing Emissions from Deforestation and Forest Degradation in Developing Countries; and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries," (2009), accessed 7 January 2018, <http://unfccc.int/bodies/awg-lca/items/5012.php>: 1-8.

<sup>286</sup> Paras. 38 and 40, "Resumed Seventh Session: Report of the Subsidiary Body for Scientific and Technological Advice on Its Twenty-Ninth Session," (2009), FCCC/SBSTA/2008/13: 9.

<sup>287</sup> Vivienne Holloway and Esteban Giandomenico, *The History of REDD Policy* (Adelaide, Australia: Carbon Planet, 2009): 14.

derived benefits among all relevant stakeholders including indigenous peoples and local communities, in response to their efforts in REDD activities.<sup>288</sup>

Third, a variety of methods were proposed for financing REDD+, mainly for capacity building through financial support from government to government.<sup>289</sup> The fourth controversial issue was about the measurement, reporting and verification rules of the emission reductions produced in the REDD+ projects. A REDD+ mechanism should be transparent so that industrialised countries can clarify how much of their emission reductions would be achieved by REDD+ projects.<sup>290</sup>

The fifth issue is regarding the protection of natural forests. In the second meeting in Bonn, Parties to the UNFCCC proposed that the REDD+ mechanism should ensure that Parties to the UNFCCC would take precautionary measures and establish safeguards to protect biological diversity in the host countries of REDD+ projects.<sup>291</sup> However, provisions ‘against the conversion of natural forests to forest plantations’ were precluded from the negotiating text in the 7<sup>th</sup> session of AWG-LCA and there remained no consensus in the negotiating text formulated in Barcelona.<sup>292</sup>

Eventually, the meetings of COP 15 (2009) issued a methodological guidance for REDD+, which emphasised the REDD+’s co-benefits on biodiversity.<sup>293</sup> This guidance addressed particularly the following issues regarding measurement and reporting: drivers of deforestation and forest degradation, the most recent and relevant IPCC guidance, and national and sub-national monitoring systems.

Decision 1 of COP 16 (2010) is known as the Cancun Agreement.<sup>294</sup> It encourages developing countries to undertake the following five types of REDD+ activities: a) reducing emissions from deforestation; b) reducing emissions from forest degradation; c) conservation of forest carbon stocks; d) enhancement of forest carbon stocks; and e) sustainable management of forests.<sup>295</sup>

These REDD+ activities should comply with the safeguards provided in Appendix I of the Cancun Agreement, which ensures a positive impact of REDD+ activities on the socio-economic and environmental conditions of the local area.<sup>296</sup> The safeguards cover issues including the conservation

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<sup>288</sup> "Sixth Session: Revised Negotiating Text," UNFCCC AWG-LCA (2009), 117.

<sup>289</sup> Ibid.

<sup>290</sup> Ibid.

<sup>291</sup> Ibid., 113.

<sup>292</sup> Holloway and Giandomenico, *The History of REDD Policy*, 16-17.

<sup>293</sup> "Decision 4/CP.15: Methodological Guidance for Activities Relating to Reducing Emissions from Deforestation and Forest Degradation and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries," UNFCCC (2009), FCCC/CP/2009/11/Add.1 accessed 17 March 2017, <http://unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf#page=11>.

<sup>294</sup> "Decision 1/CP.16: The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention," (2010).

<sup>295</sup> Para. 70, *ibid*.

<sup>296</sup> Para. 69, *ibid*.

of national forest and its ecosystems, and the rights of indigenous peoples and local communities. These safeguards will be discussed in Chapter 4 of this dissertation about the sustainability assessment of forest carbon projects.

Additionally, Parties to the UNFCCC agreed that national-level REDD+ projects can be implemented in three phases.<sup>297</sup> Phase I includes ‘the development of national strategies or action plans, policies and measures, and capacity-building’, which is also called the “readiness” phase. In the national plans, there was a request to address more issues such as land tenure, gender considerations, full and effective participation of relevant stakeholders.<sup>298</sup> Phase II includes ‘the implementation of national policies and measures and national strategies or action plans that could involve further capacity-building, technology development and transfer and results-based demonstration activities’. This phase is, therefore, called the “implementation” phase. Lastly, phase III includes ‘results-based actions that should be fully measured, reported and verified’, which is called the “full-scale implementation phase”.

This research is relevant for issues regarding the second and third phase of REDD+, which would involve tree planting and forest management activities. Although, most of pilot REDD+ activities remain at Phase I at the moment, studies about how to secure a sustainable social and environmental impact of results-based REDD+ actions are highly relevant for the full-scale implementation in the future. That is exactly what this research aims to offer. More details about the implementation aspects of REDD+ will be elaborated in Chapter 3.

For the future, the Cancun Agreement urged the developed countries to establish multilateral and bilateral channels to transfer technical and financial support to developing countries.<sup>299</sup> It requested the SBSTA to work on methodological issues regarding estimating, measuring, reporting and verifying anthropogenic forest-related emissions.<sup>300</sup> Finally, it requested the Ad Hoc Working Group on Long-term Cooperative Action to explore financing options for Phase III REDD+ activities and to report outcomes and recommendations for draft decisions to COP 17.<sup>301</sup>

The meetings of COP 17 adopted the report of the Ad Hoc Working Group on Long-term Cooperative Action in Decision 2.<sup>302</sup> Parties to the UNFCCC agreed that regardless of the sources of the finance, the results-based finance should be new, additional and predictable.<sup>303</sup> Appropriate market-based

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<sup>297</sup> Para. 73, *ibid.*

<sup>298</sup> Para. 72, *ibid.*

<sup>299</sup> Para. 76, *ibid.*

<sup>300</sup> Para. 75, *ibid.*

<sup>301</sup> Para. 77, *ibid.*

<sup>302</sup> Section II (C), "Decision 2/CP.17: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention," (2011), FCCC/CP/2011/9/Add.1.

<sup>303</sup> Para. 65, *ibid.*

approaches could be developed to support the results-based REDD+ activities, ensuring environmental integrity.<sup>304</sup> Non-market-based approaches could also be developed as an alternative to support the application of REDD+ safeguards and the multiple functions of forests.<sup>305</sup> The emphasis for the following COP 18 was placed on developing modalities and procedures for financing results-based REDD+ actions drawing efforts from organisation observers, Parties, the Ad Hoc Working Group on Long-term Cooperative Action and the SBSTA.<sup>306</sup>

Decision 12 of COP 17 offered primary guidance for providing information on how safeguards are addressed and respected in REDD+ activities.<sup>307</sup> COP 17 requested the SBSTA to consider further guidance ensuring transparency, consistency, comprehensiveness and effectiveness of the information sharing.<sup>308</sup> Furthermore, this decision provided modalities for forest reference emission levels and forest reference levels for national level REDD+ activities, while acknowledging that sub-national reference levels may be elaborated as an interim measure.<sup>309</sup> To monitor the submission of the Parties on the reference levels, the secretariat was requested to make relevant information available online and the SBSTA was requested to develop guidance for the technical assessment on the submissions.<sup>310</sup>

Subsequently, COP 18 first focused on improving the effectiveness of finance of REDD+ activities. It was decided to undertake a work programme on results-based finance before COP 19 considering a variety of sources including: a) ways and means to transfer payments; b) ways to incentivise non-carbon benefits; and c) ways to improve the coordination of finance.<sup>311</sup>

Furthermore, COP 18 invited “Parties and admitted observer organisations” to submit their views on the improvement of the coordination of financial, technical and technological support to the implementation of REDD+ activities in developing countries.<sup>312</sup> It also requested SBSTA and SBI to address related issues taking into account the submissions of the Parties and the observer organisations.<sup>313</sup> In addition, the SBSTA was requested again to consider non-market-based approaches and non-carbon benefits of REDD+ activities.<sup>314</sup>

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<sup>304</sup> Para. 66, *ibid.*

<sup>305</sup> Para. 67, *ibid.*

<sup>306</sup> Paras. 69-73, *ibid.*

<sup>307</sup> Section I and Annex, "Decision 12/CP.17, Guidance on Systems for Providing Information on How Safeguards Are Addressed and Respected and Modalities Relating to Forest Reference Emission Levels and Forest Reference Levels as Referred to in Decision 1/CP.16," (2011), FCCC/CP/2011/9/Add.2: 16.

<sup>308</sup> Para. 6, Section I, *ibid.*

<sup>309</sup> Para. 11, Section II, *ibid.*, 17.

<sup>310</sup> Paras. 14 and 15, Section II, *ibid.*

<sup>311</sup> Paras. 25-29, 33, section II (C), "Decision 1/CP.18 Agreed Outcome Pursuant to the Bali Action Plan," (2012), FCCC/CP/2012/8/Add.1.

<sup>312</sup> Para. 36, section II (C), *ibid.*

<sup>313</sup> Paras. 35-38, section II (C), *ibid.*

<sup>314</sup> Paras. 39-40, section II (C), *ibid.*

In COP 19, seven decisions (Decisions 9 to 15) were adopted on REDD+, regarding finance, institutional arrangements, and methodological guidance.<sup>315</sup> These decisions are widely referred to as the “Warsaw Framework on REDD+”. They addressed a few issues proposed in previous COP meetings. About finance, Decision 9/CP.19, recognised the key role of the newly established Green Climate Fund in channelling finance to developing country Parties.<sup>316</sup> It is emphasised in this decision that REDD+ actions should be ‘fully measured, reported and verified’ and the safeguards should be addressed and respected before the release of results-based finance.<sup>317</sup> The finance should be new, additional and predictable and be channelled in a fair and balanced manner with a view to increasing the number of developing country beneficiaries.<sup>318</sup> Finance-related information should be published on the particular information hub on the REDD+ web platform.<sup>319</sup> Lastly, the Standing Committee on Finance was requested to further consider ways and means to transfer results-based payments and to provide financial support to alternative approaches.<sup>320</sup>

Decision 10/CP.19 addressed the issues of coordination of financial and technology support for the implementation of REDD+ activities. It invited Parties to designate ‘a national entity or focal point to serve as a liaison’, which can nominate entities to obtain and receive results-based payments, consistent with operational modalities.<sup>321</sup> These national entities or focal points, Parties and relevant financing entities are encouraged to meet annually in conjunction with the sessional period meetings of UNFCCC subsidiary bodies.<sup>322</sup>

Regarding monitoring emissions and carbon changes of REDD+ activities, Decision 11 of COP 19 issued modalities for national forest monitoring systems. In addition, Decision 13 of COP 19 and its annex provided guidelines and procedures for a technical assessment of submissions from Parties on reference levels. Developing country Parties can submit their national and sub-national reference levels on a voluntary basis, which ‘might be technically assessed’ before receiving results-based payments.<sup>323</sup>

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<sup>315</sup> Decisions of the 19th Conference of the Parties (COP19) to the UNFCCC include Decision 9/CP.19, 10/CP.19, 11/CP.19, 12/CP.19, 13/CP.19, 14/CP.19, and 15/CP.19.

<sup>316</sup> Para. 70, "Decision 9/CP.19: Work Programme on Results-Based Finance to Progress the Full Implementation of the Activities Referred to in Decision 1/CP.16," UNFCCC (2013), FCCC/CP/2013/10/Add.1

<sup>317</sup> Paras. 3 and 4, *ibid.*

<sup>318</sup> Paras. 1 and 5, *ibid.*

<sup>319</sup> Paras. 9-19, *ibid.*

<sup>320</sup> Paras. 20-21, *ibid.*

<sup>321</sup> Paras. 1-2, "Decision 10/CP.19: Coordination of Support for the Implementation of Activities in Relation to Mitigation Actions in the Forest Sector by Developing Countries, Including Institutional Arrangements.," (2013), FCCC/CP/2013/10/Add.1.

<sup>322</sup> Paras. 4-5, *ibid.*

<sup>323</sup> Para. 2, "Decision 13/CP.19 Guidelines and Procedures for the Technical Assessment of Submissions from Parties on Proposed Forest Reference Emission Levels and/or Forest Reference Levels.," (2013), FCCC/CP/2013/10/Add.1

Lastly, Decision 14 of COP 19 provided modalities for measuring, reporting and verifying anthropogenic forest-related emissions.<sup>324</sup>

About the REDD+ safeguards, Decision 12 of COP 19 addressed the timing and frequency of presentations on how all the safeguards are being addressed and respected.<sup>325</sup> This decision reiterated that once developing countries start to undertake REDD+ activities, they should provide relevant information periodically in national communications or communication channels agreed by the COP.<sup>326</sup> The most recent summary of such information is a necessary precondition to obtain results-based payments.<sup>327</sup> It is at the parties' discretion to provide this information online via the REDD+ web platform.<sup>328</sup>

COP 19 also addressed the drivers of deforestation and forest degradation, by noting that livelihoods may depend on unsustainable forest activities and addressing these drivers may have an economic cost.<sup>329</sup> It recognised that actions to address the drivers are unique to countries' circumstances, capacities and capabilities.<sup>330</sup> In the meanwhile, it also encouraged information sharing of ongoing work and results.<sup>331</sup>

Afterwards, COP 21 addressed alternative policy approaches for the integral and sustainable management of forests, the provision of information on how all the REDD+ safeguards are addressed, and methodological issues related to non-carbon benefits. Decision 16/CP.21 addressed alternative policy approaches to results-based payments that may 'contribute to the long-term sustainability' of the implementation of REDD+ activities.<sup>332</sup> These approaches are subject to Decision 4/CP.15 and the REDD+ safeguards.<sup>333</sup> Decision 17/CP.21 listed the essential elements that are 'strongly encouraged' for developing countries when providing information on how all the REDD+ safeguards are being addressed to ensure transparency, consistency, comprehensiveness and effectiveness of the

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<sup>324</sup> "Decision 14/CP.19: Modalities for Measuring, Reporting and Verifying," (2013), FCCC/CP/2013/10/Add.1

<sup>325</sup> "Decision 12/CP.19: The Timing and the Frequency of Presentations of the Summary of Information on How All the Safeguards Referred to in Decision 1/CP.16, Appendix I, Are Being Addressed and Respected," (2013), FCCC/CP/2013/10/Add.1.

<sup>326</sup> Paras. 1-2, *ibid.*

<sup>327</sup> Para. 4, *ibid.*

<sup>328</sup> Para. 3, *ibid.*

<sup>329</sup> Preface, "Decision 15/CP.19: Addressing the Drivers of Deforestation and Forest Degradation," (2013), FCCC/CP/2013/10/Add.1

<sup>330</sup> Para.2, *ibid.*

<sup>331</sup> Paras. 4-5, *ibid.*

<sup>332</sup> Para. 4, "Decision 16/CP.21: Alternative Policy Approaches, Such as Joint Mitigation and Adaptation Approaches for the Integral and Sustainable Management of Forests," (2015), FCCC/CP/2015/10/Add.3.

<sup>333</sup> Paras. 3, 5, and 6, *ibid.*

provision.<sup>334</sup> Lastly, Decision 18/CP.21 reaffirmed that non-carbon benefits contribute to the long-term sustainability of the implementation of REDD+ activities and adaptation.<sup>335</sup> Developing country Parties can communicate with interested finance providers about the information of non-carbon benefits.<sup>336</sup> This decision clearly showed that methodological issues related to non-carbon benefits “do not constitute a requirement for developing country parties seeking to receive support” or “results-based payments” for REDD+ activities.<sup>337</sup> Appendix II provides a map for this noticeably complex structure of COP decisions on REDD+.

We can see that the terms of the COP decisions to the UNFCCC on REDD+ are very carefully worded. When it is about actions of the Parties, the provisions often use “invite”, “encourage” and “urge”. Only to organs of the UNFCCC, such as the SBSTA and the Ad Hoc working groups, “request” is used. Although, REDD+ was designed for the subsequent commitment period (after 2012), no binding rule has been adopted up to now. This leaves space for the practice to divert and develop implementation activities based on the needs of the market and the conditions of forest countries. More details about the implementation activities of REDD+ are provided in Chapter 3.

## **2.6 Synthesis and Conflicts between the CBD and the UNFCCC**

The evolving forest carbon projects are embedded in global environmental governance, because forests are related to other changing processes regarding global environmental including biodiversity. The sustainability of forests was included in three Rio conventions at the 1992 World Summit: the UNFCCC; the Convention on Biological Diversity; and the United Nations Convention of Combating Desertification. Although the Convention on Biological Diversity (CBD) is a binding international decision, it has been poorly implemented. This section focuses on the synthesis and conflicts between the CBD and the UNFCCC on biodiversity conservation in forest carbon projects.

The CBD has a leadership role in international biodiversity issues. The ultimate goal of the CBD is to achieve the conservation and sustainable use of biodiversity and the fair and equitable sharing of genetic resources. Like Parties to the UNFCCC, Parties to the CBD also gather annually for the Conference of the Parties to the CBD for decision-making. The CBD called for cooperation with the UNFCCC.<sup>338</sup> The CBD called upon Parties to implement ecosystem management activities to

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<sup>334</sup> Paras. 4-6, "Decision 17/CP.21: Further Guidance on Ensuring Transparency, Consistency, Comprehensiveness and Effectiveness When Informing on How All the Safeguards Referred to in Decision 1/CP.16, Appendix I, Are Being Addressed and Respected," (2015), FCCC/CP/2015/10/Add.3.

<sup>335</sup> Paras. 2-4, "Decision 18/CP.21: Methodological Issues Related to Non-Carbon Benefits Resulting from the Implementation of the Activities Referred to in Decision 1/CP.16, Paragraph 70," (2015), FCCC/CP/2015/10/Add.3.

<sup>336</sup> Ibid.

<sup>337</sup> Para. 5, *ibid.*

<sup>338</sup> Para. 13, "COP 10 Decision X/33: Biodiversity and Climate Change," CBD (2010), UNEP/CBD/COP/DEC/X/33.

contribute to the objectives of the UNFCCC and the CBD.<sup>339</sup> In response, a declaration was issued at COP 7 of the UNFCCC in 2001 (Marrakech Accords) to develop synergies between these two conventions and the United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa.<sup>340</sup>

The Marrakech Accords required the SBSTA to develop a negotiating text for COP 9 of the UNFCCC in 2003, about the implementation measures of CDM forest carbon projects considering the impacts on biodiversity and natural ecosystems.<sup>341</sup> COP 9 allocated the responsibility to address adverse impacts on biodiversity to the host country and the project participants.<sup>342</sup>

COP 10 of the CBD adopted the Strategic Plan for Biodiversity 2011-2020.<sup>343</sup> The plan set twenty targets aiming to halt the loss of biodiversity and to ensure that by 2020 ecosystems are resilient and continue to provide essential services for human well-being and livelihoods. Three of the twenty targets (which are also known as the Aichi Biodiversity Targets) are directly related to forests and climate change.<sup>344</sup> Target Five is to decrease the rate of loss of natural habitats including forests. Target Seven aims to apply sustainable management to forests. The objective of Target Fifteen is to enhance the contribution of biodiversity conservation to carbon stocks.

Additionally, Parties to the CBD adopted a non-legally binding guidance on applying UNFCCC REDD+ safeguards relevant to biodiversity in the CBD Decision XI/19 in 2012.<sup>345</sup> It recognised that there is a large potential for synergies between the UNFCCC Cancun Agreements on REDD+ and 'the implementation of the Strategic Plan for Biodiversity 2011–2020 and its Aichi Biodiversity Targets'.<sup>346</sup> This decision also urges Parties to the CBD, other Governments, and relevant organisations to coherently implement relevant provisions and decisions of the UNFCCC and the CBD

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<sup>339</sup> Para. 8 (n), *ibid.*

<sup>340</sup> Para. 3, "Decision 1/CP.7: The Marrakesh Ministerial Declaration," UNFCCC (2001), FCCC/CP/2001/13/Add.1.

<sup>341</sup> Section 2, "Decision 11/CP.7: Land Use, Land-Use Change and Forestry," (2001).

<sup>342</sup> Para. 12 (c), "Annex: Modalities and Procedures for Afforestation and Reforestation Project Activities under the Clean Development Mechanism," (2005), FCCC/KP/CMP/2005/8/Add.1 Para. 14 (c), "Annex: Simplified Modalities and Procedures for Small-Scale Afforestation and Reforestation Project Activities under the Clean Development Mechanism" (2005), FCCC/KP/CMP/2005/8/Add.1

<sup>343</sup> Goal 1, Annex, Section C, "COP 6 Decision Vi/26: Strategic Plan for the CBD," CBD (2002), UNEP/CBD/COP/6/20.

<sup>344</sup> Para. 13, Annex, "COP 10 Decision X/2: Strategic Plan for Biodiversity 2011-2020," (2010), UNEP/CBD/COP/10/27.

<sup>345</sup> "COP 11 Decision Xi/19, Biodiversity and Climate Change Related Issues: Advice on the Application of Relevant Safeguards for Biodiversity with Regard to Policy Approaches and Positive Incentives on Issues Relating to Reducing Emissions from Deforestation and Forest Degradation in Developing Countries; and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries," (2012), UNEP/CBD/COP/DEC/XI/19.

<sup>346</sup> Lera Milesa et al., *REDD+ and the 2020 Aichi Biodiversity Targets Promoting Synergies in International Forest Conservation Efforts*, UN-REDD Programme policy brief (UN-REDD Programme, 2012): 1.



‘in a mutually supportive way’.<sup>347</sup> In the meantime, national experiences from the implementation of relevant CBD decisions can inform and support the implementation of REDD+ activities.<sup>348</sup>

However, the CBD and the UNFCCC can be at odds with each other over forest carbon projects when improper tree species are planted.<sup>349</sup> With a shorter maturity time, monoculture plantations of industrial trees can receive more carbon removals within a certain period and lead to a more flexible capital flow. The monoculture plantations, nonetheless, are more vulnerable to pests, fire, and climate change than diverse plantations.<sup>350</sup> Monoculture industrial tree plantations may displace natural primary forests, which contain more biodiversity.<sup>351</sup>

## 2.7 Existing Problems in Relevant International Laws and Policies

The Kyoto Protocol market mechanisms are compliance carbon markets, where polluting countries are obliged to comply with the initially distributed amount of emission rights.<sup>352</sup> The emission rights can be used to fulfil emission reduction commitments or be sold in emission trading systems as carbon credits. A carbon credit represents the right to emit a certain amount of GHGs and a unit of emission reductions.<sup>353</sup>

A single unit of emission reductions appears differently under the three market-based mechanisms of the KP. Under the International Emission Trading mechanism, the basic emission reduction unit is the Assigned Amount Unit (AAU).<sup>354</sup> Under the JI Mechanism, it appears as the Emission Reduction Unit (ERU).<sup>355</sup> Lastly, the CDM generates Certified Emission Reduction (CER). Apart from these, as discussed above, there are also emission reduction units which particularly apply to forest sinks projects named as Removal Unit, temporary CER (tCER) and long-term CER (ICER). Although the units of carbon credits have a variety of forms, all of these units are equivalent to one tonne of carbon dioxide emissions. To make the units accountable, each of them is marked by a unique serial number,

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<sup>347</sup> Para. 6, "COP 11 Decision Xi/19, Biodiversity and Climate Change Related Issues: Advice on the Application of Relevant Safeguards for Biodiversity with Regard to Policy Approaches and Positive Incentives on Issues Relating to Reducing Emissions from Deforestation and Forest Degradation in Developing Countries; and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries," CBD (2012).

<sup>348</sup> Paras. 13-15, *ibid.*

<sup>349</sup> Alejandro Caparros and Frédéric Jacquemont, "Conflicts between Biodiversity and Carbon Sequestration Programmes: Economic and Legal Implications," *Ecological Economics* 46, no. 1 (2003): 143-57.

<sup>350</sup> Parrotta, Wildburger, and Mansourian, *Understanding Relationships between Biodiversity, Carbon, Forests and People: The Key to Achieving REDD Objectives*, 65.

<sup>351</sup> Walker and Steffen, "An Overview of the Implications of Global Change for Natural and Managed Terrestrial Ecosystems," 15.

<sup>352</sup> Woerdman, Arcuri, and Clò, "Emissions Trading and the Polluter-Pays Principle: Do Polluters Pay under Grandfathering?," 566.

<sup>353</sup> Art. 17, "Kyoto Protocol to the United Nations Framework Convention on Climate Change," UN (1997).

<sup>354</sup> Art. 17, *ibid.*

<sup>355</sup> Art. 6, *ibid.*

which is traceable and is recorded through national and the CDM registries.<sup>356</sup> The unique serial number confers on a carbon credit the peculiarities of a common tradable commodity. Like a traditional market, which is based on property rights, it is essential for the carbon market to design proper regulation on the ownership of carbon credits.

With rights set on forest-based carbon offsets, some problems exist in the current Kyoto mechanisms which may lead to unsustainable results in foreign forest carbon projects in developing countries. Section 2.7.1 examines the complexity and ambiguity of CDM rules. Section 2.7.2 proposes that rent-seeking may affect the formulation of current international policies to allow unsustainable industrial tree plantations. Section 2.7.3 reviews scholarly criticisms for lacking ecological restoration standards. Lastly, Section 2.7.4 discusses the legal constraints in current CDM rules that can drag down the price of forest-based CERs in the carbon market.

### **2.7.1 The Complexity and Uncertainty of the Policies and Laws**

One of the factors that adds to the complexity of governing laws for practitioners is that the international climate regime possesses multiple legislative authorities. As discussed, the legislative power over forest carbon projects in developing countries is shared by the COP/CMP and the CDM EB (Executive Board). The COP/CMP provides overall principles and general regulations to deliver the political goals of the Parties and the CDM EB stipulates implementation rules.

Another associated factor is that these legislative authorities update and adopt new rules frequently and extensively. The COP/CMP may produce new decisions annually. From the discussions in section 2.5, we can see that the time scale for generating relevant decisions lasted from 1997 to today with dozens of pages of new rules every year. Such a fragmented and frequent way to generate new rules is inevitable, considering that international negotiations on this issue have to be done progressively. However, this complex law-making process can considerably increase transaction costs for the practitioners to keep track of the progress of the rules.

The frequently reformed policies and laws lead to high uncertainty for the future and reduce the predictability of carbon revenues from forest carbon projects in developing countries. For example, the amount of forest carbon offsets traded from developing countries to foreign governments shrank massively from eighteen percent to two percent during 2012, and the price also dropped from 2012 to 2013.<sup>357</sup> One of the reasons behind this may be that the international regulatory environment for forest

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<sup>356</sup> Janelle Knox-Hayes, "Constructing Carbon Market Spacetime: Climate Change and the Onset of Neo-Modernity," *Annals of the Association of American Geographers* 100, no. 4 (2010): 7.

<sup>357</sup> Peters-Stanley et al., *Covering New Ground: State of the Forest Carbon Markets 2013*, 35 and 41.

carbon projects was uncertain after 2012, because 2012 marked the last year of the first commitment period of the Kyoto Protocol. The COP to the UNFCCC had not yet issued decisions on how forest carbon offsets could be used for the future.

## 2.7.2 The Rent-Seeking Problem: Definition and Legitimate Forms

The following two policy-making problems may lead to unsustainable industrial tree plantations in forest carbon projects in developing countries and may be a result of rent-seeking by large logging corporations. In the political economy, rent-seeking refers to private, powerful groups legally influencing policy making by lobbying.<sup>358</sup> Decision-makers may favour large-scale logging companies, rather than pursue the best interests of the public.<sup>359</sup> Interest groups manage to affect the governments' choices on regulatory instruments on environmental issues for their own benefits rather than for the well-being of the entire society.

The first problem is that the definition of forest in UNFCCC decisions does not distinguish natural forests from industrial plantations.<sup>360</sup> The second problem is the current, legitimate forms of CDM forest carbon projects, afforestation and reforestation, which allow forest activities with commercial interests but with dubious effects on the environment and society.<sup>361</sup> Under these decisions, monoculture industrial plantations are massively practised in CDM A/R projects.<sup>362</sup> People plant industrial trees to obtain carbon credits and then log the planted trees.<sup>363</sup> Such practices are highly

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<sup>358</sup> Michael G Faure and Stefan E Weishaar, "The Role of Environmental Taxation: Economics and the Law," in *Handbook of Research on Environmental Taxation*, ed. Janet E. Milne and Mikael Skou Andersen (Edward Elgar Publishing, 2012), 409.

<sup>359</sup> Sven Wunder, "Poverty Alleviation and Tropical Forests—What Scope for Synergies?," *World Development* 29, no. 11 (2001): 1826.

<sup>360</sup> "Annex: Definitions, Modalities, Rules and Guidelines Relating to Land Use, Land-Use Change and Forestry Activities under the Kyoto Protocol," UNFCCC (2001), FCCC/CP/2001/13/Add.1: 58. "(a) 'Forest' is a minimum area of land of 0.05-1.0 hectares with tree crown cover (or equivalent stocking level) of more than 10-30 percent with trees with the potential to reach a minimum height of 2-5 meters at maturity in situ. A forest may consist either of closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground or open forest. Young natural stands and all plantations which have yet to reach a crown density of 10-30 percent or tree height of 2-5 metres are included under forest, as are areas normally forming part of the forest area which are temporarily left bare as a result of human intervention such as harvesting or natural causes, but which are expected to revert to forest."

<sup>361</sup> Ibid. "'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 direct human-induced conversion of non-forested land to forested land through planting, seeding 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 reforestation occurring on those lands that did not contain forest on 31 December 1989."

<sup>362</sup> Maria Socorro Z. Manguiat, *Legal Aspects in the Implementation of CDM Forestry Projects* (IUCN-the World Conservation Union, 2005), 7.

<sup>363</sup> Greenpeace, *Sinks in the CDM: After the Climate, Biodiversity Goes Down the Drain - an Analysis of the CDM Sinks Agreement at COP-9* (Greenpeace International, 2003), accessed 2 May 2017, <http://www.greenpeace.org/international/en/publications/reports/sinks-in-the-cdm-after-the-cl-2/>: 1-2.

criticised for their negative impact on biodiversity.<sup>364</sup> Therefore, Sasaki (2009) claims that the current international climate regime can lead to immense forests degradation and suggests adopting a lower height limit when defining “trees” and setting a minimum cover of trees on the land when defining “forest”.<sup>365</sup>

One may argue that the current definition was left with deliberate ambiguity to ensure that the definition is globally acceptable.<sup>366</sup> Thus, a certain level of discretion is given to national policy makers to reinforce the definitions and legitimate forms of forest carbon projects to fit in with national political goals.<sup>367</sup> Others may argue that lawmakers might not have been aware of these problems at the time. However, from a political point of view, it is possible that because of the lobbying of powerful forestry corporates, delegates in international negotiations chose to be soft on this issue and national policy makers allow unsustainable projects to be implemented.

To solve this problem, a more direct solution would be to change the current forest-related definitions in international climate change agreements. For instance, Sasaki (2009) suggested setting a lower height limit when defining “trees” at more than 5 meters with a minimum cover of more than 40%.<sup>368</sup> These changes could help distinguish natural forests from industrial plantations and limit industrial tree plantations in forest carbon projects.

However, one should consider three drawbacks from a practical perspective that will hinder this approach in terms of securing sustainable forest carbon projects. First, it would be difficult and time-consuming to find universally-agreed definitions to replace the current ones. As is apparent from the discussion in Sections 2.2 to 2.5, the current decision-making process of UNFCCC decisions is quite complicated. The interest group of industrial tree plantations have succeeded in inserting industrial tree plantation in CDM forest carbon projects. The negative environmental and social impacts of industrial tree plantations in forest carbon projects have been raised since 2000; however, the CDM rules have not been changed and REDD+ environmental and social safeguards remain unbinding.

Second, assuming the current definitions will be modified for more sustainable forest carbon projects, it is still hardly guaranteed that the new definitions will be properly implemented. The project operators,

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<sup>364</sup> Parrotta, Wildburger, and Mansourian, *Understanding Relationships between Biodiversity, Carbon, Forests and People: The Key to Achieving REDD Objectives*, 65.

<sup>365</sup> Nophea Sasaki and Francis E. Putz, "Critical Need for New Definitions of “Forest” and “Forest Degradation” in Global Climate Change Agreements," *Conservation Letters* 2, no. 5 (2009): 229.

<sup>366</sup> *Ibid.*, 226.

<sup>367</sup> Till Neeff, Heiner Von Luepke, and Dieter Schoene, *Choosing a Forest Definition for the Clean Development Mechanism*, Forests and Climate Change Working Paper (FAO, 2006): 5.

<sup>368</sup> Sasaki and Putz, "Critical Need for New Definitions of “Forest” and “Forest Degradation” in Global Climate Change Agreements," 226-32.

as the directly involved parties of the projects, are better informed than the regulators of the projects' risks.<sup>369</sup> Forestry corporates can be the operators of forest carbon projects and, as the rent-seekers, they have a strong incentive to plant industrial trees to obtain both carbon benefits and wood products after the crediting period, and to hide such intentions from the regulators. Therefore, a crucial issue is whether or not the current institutional system can effectively and efficiently monitor the implementation of forest carbon projects according to new definitions. For this reason, Chapter 3 of this book will discuss the international implementation rules of forest carbon projects, complemented with cases study of project practices in China in Chapter 8.

Third, the discussion in Section 2.7.1 shows that the CDM as a body to interpret and implement UNFCCC decisions renews rules frequently due to new scientific discoveries and feedback from practices. If we try to solve the rent-seeking problem by changing the current forest-related definitions with concrete numbers based on scientific arguments and feedback from practitioners, there is a possibility that we may need to change the rules again on the basis of further scientific discoveries or feedback from practices. However, as it has been said, it is rather difficult to modify UNFCCC decisions.

With regard to these three drawbacks, this research looks for a different approach. The idea is not necessarily to change the current UNFCCC decisions on forest-related definitions, but to achieve institutional modifications to a certain level that can avoid the complicated and time-consuming decision-making process of international climate change negotiations. In addition, this approach should also involve not only the rule-makers but also the actors that are more involved in project practices and have some power to control the implementation and results of the projects. Lastly, this approach should involve international experts on the sustainability of forest carbon projects and can respond flexibly to new scientific discoveries and feedback from practices.<sup>370</sup> The institutional design of this research will consider these requirements and incorporate them in specific measures.<sup>371</sup>

### **2.7.3 Forest Carbon Projects Lacking Ecological Restoration Standards for Biodiversity Conservation**

Scholars suggest that the international climate and biodiversity regimes to be better co-ordinated.<sup>372</sup> One NGO claims that decisions in COP 9 have loopholes that allow environmentally and socially

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<sup>369</sup> Steven Shavell, "A Model of the Optimal Use of Liability and Safety Regulation," *Rand Journal of Economics* 15, no. 2 (1984): 271.

<sup>370</sup> The institutional design that is proposed in Chapter 9 can meet these three requirements. For more details please see Chapter 9, Sections 9.2 and 9.3.

<sup>371</sup> For more details of the institutional design, please see Chapter 9, Sections 9.2 and 9.3.

<sup>372</sup> Joy A Kim, "Regime Interplay: The Case of Biodiversity and Climate Change," *Global Environmental Change* 14, no. 4 (2004): 315-24.

unsustainable CDM A/R projects to be legalised.<sup>373</sup> Ma et al. (2013) oppose monoculture industrial tree plantations for the lack of long-term sustainability and propose reforming current CDM rules by integrating ecological restoration standards for the natural restoration of degraded forest land.<sup>374</sup> Natural restoration requires finance for fencing and security in the long term. However, monitoring ends when a CDM A/R project terminates under the current CDM rules. In addition, if REDD+ activities fail to prevent “leakage” and the pressure on forest land spills over on to other ecosystems, REDD+ may be detrimental to biodiversity conservation.<sup>375</sup> Taken altogether, both case studies and theoretical studies show that the current international climate regime on CDM forestry projects and REDD+ projects lack consideration and effective measures for biodiversity conservation.

## **2.7.4 The Legal Constraints on Forest Carbon Credits**

To address the ‘non-permanent’ feature of forest-stored carbon, the following three measures are adopted in the CDM for the forest sector: temporary validity of forest carbon credits, replacing rules on forest carbon credits, and a maximum amount for forest carbon credits. However, these measures are opposed by scholars for putting forest-based carbon credits at an inferior position in carbon markets. The following sections discuss these three constraining measures and the oppositions.

### **2.7.4.1 Temporary Validity of Forest Carbon Credits**

COP 9 created two kinds of temporary emission reductions particularly for a CDM A/R project. First, the tCERs represent CERs that expire at the end of the commitment period following the one during which they are issued. The commitment period is the duration within which the Kyoto Protocol set a specific target for the designated parties to reach within the period. The second commitment period is from 2012 to 2020. Therefore, a tCER issued in the first commitment period will expire in the year 2020, which is the end of the second commitment period. Up to now, the Kyoto Protocol has only set up two commitment periods.

The second temporary carbon credit is the ICERs, which expire at the end of the validity period of the project. Normally, the validity period of the project is called the crediting period. The duration could be 30 years non-renewable or 20 years but renewable twice.<sup>376</sup> In the serial numbers of tCERs and

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<sup>373</sup> Greenpeace, *Sinks in the CDM: After the Climate, Biodiversity Goes Down the Drain - an Analysis of the CDM Sinks Agreement at COP-9*, 2.

<sup>374</sup> Ma et al., "Integrating Ecological Restoration into CDM Forestry Projects," 145.

<sup>375</sup> Robert Ondhowe, *REDD+ Implementation: A Manual for National Legal Practitioners* (UNEP and UN-REDD, 2015): 10.

<sup>376</sup> Para. 23, Annex, "Modalities and Procedures for Afforestation and Reforestation Project Activities under the Clean Development Mechanism in the First Commitment Period of the Kyoto Protocol," UNFCCC (2004).

ICERs, the expiry date is part of the number. Other units in the family of Kyoto Units are permanent emission reductions.

#### **2.7.4.2 The Replacing Rule on Forest Carbon Credits**

The second legal constraint is the “replacing rule”, which refers to the utility of the tCERs and ICERs being terminated at some point in the future. Before they expire, the owners of temporary carbon credits have to replace them with permanent or new temporary emission reductions to carry out their obligations.<sup>377</sup> Alternatively, a tCER could also be replaced by another tCER, which will expire later. The ICER would only be a substitute of another ICER, whose validity period is subject to the validity period of the project and is non-renewable. For the convenience of calculating the replacing process of tCERs and ICERs, it is provided that all Annex B parties should establish a retirement account and a replacement account within their national registry to record the retirement and replacement of tCERs and ICERs.

The “replacing rule” set a time limit and a complicated registration procedure on the utility of the carbon credits produced by A/R CDM projects. This not only adds to the cost of implementing an A/R CDM project, but decreases the flexibility of making use of temporary credits in carbon trading. For instance, if an Annex B party obtains tCERs or ICERs which exceed the amount they need to fulfil the obligations or what the market demands for the first commitment period, they cannot use the extra amount of tCERs or ICERs for the next commitment period. By contrast, the permanent credits can be exploited in any commitment period by any sector. For Annex B parties, they can store a maximum 2.5 percent of their total originally allocated AAUs in one commitment period and carry them forward to the next commitment period. In the subsequent commitment period, they can employ the stored AAU to meet their obligations or sell.

#### **2.7.4.3 The Maximum Amount for Forest Carbon Credits**

The CDM also puts an amount limit on forest-based CERs. Countries with reduction obligations listed in Annex B can, every year, use a maximum one percent of its base year emissions amount of forest-based CERs in the first commitment period (2008-2012) to make up their additional emissions.<sup>378</sup> On

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<sup>377</sup> Para. 59, *ibid.*

<sup>378</sup> Para. 14, Annex, "Decision 16/CMP.1: Land Use, Land-Use Change and Forestry," (2006). The original text is as follows: "for the first commitment period, the total of additions to a Party's assigned amount resulting from eligible land use, land-use change and forestry project activities under Article 12 shall not exceed one percent of base year emissions of that Party, times five." Article 12 stipulates the Clean Development Mechanism. 'Base year emissions, under the Kyoto Protocol, are defined as the aggregate anthropogenic carbon dioxide equivalent emissions of the GHGs listed in a historical base year. For most Annex I Parties, the historical base year is 1990. Annex I Parties undergoing the process of transition to a market economy may choose a year or period other than 1990, in accordance with Article 3, paragraph 5

the contrary, there is no amount limit for permanent credits (AAUs, ERUs or CERs) in this case. A cap results in lower demand, and thereby leads to lower prices, and punishes good projects with clear additionality and positive impacts on sustainable development.<sup>379</sup> The current prices are formulated solely based on the value of sequestering carbon and without a proper consideration of the value of other ecosystem services that would be provided by a living sustainable forest. The value of other ecosystem services provided by the forests are neglected and left uncompensated in the carbon market.<sup>380</sup>

#### 2.7.4.4 Opposition to “Temporary Carbon Credits”

The “temporary nature” puts CDM-certified forest-based carbon offsets in an inferior position in the global carbon market.<sup>381</sup> Policies on issues such as carbon pricing can affect private capital flowing into the green economy.<sup>382</sup> Opposing these legal constraints, scholars have proposed to grant forest carbon removals permanent credits due to the following reasons. Some scholars claim that the temporary storage problem is not unique to CDM forest carbon projects. For instance, Manguiat (2005) claimed that saved fossil fuel can be used in the future.<sup>383</sup> Pedroni (2005) asserted that emission reductions from energy projects are not permanent either.<sup>384</sup> Others claim that a project should not be approved or implemented if it is estimated to have a high risk of reversal.<sup>385</sup> Forest carbon credits should not be treated differently in order to maintain consistency among all types of carbon credits in the market.<sup>386</sup> This point of view is also mentioned by a Chinese policy maker during an interview, stating that all carbon credits should be equal to maintain the substitution effect of the projects and ensure the fluency of the transaction in the market.<sup>387</sup>

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under the Kyoto Protocol.’, cited from UNFCCC, “Kyoto Protocol Base Year Data”, available at [http://unfccc.int/ghg\\_data/kp\\_data\\_unfccc/base\\_year\\_data/items/4354.php](http://unfccc.int/ghg_data/kp_data_unfccc/base_year_data/items/4354.php), accessed on

<sup>379</sup> Schneider, “Is the CDM Fulfilling Its Environmental and Sustainable Development Objectives? An Evaluation of the CDM and Options for Improvement,” 13.

<sup>380</sup> Charlie Parker and Matthew Cranford, *The Little Biodiversity Finance Book: A Guide to Proactive Investment in Natural Capital* (Oxford: Global Canopy Programme, 2010), 18-19.

<sup>381</sup> Peters-Stanley et al., *Covering New Ground: State of the Forest Carbon Markets 2013*, 59.

<sup>382</sup> Angela Dewan, “Green Growth Capital Locked Down by Lackluster Governments: Credit Suisse,” *CIFOR: Forests News*, 7 May 2014, <http://blog.cifor.org/27414/green-growth-capital-locked-down-by-lackluster-governments-credit-suisse?fnl=en>.

<sup>383</sup> Manguiat, *Legal Aspects in the Implementation of CDM Forestry Projects*, 6.

<sup>384</sup> Lucio Pedroni, “Carbon Accounting for Sinks in the CDM after COP-9,” *Climate Policy* 5, no. 4 (2005): 408.

<sup>385</sup> “Thirty-Ninth Session: Views on Specific Possible Additional Land Use, Land-Use Change and Forestry Activities and Specific Alternative Approaches to Addressing the Risk of Non-Permanence under the Clean Development Mechanism,” UNFCCC SBSTA (2013), accessed 2 June 2017, <http://unfccc.int/resource/docs/2013/sbsta/eng/mise18.pdf>: 9.

<sup>386</sup> Salinas and Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects*, 54.

<sup>387</sup> Interview 1, “A Chinese Policymaker from the National Development and Reform Commission, Paris, France (Face-to-Face Interview, 2 December 2015).”



Provided that a permanent carbon crediting approach is applied to forest carbon storage, alternative approaches are needed to deal with the non-permanence risk. Such approaches were discussed in COP 16 to the UNFCCC in Cancun and were called upon again in the UNFCCC negotiations in 2013.<sup>388</sup> Relevant political and scholarly discussions included a range of single or a combination of methods such as buffer, insurance, fund, and host country guarantee.<sup>389</sup> China proposed that the host country should have the discretion to choose which alternative method to apply.<sup>390</sup>

## 2.8 Summary and Concluding Remarks

This chapter first described the international legislative process of international policies and laws on forest carbon projects. To implement the UNFCCC, the Kyoto Protocol and subsequent COP decisions established market mechanisms including CDM A/R projects and REDD+ activities, which triggered public debates over forest carbon projects. This was because forest carbon storage has some controversial features including its risks of diminishing overall climate efforts and causing environmental and social problems in developing countries. Developing countries argued that applying international standards on this issue would impinge on their sovereignty. The current COP decisions under the UNFCCC focus on addressing climate concerns and have not formulated any binding monitoring procedure concerning sustainability issues.

This study intends to propose an institutional design to enhance projects' contributions to sustainable development, while realising that the formulation of relevant international policies and laws has experienced, and will probably experience fierce political bargaining. Therefore, if an institutional design is targeted at reforming international policies and laws, it will face the political scrutiny of all governmental parties to the UNFCCC. To avoid this bureaucratic procedure, this study seeks an alternative approach, an approach that can influence international forest carbon projects in developing countries with cross-border effects, but that avoids as much as possible international political negotiations to increase the feasibility of implementing the institutional design.

Furthermore, the current international climate policies and laws address climate risks of CDM forest carbon markets by setting legal constraints on forest-based carbon credits. These constraints can affect the price of forest-based carbon offsets in the market and the incentives of the actors in the projects.

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<sup>388</sup> "Report of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol on Its Fifteenth Session," UNFCCC AWG-KP (2011), FCCC/KP/AWG/2010/18/Add.1: 25. "Thirty-Ninth Session: Views on Specific Possible Additional Land Use, Land-Use Change and Forestry Activities and Specific Alternative Approaches to Addressing the Risk of Non-Permanence under the Clean Development Mechanism," UNFCCC SBSTA (2013), 5.

<sup>389</sup> Susan Subak, "Replacing Carbon Lost from Forests: An Assessment of Insurance, Reserves, and Expiring Credits," *Climate Policy* 3, no. 2 (2003): 107-22.

<sup>390</sup> "Thirty-Ninth Session: Views on Specific Possible Additional Land Use, Land-Use Change and Forestry Activities and Specific Alternative Approaches to Addressing the Risk of Non-Permanence under the Clean Development Mechanism," UNFCCC SBSTA (2013), 9.

REDD+ also uses results-based payments to direct the behaviour of relevant actors. Therefore, an institutional design for forest carbon projects needs to consider project actors' economic gains and losses, because many of them are motivated to participate in these projects by economic returns. Hence, the institutional design can adopt incentive-based measures, which associate more sustainable results with more economic returns for relevant actors.

In conclusion, by reviewing the public debates and the legislative process this chapter finds that the current international climate policies and laws focus on addressing climate risks but fail to address forest carbon storage from a sustainable development perspective. Furthermore, this chapter identifies four pitfalls of current international climate policies and laws, which need to be addressed in the institutional design at the end of this study. First, the frequently and extensively updated rules increase legal complexity and uncertainty in forest carbon projects. Second, the current legal definition and legitimate project forms for forest carbon projects include industrial tree plantations that are heavily criticised for causing environmental and social problems. Furthermore, the current international climate legal regime for forest carbon projects in developing countries lacks binding ecological restoration standards for biodiversity conservation. Lastly, the legal constraints on forest-based carbon credits for addressing climate concerns put forest-based carbon credits at an inferior position compared with other types of carbon credits in the carbon market. This can lead to low prices for forest-based carbon credits.

After reviewing the international policies and laws, the next chapter moves forward to the international implementation rules for CDM A/R and REDD+ activities. These two chapters, taken together, outline the general international legal framework on forest carbon projects. They pave the way to “zoom in” on Chapter 4, which looks specifically at sustainability assessments on forest carbon projects in developing countries.



### **3 INTERNATIONAL IMPLEMENTATION RULES FOR FOREST CARBON PROJECTS IN DEVELOPING COUNTRIES**

#### **3.1 Introduction**

This chapter elaborates the international implementing process and aims to pinpoint possible institutional issues that may lead to unsustainable results in foreign forest carbon projects in developing countries. International implementation rules constitute the second tier of the international institutional framework on foreign forest carbon project in developing countries, which is developed based on international climate policies and laws and sets the basic framework for the sustainability assessments.

As discussed in the introductory chapter, this research focuses on two types of forest carbon activities in developing countries: the CDM forest carbon projects and the REDD+ activities. Regarding the CDM forest carbon projects, the CDM Executive Board (CDM EB) interprets and refines relevant international decisions to a practical level. Regarding the REDD+, because specific implementation rules are not formulated yet at the international level, this chapter reviews not only governing rules but also implementation practices in pilot projects.

This chapter is structured as follows. First, Section 3.2 reviews the operational process of a CDM project. The discussion puts special attention on the rules that differentiate forest carbon projects from other CDM projects and sheds light on the functions of major actors in a CDM forest carbon project. Furthermore, Section 3.3 discusses the governance of REDD+ implementation. Section 3.4 analyses the implementation rules. Finally, Section 3.5 summarises and concludes this chapter.

#### **3.2 CDM Forest Carbon Projects Governance and Implementation**

The CDM EB was established in 2005 to develop implementation rules for CDM projects.<sup>391</sup> The implementation rules issued by the CDM EB are incorporated into the operational process of a CDM project, the so-called CDM project circle.<sup>392</sup> The CDM Project Circle contains eight stages and each stage involves different actors as demonstrated in Figure 3-1.<sup>393</sup>

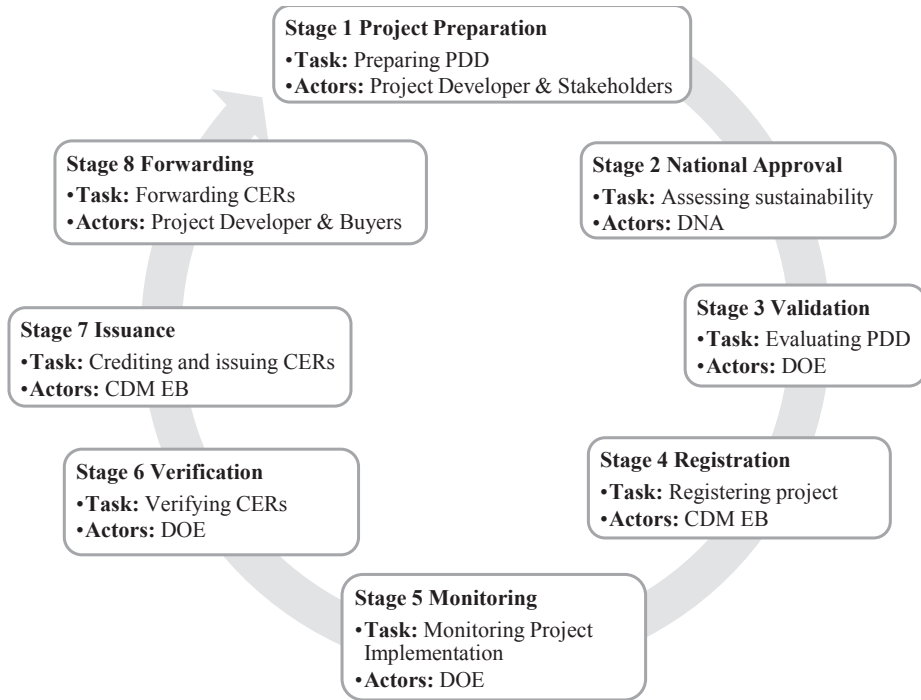
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<sup>391</sup> "Appendix D: Clean Development Mechanism Registry Requirements," UNFCCC (2005), FCCC/KP/CMP/2005/8/Add.1: 8-11.

<sup>392</sup> Salinas and Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects*, 3.

<sup>393</sup> CDM, "CDM Project Cycle," accessed 2 March 2017, <http://cdm.unfccc.int/Projects/diagram.html>.

**Figure 3-1: The CDM Project Circle**



The rest of this section reviews operational stages in the CDM Project Circle and elaborates on the major actors at each stage. The eight stages are project preparation, national approval, validation, registration, monitoring, verification, issuance and forwarding. All CDM projects must go through these stages to eventually receive certified carbon credits from the CDM EB. Requirements at each stage are different for different types of CDM projects.<sup>394</sup> Special rules are designed for forest carbon projects.

### 3.2.1 Project Preparation

In this stage, a Project Design Document (PDD) will be developed by the project developer, which elaborates detailed and complete information about the project. The project developer is usually a private entity with professional knowledge in formulating the PDD and in managing the project.<sup>395</sup>

<sup>394</sup> "Rules and Reference," accessed 2 March 2017, <http://cdm.unfccc.int/Reference/index.html>.

<sup>395</sup> Salinas and Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects*, 140.

Normally, the project developer submits the PDD to the CDM EB, signs contracts with stakeholders to obtain the rights of carbon credits, and sells the carbon credits to buyers.

In a few cases, the project developer is a public entity. For instance, all five registered CDM A/R projects in Uganda are small-scale forestry projects with the National Forestry Authority and the World Bank’s BioCarbon Fund as project participants. The Uganda National Forestry Authority is responsible for most of the investor shares, has all rights and titles to the emission reductions and maintains overall responsibility for project implementation.<sup>396</sup>

To prepare for the PDD, the project developer may have signed a contract with the local stakeholders to clarify the title of the generated GHGs’ removals, the legitimate tenure of the land in the project area for forestry activities and the benefit sharing plans for distributing interests in the future. Additionally, the project developer may also have signed a contract with the buyers on the transaction of GHGs’ removals to ensure the investments for the project. The buyers of GHG removals generated by a forest carbon project can be governments or companies of Annex 1 countries, or the financial entities representing those two types of buyers.

The PDD is one of the most significant documents of CDM projects. It is the basis to apply for approvals and verifications. A PDD should be developed based on the PDD template published by the CDM. Until August 2014, there were in total 5 types of PDD template on the official website of CDM and one of them is specially designed for CDM A/R project activities.<sup>397</sup> The template for CDM A/R projects has been amended more frequently than others as shown in Table 3-1.

**Table 3-1: Types of PDD Templates for CDM Projects**

CDM Project Types	Initial Adoption Year	Number of Times Amended
General CDM projects	2002	5
General CDM Small-scale projects	2003	5

<sup>396</sup> CDM, "Project 4939: Uganda Nile Basin Reforestation Project No. 1," (2011), Project Design Document, accessed 18 April 2017, <https://cdm.unfccc.int/Projects/DB/JACO1309231132.71/view>: 2-3. "Project 4940: Uganda Nile Basin Reforestation Project No. 2," (2011), Project Design Document, accessed 18 April 2017, <https://cdm.unfccc.int/Projects/DB/JACO1309233364.97/view>: 2-3. "Project 1578: Uganda Nile Basin Reforestation Project No. 3," (2009), Project Design Document, accessed 18 April 2017, <https://cdm.unfccc.int/Projects/DB/JACO1200649370.95/view>: 2-3. "Project 4941: Uganda Nile Basin Reforestation Project No. 4," (2011), Project Design Document, accessed 18 April 2017, <https://cdm.unfccc.int/Projects/DB/JACO1309233467.05/view>: 2-3. "Project 4466: Uganda Nile Basin Reforestation Project No. 5," (2011), Project Design Document, accessed 18 April 2017, <https://cdm.unfccc.int/Projects/DB/JACO1297129985.73/view>: 2-3.

<sup>397</sup> "CDM-AR-PDD-FORM Version 08.0," accessed 17 March 2017, [https://cdm.unfccc.int/filestorage/e/x/t/extfile-20140625145508804-PDD\\_form06.pdf/PDD\\_form06.pdf?t=SFN8bmE1ZWZlHDAoSsUOrM3OM6yA\\_cNnAYWX](https://cdm.unfccc.int/filestorage/e/x/t/extfile-20140625145508804-PDD_form06.pdf/PDD_form06.pdf?t=SFN8bmE1ZWZlHDAoSsUOrM3OM6yA_cNnAYWX). "Forms," accessed 15 April 2017, [https://cdm.unfccc.int/Reference/PDDs\\_Forms/index.html#proj\\_cycle](https://cdm.unfccc.int/Reference/PDDs_Forms/index.html#proj_cycle).

CDM A/R Projects	2004	6
CDM A/R Small-scale projects	2006	3
CDM CCS projects <sup>398</sup>	2012	1

The template for CDM A/R has both similarities and differences with the form used for general CDM projects.<sup>399</sup> In both forms it is mandatory to report the projects' environmental impacts (Section D) and local stakeholder consultation (Section F). Compared with the general form, the form for A/R projects requires more geographical and environmental information. For instance, in Section A "Description of Project Activity", the template for A/R projects requests providing the geographical boundaries and the environmental conditions (A.2.5 and A.3.).<sup>400</sup> In addition, the template for A/R projects requests an appendix for the geographic delineation of the project boundary.<sup>401</sup>

Second, the template for A/R projects asks for demonstration of the legal title to project land, to the rights to the GHGs' removals and to the eligibility of the land.<sup>402</sup> Socio-economic impacts are especially required in the CDM-AR-PDD-FORM, containing sections such as the analysis of socio-economic impacts and the socio-economic impact assessment.<sup>403</sup>

Thirdly, because of the non-permanent feature of the GHGs' removals by trees, the template for A/R projects also requests a requirement to illustrate the approach addressing the non-permanence issue in the project.<sup>404</sup> Furthermore, it also requests reporting carbon pools and emission sources of the A/R projects to keep a check on the GHGs' removals and emissions in forestry sinks.<sup>405</sup>

### 3.2.2 National Approval

The second stage in the CDM Project Cycle is national approval, where the project documents will be assessed by the Designated National Authorities (DNA) of the host Party and the investing Parties. The host Party is where the project will be located. The DNA is an authorised entity of a Kyoto Protocol Party. Normally, there is only one host Party for each CDM forestry project and multiple investing

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<sup>398</sup> CCS stands for Carbon Capture and Storage.

<sup>399</sup> The form for General CDM projects is CDM, "CDM-PDD-FORM," accessed 17 March 2017, [https://cdm.unfccc.int/filestorage/e/x/t/extfile-20140625145451520-PDD\\_form05.pdf/PDD\\_form05.pdf?t=em58bmE1ZWU2fDCWLpkOgPzdU-Y9keHonsaE](https://cdm.unfccc.int/filestorage/e/x/t/extfile-20140625145451520-PDD_form05.pdf/PDD_form05.pdf?t=em58bmE1ZWU2fDCWLpkOgPzdU-Y9keHonsaE).

<sup>400</sup> "CDM-AR-PDD-FORM Version 08.0," 2.

<sup>401</sup> Section B. 4, *ibid*.

<sup>402</sup> Section A. 6 and 7, *ibid*.

<sup>403</sup> Section E, *ibid*.

<sup>404</sup> Section A. 8, *ibid*.

<sup>405</sup> Section B. 3, *ibid*.

Parties. At this stage, the prepared PDD should be submitted to and be examined by the DNAs as per national approval procedures and requirements to receive a Letter of Approval (LoA).

The DNAs of the host Party and the investing Parties have different a focus when assessing the participants and the project. The DNA of the host Party oversees the sustainable impacts of the projects.

<sup>406</sup> In practice, the national approval stage has evolved differently in host developing countries. Many scholars and NGOs question national assessments on the sustainable contributions of CDM A/R projects. Discussions on this issue are further developed in Chapter 4.

The investing Parties will examine the participation of entities, mostly investing industries or project operational entities, from a different perspective. As defined by the CDM EB decisions, the LoA from the investing Parties should indicate that the country which issues this LoA has ratified the Kyoto Protocol, and that participation of the participant is voluntary.<sup>407</sup>

For the addition, withdrawal, or replacement of a participant after project registration, consent from all project participants, or from the delegating “focal point”, should be provided and such changes should be communicated with the CDM EB and the UNFCCC secretariat.<sup>408</sup> The focal point is ‘any entity, or entities, whether or not registered as project participant’, nominated by all project participants to communicate with the board and the secretariat.<sup>409</sup> The secretariat should record such a change, inform involved Parties, and make relevant information publicly available.<sup>410</sup>

### 3.2.3 Validation (Certification)

With an approval letter from the DNAs, the PDD is to be submitted to a Designed Operational Entity (DOE) of the CDM EB to proceed with the validation process. As stated in COP 9, “validation” is an evaluating process on the project conducted independently by the DOEs.<sup>411</sup> The DOEs are either national legal entities or international organisations accredited by the CDM EB for specific sectoral CDM projects.<sup>412</sup> The accreditation and designation of a DOE will be on a provisional basis until it is

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<sup>406</sup> "Governance," accessed 3 April 2016, <https://cdm.unfccc.int/EB/governance.html>.

<sup>407</sup> Para. 1, "Annex 6: Clarification on Elements of a Written Approval," CDM-EB16 (2004).

<sup>408</sup> "Modalities of Communication Statement," CDM F-CDM-MOC, accessed 18 April 2017, [https://cdm.unfccc.int/Reference/PDDs\\_Forms/Registration/reg\\_form19.pdf](https://cdm.unfccc.int/Reference/PDDs_Forms/Registration/reg_form19.pdf).

<sup>409</sup> Para. 2, Annex 59, "Annex 59: Procedures for Modalities of Communication between Project Participants and the Executive Board," CDM-EB45 (2009). For the meaning of ‘focal point’ and ‘modalities of communication’, see "Glossary CDM Terms," CDM CDM-EB07-A04-GLOS accessed 15 April 2017, [https://cdm.unfccc.int/Reference/Guidelclarif/glos\\_CDM.pdf](https://cdm.unfccc.int/Reference/Guidelclarif/glos_CDM.pdf): 11 and 14.

<sup>410</sup> Para. 57, "Report," CDM-EB38 (2008), accessed 17 March 2017, <http://cdm.unfccc.int/EB/038/eb38rep.pdf>.

<sup>411</sup> Para. 10, Annex, "Decision 5/CMP.1: Modalities and Procedures for Afforestation and Reforestation Project Activities under the Clean Development Mechanism in the First Commitment Period of the Kyoto Protocol (Former COP Decision 19/CP.9)," UNFCCC (2005).

<sup>412</sup> "List of DOEs," accessed 2 March 2017, <https://cdm.unfccc.int/DOE/list/index.html>.



confirmed by the CMP.<sup>413</sup> The project participants have a contractual relationship with the DOEs, which means they have the right to select, enter into a contract and subsequently communicate with the DOEs.<sup>414</sup>

The DOE has two key functions as private certifiers. First, it validates the PDD and subsequently requests registration of a proposed CDM project activity at Stage Three.<sup>415</sup> The DOE assesses whether the PDD demonstrates the confirmation by the host Party on the projects' contribution to sustainable development.<sup>416</sup> Second, it verifies emission reductions of a registered CDM project activity and requests the CDM EB to issue certified emission reductions accordingly at Stage Six.<sup>417</sup> Through these two stages, the DOEs are to ensure that the decisions of COP/CMP and rules published by CDM EB are followed in CDM project practices. Therefore, some scholars regard the DOEs as the 'extended arm' of the CDM EB.<sup>418</sup> Normally, a DOE may only conduct either validation or verification for the same large-scale projects. To perform both functions on one project, a special request needs to be submitted to the CDM EB.<sup>419</sup>

The DOEs assess projects against the requirements of CDM EB as demonstrated in Figure 3-2.<sup>420</sup> The validation procedure was simplified by the CDM Validation and Verification Manual (VVM) in 2008 and was transformed to the CDM validation and verification standards (VVS) in 2012.<sup>421</sup> In general, the requirements contain the following aspects.<sup>422</sup> First, the project design and operation should contain local stakeholders' participation. Second, the PDD should contain analysis of the project's environmental impacts and conduct environmental impacts assessment as the host country DNA asks.

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<sup>413</sup> "DOE: Governance," accessed 2 March 2017, <https://cdm.unfccc.int/EB/governance.html>.

<sup>414</sup> Para. 12, Annex, "Decision 5/CMP.1: Modalities and Procedures for Afforestation and Reforestation Project Activities under the Clean Development Mechanism in the First Commitment Period of the Kyoto Protocol (Former COP Decision 19/CP.9)," (2005).

<sup>415</sup> Section G, *ibid.*

<sup>416</sup> Art. 40, "Decision 1/CMP.1: Consideration of Commitments for Subsequent Periods for Parties Included in Annex I to the Convention under Article 3, Paragraph 9, of the Kyoto Protocol," (2006), FCCC/KP/CMP/2005/8/Add.1

<sup>417</sup> Section I, "Decision 5/CMP.1: Modalities and Procedures for Afforestation and Reforestation Project Activities under the Clean Development Mechanism in the First Commitment Period of the Kyoto Protocol (Former COP Decision 19/CP.9)," (2005).

<sup>418</sup> Schneider, "Is the CDM Fulfilling Its Environmental and Sustainable Development Objectives? An Evaluation of the CDM and Options for Improvement," 5.

<sup>419</sup> CDM, "What Is a Designated Operational Entity?," accessed 2 March 2017, <https://cdm.unfccc.int/DOE/index.html>.

<sup>420</sup> UNFCCC, *Afforestation and Reforestation Projects under the Clean Development Mechanism: A Reference Manual* (UNFCCC, 2013), 19.

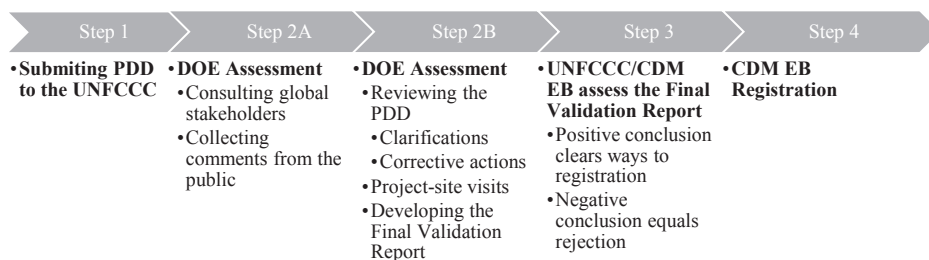
<sup>421</sup> "Annex 1: Clean Development Mechanism Validation and Verification Manual (Version 01.2)," CDM-EB55 (2010). "Validation and Verification Standard Version 07.0," CDM (2013), accessed 17 March 2017, [https://cdm.unfccc.int/Reference/regulatory\\_revision\\_olddocs.html](https://cdm.unfccc.int/Reference/regulatory_revision_olddocs.html). "Validation and Verification Standard Version 09.0," (2015), accessed 12 July 2017, <https://cdm.unfccc.int/Reference/Manuals/index.html>. The transition period from the VVM to VVS was after the CDM EB 66 (March 2012) until 31 January 2013. See UNFCCC, "Implementation Timeline," accessed 2 March 2017, [https://cdm.unfccc.int/Reference/Notes/gov/info\\_note35.pdf](https://cdm.unfccc.int/Reference/Notes/gov/info_note35.pdf).

<sup>422</sup> Para. 12, Annex, "Decision 5/CMP.1: Modalities and Procedures for Afforestation and Reforestation Project Activities under the Clean Development Mechanism in the First Commitment Period of the Kyoto Protocol (Former COP Decision 19/CP.9)," (2005).

Third, the DOE determines whether issues relevant with securing carbon stock are properly addressed including the non-permanence problem, leakage, baseline, monitoring methodology, and the additionality of the projects.

The DOE can request clarifications and corrective actions to the project documentation to acquire sufficient information to review the project, which the project applicants must respond to until the DOE closes the case.<sup>423</sup> If the DOE abuses its power at this stage, the project operation could be substantially delayed. If the DOE is in favour of the project, it can forward the PDD, the LoA and the summary of the comments from stakeholders to the UNFCCC secretariat with a positive recommendation.<sup>424</sup> The secretariat will publish the documents mentioned above on the CDM official website and forward them to the CDM EB.

**Figure 3-2: The Validation and Registration Process**



### 3.2.4 Registration

If the DOE report indicates compliance of the project design with CDM requirements, the project becomes a valid project. The PDD of the valid project will be submitted to the CDM EB, along with the LoAs from the DNAs of involved Parties and a request to register the project with the CDM EB from the DOE.<sup>425</sup> Once the project documents are published by the UNFCCC secretariat, the project is considered registered.

A registered project will be reviewed by the public and go through a completeness check by the UNFCCC secretariat, as well as vetting by the secretariat and the CDM Executive Board.<sup>426</sup> Completion of the registration process should take a maximum of eight weeks, unless the DNA of a

<sup>423</sup> Salinas and Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects*, 35.

<sup>424</sup> Para. 15, Annex, "Decision 5/CMP.1: Modalities and Procedures for Afforestation and Reforestation Project Activities under the Clean Development Mechanism in the First Commitment Period of the Kyoto Protocol (Former COP Decision 19/CP.9)," UNFCCC (2005).

<sup>425</sup> Para. 15, Annex, *ibid*.

<sup>426</sup> CDM, "Registration," accessed 2 March 2017, <http://cdm.unfccc.int/Projects/diagram.html>.

Party involved or at least three members of the CDM EB send a request for a technical review to the UNFCCC secretariat within 28 days after the publication.<sup>427</sup> In this case, the project will undergo a review by the UNFCCC secretariat and the Registration and Issuance Team (RIT).<sup>428</sup> Both the secretariat and the RIT need to finalise their assessments no later than fourteen days after the secretariat notifying the project participants and the DOE.<sup>429</sup> The project participants and the DOE have twenty-eight days after the notification to respond to the issues identified in the request.<sup>430</sup> The RIT was established by the CDM EB in 2006 with experts enrolled by the CDM EB from the UNFCCC roster of experts.<sup>431</sup> The RIT needs to comply with the General Guidelines for Panels/Working Groups.<sup>432</sup>

The project participants have the following rights and obligations towards the CDM EB. First, the CDM EB needs to keep the submitted information confidential. The information will be disclosed only on the written consent of the information provider, if the information is marked as proprietary or confidential, except as required by national law.<sup>433</sup> Second, the project participants have the right to be heard by the CDM EB, when there are opinions from a DOE for suspension or withdrawal of registered activities.<sup>434</sup> Third, the project developers have the right to receive a notification of the requested review and the result of the review from the CDM EB.<sup>435</sup>

### 3.2.5 Monitoring

After being registered, the project developer will implement the project as per the PDD, especially the monitoring plan contained in the PDD. The monitoring plan comprises a CDM-EB approved methodology and procedures ensuring an accurate measurement of GHGs' removals.<sup>436</sup> The monitoring results, which are collected by the project developer, are subject to verification.

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<sup>427</sup> Salinas and Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects*, 35.

<sup>428</sup> "Clean Development Mechanism Project Cycle Procedure Version 04.0," CDM CDM-EB65-A32-PROC, accessed 15 March 2017, [https://cdm.unfccc.int/Reference/Procedures/pc\\_proc01.pdf](https://cdm.unfccc.int/Reference/Procedures/pc_proc01.pdf): 18-19.

<sup>429</sup> Para. 87, *ibid.*

<sup>430</sup> Para. 81, *ibid.*

<sup>431</sup> "Registration and Issuance Team," accessed 2 March 2017, <http://cdm.unfccc.int/Panels/RIT/index.html>.

<sup>432</sup> "Annex 1: General Guidelines for Panels/Working Groups," CDM-EB37 (2008).

<sup>433</sup> Para. 6, Annex, "Decision 3/CMP.1: Modalities and Procedures for a Clean Development Mechanism as Defined in Article 12 of the Kyoto Protocol (Former COP Decision 17/CP.7)," UNFCCC (2005), FCCC/KP/CMP/2005/8/Add.1

<sup>434</sup> Para. 23, *ibid.*

<sup>435</sup> Paras. 9 (b) and 14, Annex III, "Decision 4/CMP.1: Guidance Relating to the Clean Development Mechanism (Former COP Decision 21/CP.8 and COP Decision 18/CP.9)," (2005), FCCC/KP/CMP/2005/8/Add.1.

<sup>436</sup> Para. 25, Annex, "Decision 5/CMP.1: Modalities and Procedures for Afforestation and Reforestation Project Activities under the Clean Development Mechanism in the First Commitment Period of the Kyoto Protocol (Former COP Decision 19/CP.9)," (2005).

### 3.2.6 Verification and Issuance

Verification refers to a review conducted by a DOE on GHGs' removals generated by the valid CDM projects.<sup>437</sup> The DOE will examine the monitoring of results and the compliance of the project with the PDD (including the monitoring plan). One verification takes place per commitment period. Project developers can decide on the date of the first verification and subsequent verifications will have to be carried out every 5 years. Like validation, the project participants have the right to select, enter into a contract, and subsequently communicate with the DOE. The project participants and the DOE will agree on a contractual arrangement for verification. The DOE must inform the project participants about the completion of verification in writing immediately.<sup>438</sup>

If the removals are verified, a written assurance will be issued by the DOE as the certification of the GHGs' removals generated by the projects.<sup>439</sup> An entity must have a LoA from a Party to the Kyoto Protocol to receive CERs from a CDM project as an initial project participant. The project participants need to instruct the CDM EB on the forwarding and distribution of the CERs from a CDM project activity.<sup>440</sup>

### 3.3 REDD+ Implementation and Governance

Although parties to the UNFCCC have not agreed on legally binding implementation rules for REDD+ projects, this section aims to sketch a general framework for the implementation and governance of REDD+ activities in developing countries based on practical and scholarly findings. The decisions of the COP for the UNFCCC have set voluntary requirements to implement pilot REDD+ activities. Section 3.3.1 discusses the operational elements established by the voluntary requirements issued by the decisions of the COP to the UNFCCC. Yet those voluntary requirements do not cover every operational element in the implementation process of REDD+. Therefore, Section 3.3.2 examines the operational elements formed in practice. Lastly, Section 3.3.3 compares the advantages and disadvantages of REDD+ activities on different scales and introduces a new concept of "nested REDD+".

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<sup>437</sup> Section I, Annex, *ibid*.

<sup>438</sup> Para. 63, Annex, "Decision 3/CMP.1: Modalities and Procedures for a Clean Development Mechanism as Defined in Article 12 of the Kyoto Protocol (Former COP Decision 17/CP.7)," (2005).

<sup>439</sup> Section J, "Decision 5/CMP.1: Modalities and Procedures for Afforestation and Reforestation Project Activities under the Clean Development Mechanism in the First Commitment Period of the Kyoto Protocol (Former COP Decision 19/CP.9)," (2005).

<sup>440</sup> Para. 66, Annex, "Decision 3/CMP.1: Modalities and Procedures for a Clean Development Mechanism as Defined in Article 12 of the Kyoto Protocol (Former COP Decision 17/CP.7)," (2005).

### 3.3.1 Operational Elements under the UNFCCC

This section reviews the operational elements provided by the decisions of the COPs to the UNFCCC. The operational elements include types of stipulated forest activities, the progressive phases for implementation, safeguards for sustainable environmental and social impacts, and the measures of accounting emissions from REDD+ activities.

#### 3.3.1.1 Types of Activities

As defined by COP 16, REDD+ comprises five types of activities with five different purposes.<sup>441</sup> The first type is reducing GHG emissions from deforestation. The second is reducing GHG emissions from forest degradation. The third one is the sustainable management of forests. The fourth is the conservation of forest carbon stocks. The last type is activities enhancing forest carbon stocks.

#### 3.3.1.2 Three Phases of Implementation

The five types of REDD+ activities may be implemented at the national level through three phases. The first phase is called the readiness phase, which includes designing national strategies and developing measures for monitoring, reporting and verification (MRV).<sup>442</sup> The national strategies or policies should address the following issues: drivers of deforestation and forest degradation, forest governance, safeguards, gender considerations, and the full and effective participation of stakeholders including indigenous peoples and local communities.<sup>443</sup> During this phase, a national system for MRV should be developed to assess the results of REDD+ activities at the end.<sup>444</sup>

Once a developing country passes the readiness phase, it can move forward to the implementation phase, where the national strategies and policies and demonstration activities are implemented. A REDD+ project should address and respect the Cancun REDD+ Safeguards, because it is a necessary precondition for results-based payments for REDD+ activities.<sup>445</sup> In Phase III, if the REDD+ activities addressed and respected the Cancun REDD+ Safeguards, the REDD+ practitioners may receive results-based payments based on the MRV results.

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<sup>441</sup> Para. 70, "Decision 1/CP.16: The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention," (2010).

<sup>442</sup> Arild Angelsen, *Realising REDD+: National Strategy and Policy Options* (CIFOR, 2009), 14.

<sup>443</sup> Para. 72, "Decision 1/CP.16: The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention," UNFCCC (2010).

<sup>444</sup> Para. 71 (c), *ibid.*

<sup>445</sup> Appendix I, *ibid.*

At present, developing countries have rarely achieved the second phase. This phase may involve finance and technology transfer from the North to the South to support the developing country Parties' capacity-building and the implementation of REDD+.<sup>446</sup> By June 2016, only Costa Rica and the Democratic Republic of Congo had received provisional approvals from the Carbon Fund of the World Bank's Forest Carbon Partnership Facility (FCPF).<sup>447</sup> This means that those two countries have completed the readiness phase and can move to the implementation phase by FCPF standards.

### 3.3.1.3 Cancun REDD+ Safeguards

The safeguards for REDD+ activities are provided in the Appendix I to Decision 1 of COP 16, which is the so-called Cancun Agreement (the Cancun REDD+ safeguards).<sup>448</sup> The seven provisions in the Cancun REDD+ safeguards stipulate requirements for the REDD+ activities, taking four aspects into consideration.<sup>449</sup>

First, the REDD+ activities undertaken by a developing country Party should consider national forest programmes, national legislation and relevant international agreements. Second, the REDD+ activities should respect the knowledge and rights of indigenous peoples and provide them with full and effective participation. Third, REDD+ activities should conserve national forests and biodiversity. Fourth, about forest emissions, the REDD+ activities should address the risks of reversals and leakages.<sup>450</sup>

### 3.3.1.4 Accounting Forests Emissions

To ensure that the emission reductions of REDD+ activities are accurately measured, reported and verified, the UNFCCC COP decisions first requested developing country Parties to set national and sub-national forest reference emission levels and forest reference levels.<sup>451</sup> The decisions also invited developing country Parties to establish transparent reference levels,<sup>452</sup> which should be updated

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<sup>446</sup> Ondhowe, *REDD+ Implementation: A Manual for National Legal Practitioners*, 9.

<sup>447</sup> Sean Frisby, *Forest Carbon Partnership Facility (FCPF) Fourteenth Meeting of the Carbon Fund (Cf14): Chair's Summary* (Paris, France: FCPF, 2016), accessed 15 April 2017, [https://www.forestcarbonpartnership.org/sites/fcp/files/2016/June/160711\\_CF14%20Chair%27s%20Summary%20final.pdf](https://www.forestcarbonpartnership.org/sites/fcp/files/2016/June/160711_CF14%20Chair%27s%20Summary%20final.pdf): 3.

<sup>448</sup> Para. 2, Appendix I, "Decision 1/CP.16: The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention," UNFCCC (2010).

<sup>449</sup> Para. 69, *ibid.*

<sup>450</sup> The Cancun REDD+ Safeguards are particularly relevant with the sustainability assessment of a project, because they provide requirements on a REDD+ project's social and environmental aspects. Therefore, the Cancun REDD+ Safeguards will be further discussed in Chapter 4, Section 4.2, which is about regulatory sustainability assessments on forest carbon projects in developing countries.

<sup>451</sup> Para. 71, "Decision 1/CP.16: The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention," UNFCCC (2010).

<sup>452</sup> Para. 7, "Decision 4/CP.15: Methodological Guidance for Activities Relating to Reducing Emissions from Deforestation and Forest Degradation and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries," (2009).

periodically.<sup>453</sup> Developing country Parties can submit such reference levels on a voluntary basis based on the guidelines issued in COP 17.<sup>454</sup> The UNFCCC COP 17 requests the secretariat to make submissions available on the UNFCCC REDD web platform.<sup>455</sup> The submissions are subject to technical assessments, whose guidelines and procedures are issued in decision 13/CP.19.<sup>456</sup> In addition, rigorous modalities for measuring, reporting and verifying are issues in COP 19.<sup>457</sup> REDD+ activities should reduce relocation of emissions (leakage) and the risk of reversals.<sup>458</sup> However, UNFCCC decisions have not addressed the additionality issue related to REDD+.

Although, COP decisions focus on national-scale REDD+ activities, sub-national REDD+ activities are also addressed and practised as an interim measure. Sub-national demonstration activities should be assessed for associated relocation of emissions.<sup>459</sup> Sometimes REDD+ at national and sub-national levels are referred to together as jurisdictional REDD+. A jurisdiction, here, refers to an area with a political boundary. In contrast to jurisdictional REDD+ programmes, there are project-level REDD+ activities with an even smaller boundary. Project-level REDD+ is formed in practice. The following section will introduce its operational elements.

### **3.3.2 Supplementary Operational Elements from REDD+ Practice**

How to fully implement REDD+ activities is still under discussion by the parties to the UNFCCC. In practice, there is a wider range of concepts and approaches that are labelled REDD+ by the practitioners. Project-based REDD+ in the voluntary carbon market is one of them. Many REDD+ activities at project level are implemented on the ground as shown in the online project database of the Verified Carbon Standard (VCS).<sup>460</sup> The VCS is a broadly recognised sustainable MRV standard in the voluntary carbon market that can verify carbon offsets in REDD+ projects.

Project-based REDD+ or REDD+ projects manage the scale of a forest area, such as a national park. This type of REDD+ activities is analogous to CDM AR projects. The project generates emissions

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<sup>453</sup> Para. 12, section II, "Decision 12/CP.17, Guidance on Systems for Providing Information on How Safeguards Are Addressed and Respected and Modalities Relating to Forest Reference Emission Levels and Forest Reference Levels as Referred to in Decision 1/CP.16," (2011).

<sup>454</sup> Para. 13, *ibid.*

<sup>455</sup> Para. 14, *ibid.*

<sup>456</sup> Para. 15, *ibid.* "Decision 13/CP.19 Guidelines and Procedures for the Technical Assessment of Submissions from Parties on Proposed Forest Reference Emission Levels and/or Forest Reference Levels.," (2013).

<sup>457</sup> "Decision 14/CP.19: Modalities for Measuring, Reporting and Verifying," (2013).

<sup>458</sup> Para. 2 (f) and (g), Annex I, "Decision 1/CP.16: The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention," (2010).

<sup>459</sup> Para. 5, Annex, "Decision 2/CP.13: Reducing Emissions from Deforestation in Developing Countries: Approaches to Stimulate Action," (2007). Para. 1 (d), "Decision 4/CP.15: Methodological Guidance for Activities Relating to Reducing Emissions from Deforestation and Forest Degradation and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries," (2009).

<sup>460</sup> VCS, "Project Database."

reductions, which need to be vetted by an external and independent organisation such as the VCS and the Climate, Community and Biodiversity Association (CCBA). The issued carbon credits will be traded on the international voluntary carbon market.

In addition, the nested REDD+ is developed in practice, which combines the operational elements of national, sub-national REDD+ activities and project-based REDD+ activities. To further elaborate the details of nested REDD+ and to understand why this type of activities are developed, we first need to have a comparison of three scales of REDD+ activities as conducted in the following section.

### **3.3.3 Advantages and Disadvantages of Different Scales and Nested REDD+**

This section compares REDD+ activities of three scales: national, sub-national, and project-level. REDD+ activities of different scales share certain operational elements including forest policy reform, establishment of forest emissions and forest reference level, environmental and social safeguards, and project finance. Currently, governments and project practitioners are still exploring which operational elements are best implemented at which scale. The rest of this section reviews the four elements of REDD+ activities at national, sub-national, and project-level separately. The last sub-section discusses a new form of REDD+ projects developed in practice that aims to combine the advantages and disadvantages of three scales.

#### **3.3.3.1 National Level REDD+ Activities**

REDD+ related policy reform implemented at the national level can influence a larger area of forest land than sub-national or project-based REDD+ activities.<sup>461</sup> In addition, a MRV system at the national level can monitor forests' emissions in a whole country, and therefore, can better control in-country carbon leakage.<sup>462</sup> Taking advantage of economies of scale, national level REDD+ activities, such as national level policy reforms and establishing reference levels, can considerably reduce the costs of halting in-country forest degradation and deforestation.

However, national-scale REDD+ activities may have the following disadvantages. First, implementing a national level forest MRV system and policy reforms may require stronger political and institutional capabilities of relevant governmental agencies. However, some governmental agencies of developing country Parties may not be able to do so. Additionally, national level REDD+ activities may lack the

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<sup>461</sup> Leo Peskett and Maria Brockhaus, "When REDD+ Goes National: A Review of Realities, Opportunities and Challenges," in *Realising REDD+: National Strategy and Policy Options*, ed. Arild Angelsen (Bogor, Indonesia: CIFOR, 2009), 28-36.

<sup>462</sup> Arild Angelsen, *Moving Ahead with REDD: Issues, Options and Implications* (CIFOR, 2008), ix.



flexibility to ensure a ‘full and effective participation of relevant stakeholders’, if standardised methodologies are applied.<sup>463</sup>

Regarding financing and results-based payments, on the one hand, the payment may be calculated based on more accurate results because in-country carbon leakage is better controlled with a national level forest monitoring system. On the other hand, corruption and government bureaucracy may be exercised the most in national level REDD+ activities and reduce the final payment to the workers.<sup>464</sup> The payment may need to go through national level governmental agencies, to sub-national and local governmental agencies before reaching the stakeholders.

### 3.3.3.2 Sub-national Level REDD+ Activities

A sub-national area refers to an area with a political boundary. It can be a state, a province, a municipality, or a district. Compared to the national-level REDD+ programme, sub-national level REDD+ programmes may be better at detecting and addressing the specific drivers of deforestation and the needs of the locals, so that the programme can be more tailor-made for that particular area.<sup>465</sup> Capacity wise, sub-national level REDD+ programmes require less from the government than a national level programme for policy reforms and the MRV system. Therefore, it allows a developing country Party to first implement REDD+ activities, while building up the government’s political and institutional capacity for a national-level REDD+ programme in the future.

However, the disadvantage is that sub-national level programmes can only implement sub-national level policy reforms and cannot monitor the leakage outside the protected area. Pursuant to the UNFCCC decisions, sub-national REDD+ activities are only interim measures. This level of REDD+ programmes sometimes applies standards from third-party independent organisations such as the Verified Carbon Standard and the American Carbon Registry. It should be noted that some sub-national REDD+ programmes may cover a larger area and be more complex than a national-level programme of a small country.

Regarding finance and results-based payment, sub-national level REDD+ programmes face similar circumstances with a national-level programme.<sup>466</sup> The emission reductions as the result of a programme may be less accurately measured than a national-level programme because the leakage

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<sup>463</sup> Para. 4, Annex I, "Decision 1/CP.16: The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention," UNFCCC (2010).

<sup>464</sup> Angelsen, *Realising REDD+ : National Strategy and Policy Options*, 166.

<sup>465</sup> Ivan Bond, *Incentives to Sustain Forest Ecosystem Services: A Review and Lessons for REDD* (International Institute for Environment and Development (IIED), 2009), viii.

<sup>466</sup> Angelsen, *Realising REDD+ : National Strategy and Policy Options*, 166.

outside the area is not monitored. However, the transaction cost from governmental corruption and bureaucracy may also be less than a national-level programme because fewer levels of governmental authorities are involved.

### 3.3.3.3 Project-level REDD+ Activities

Project-level REDD+ activities have been carried out in many REDD+ initiatives around the world. A project-level MRV system on the smallest scale requires the least costs of these three levels. Hence, it allows REDD+ activities to start early in a developing country Party while the government builds up capacities for a larger scale of REDD+ activities.<sup>467</sup> Additionally, the knowledge of the drivers of deforestation and the needs of the locals of the project area is the most accessible to the practitioners of project-level REDD+ activities.

However, the disadvantage is that project-level programmes have limited involvement of the national authorities. Therefore, their influence on a country is also limited. Furthermore, project-based REDD+ activities have the highest risk of carbon leakage, because replaced unsustainable forest activities outside the project area are not monitored by REDD+ activities.<sup>468</sup>

Customarily, the project developer will acquire the rights of the emission reductions produced by the REDD+ activities at the project level and hence will receive the payment for the emission reductions. With less involvement of the government, project-level REDD+ activities may involve less governmental corruption and bureaucracy. Thus, this level of projects may attract more private funding. However, the government may be less motivated to take measures to address the drivers of forest degradation and deforestation. In addition, the payment may be diminished because of the leakage of emissions outside the project area.

### 3.3.3.4 Comparison of Three Scales and Nested REDD+

Currently, scholars and practitioners are still testing out which measure is best taken at which scale. To combine the advantages of REDD+ activities at different scales and avoid their disadvantages, the “nested approach” is developed for REDD+ activities, which integrate the operational features of REDD+ at different scales. Cortez et al. (2010) claims that the nested approach can improve REDD+ activities from four perspectives: policy reform, the MRV on carbon leakage, protection of

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<sup>467</sup> Manuel Estrada, *Standards and Methods Available for Estimating Project-Level REDD+ Carbon Benefits: Reference Guide for Project Developers* (Bogor, Indonesia: CIFOR, 2011), accessed 16 July 2017, <http://www.cifor.org/library/3412/standards-and-methods-available-for-estimating-project-level-redd-carbon-benefits-reference-guide-for-project-developers/>: vi.

<sup>468</sup> Angelsen, *Moving Ahead with REDD: Issues, Options and Implications*, 72.

stakeholders, and preparation time (a quick establishment).<sup>469</sup> This section compares REDD+ activities at national, sub-national, and project levels with nested REDD+ projects from these four perspectives, and their possibilities of avoiding government corruption as well as benefiting from economies of scale.

**Figure 3-3: Comparison of REDD+ Activities at Three Levels**<sup>470</sup>

Items to Compare	National Level	Sub-national Level	Project Level
<b>Policy Reform</b>	National-level influence	Sub-national level influence	Project-level influence
<b>Risk of Leakage</b>	National reference level for monitoring; low risk	Sub-national level reference for monitoring; higher risk	Project-level reference for monitoring; highest risk
<b>Consideration of Stakeholders</b>	The decision-making level is far from local people	Closer to local people	Closest to local people
<b>Requirement for Governments' Capacities</b> <sup>471</sup>	Require most	Require less	Require least
<b>Governmental corruption and bureaucracy</b>	Highest	Medium	Low
<b>Economies of Scale</b>	Benefit most from economies of scale	Benefit less	Benefit least

First, scholars have claimed that a nested approach can enable a better designed and implemented policy reform to address drivers of deforestation because sub-national and local individuals and entities are involved.<sup>472</sup> Therefore, nested REDD+ programmes should be regarded as an enduring approach for REDD+ instead of an interim measure.

In addition, national-level REDD+ programmes are considered advantageous for reducing leakage and providing more credible results, because the MRV is conducted against a national level baseline and reference levels.<sup>473</sup> With a nested approach, different scales of REDD+ activities are measured with

<sup>469</sup> Rane Cortez et al., *A Nested Approach to REDD+: Structuring Effective and Transparent Incentive Mechanisms for REDD+ Implementation at Multiple Scales* (the Nature Conservancy, 2010): 4. To clarify, comparing the preparation time is to see which level of projects can start earlier and take less time to prepare.

<sup>470</sup> In this table, numbers represent desirable levels and reflect the advantages and disadvantages of REDD+ activities on three scales: 3 means that it is most desirable for the society; 2 means that it is less desirable; and 1 means it is least desirable.

<sup>471</sup> This element is relevant to the preparation time for establishing the programme.

<sup>472</sup> Prakash Kashwan and Robert Holahan, "Nested Governance for Effective REDD+: Institutional and Political Arguments," *International Journal of the Commons* 8, no. 2 (2014): 16.

<sup>473</sup> Baseline can be understood as "the 'business as usual' scenario for projects against which emissions and sequestration under project implementation should be compared". "Reference Level" can be understood as "the benchmark reference case for national and sub-national emissions against which emissions and sequestration under the measurement of MRV should be compared." See Timothy Pearson, Felipe Casarim, and Anna McMurray, *Guidance Document: Options for*

different but harmonised crediting mechanisms at the same time.<sup>474</sup> The baseline and reference levels used for different scales of REDD+ activities should be coherent to reduce the risk of leakage.<sup>475</sup>

Furthermore, a nested governance approach, which would link the decision-making process of multiple levels, is also claimed to contribute to protecting the forest rights of stakeholders.<sup>476</sup> The nested governance can offer stakeholders effective participation at lower scales and enable them to voice their demands at higher levels of decision-making.

Moreover, national-level REDD+ activities require a government to have high political and institutional capabilities. It will take time for developing countries to develop relevant capacities to be able to design and implement relevant national policy reform.<sup>477</sup> In addition, considerable financial and technical support is also needed to develop a national MRV system for forests' emissions. In contrast, REDD+ at the project- and sub-national levels require fewer governmental, financial and technical resources. Therefore, they would allow developing countries to start early and learn from doing so.

In practice, the most exercised example is the VCS's "Jurisdictional and Nested REDD+ (JNR)" projects.<sup>478</sup> There are already 6 developing countries exercising the JNR framework, namely Laos, Brazil, Peru, Chile, Costa Rica and the Democratic Republic of Congo.<sup>479</sup> Primarily, the VCS JNR is designed to provide credible emission reductions by providing a rigorous carbon accounting framework and demonstrating conformance with the Cancun REDD+ safeguards. Furthermore, its carbon accounting framework is designed to meet a variety of standards including those for voluntary carbon market, private funds and an emerging compliance carbon market (such as the California cap-and-trade programme). Thereby, it facilitates the REDD+ results-based payment and increases access to various sources of finance.<sup>480</sup>

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*Nesting REDD+ Projects* (Commissioned by Fundación Natura Colombia, 2016), accessed 7 December 2017, <http://www.v-c-s.org/just-released-new-guidance-for-nesting-redd-projects/>: 8.

<sup>474</sup> Arild Angelsen et al., *What Is the Right Scale for REDD?: The Implications of National, Subnational and Nested Approaches* (CIFOR, 2008): 3.

<sup>475</sup> Jacob Olander et al., *Nested Approaches to REDD+: An Overview of Issues and Options* (Forest Trends and Climate Focus, 2011): 20-22.

<sup>476</sup> Thomas Sikor et al., "REDD-Plus, Forest People's Rights and Nested Climate Governance," *Global Environmental Change* 20, no. 3 (2010): 425.

<sup>477</sup> Lucio Pedroni et al., "Creating Incentives for Avoiding Further Deforestation: The Nested Approach," *Climate Policy* 9, no. 2 (2009): 207.

<sup>478</sup> VCS, "Jurisdictional and Nested REDD+," accessed 2 March 2017, <http://www.v-c-s.org/project/jurisdictional-and-nested-redd-framework/>.

<sup>479</sup> "The VCS Jurisdictional and Nested REDD+ Framework Supports National and Subnational REDD+ Programmes and Nested Projects, While Unlocking Diversified Sources of Carbon Finance," accessed 2 March 2017, <http://www.v-c-s.org/wp-content/uploads/2016/05/English-Updated-JNR-Factsheet-Nov-2014.pdf>

<sup>480</sup> More details about financing the REDD+ will be provided in Chapter 6.

### **3.4 Existing Problems in the International Implementation Rules**

Based on relevant literature, this section critically analyses the international implementation rules of CDM A/R projects and the REDD+. Section 3.4.1 discusses the complexity and uncertainty of the implementation rules. The capacity of the local practitioners to apply the rules is discussed in Section 3.4.2. Lastly, Section 3.4.3 discusses the DOEs' risk of a "race to the bottom".

#### **3.4.1 Legal Complexity and Uncertainty Add Transaction Costs**

Concerning the application of the rules, another problem lies in legal enforcement. Section 3.2 discussed that the project developer and the local stakeholders will provide a PDD at the project preparation stage. The PDD should fully describe the baseline methodology, additionality, monitoring plan, environmental impacts and stakeholder consultations of the project. The PDD will be assessed against CDM rules and stakeholder comments by a DOE, at the validation verification stages.

The CDM EB has meeting sessions approximately five times a year. By November 2016, the CDM EB had ninety-two sessions, which have developed a large number of new rules including procedures, standards, and methodologies. Regulatory decisions of these meetings are published in the "Rules and References" session on the CDM website, which is categorised into 8 groups: standards, procedures, tools, guidelines, clarifications, forms, information notes, and ruling notes.<sup>481</sup>

CDM Methodologies are open to new proposals.<sup>482</sup> Except for methodologies and methodological tools, all issued documents can be amended.<sup>483</sup> It is an advantage that the CDM has a flexible rule-making mechanism to keep the decisions up-to-date. However, such a frequent and fragmented way to generate new rules can considerably burden the practitioners when keeping track of modifications of rules.

Frequent law reformation can increase the uncertainty about governing rules. By 30 March 2017, more than 8,772 official documents were produced in the UNFCCC system.<sup>484</sup> Among them, large numbers of rules are reformed by the CDM. The COP decisions on REDD+ are also fragmented in different documents. The BioCarbon Fund experiences show that it took on average 5.4 years for a forest carbon

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<sup>481</sup> Para. 7, "CDM Executive Board Decision and Documentation Framework Version 05.1," CDM (2014), CDM-EB47-A61-INFO. "Rules and Reference."

<sup>482</sup> "CDM Methodology," accessed 2 June 2017, <http://cdm.unfccc.int/methodologies/index.html>.

<sup>483</sup> "Reference: Control and Limitation of Documents Issued by the Board," accessed 2 March 2017, [http://cdm.unfccc.int/Reference/doc\\_control.html](http://cdm.unfccc.int/Reference/doc_control.html).

<sup>484</sup> By 15 April 2014, 7311 official documents were produced. In about three years, 1461 new documents were produced. The frequency is more than 1.3 new document is produced per day. See the most recent data from UNFCCC, "Search Documents of the COP, CMP, All Subsidiary Bodies and Ad Hoc Working Groups," accessed 2 March 2017, <https://unfccc.int/documentation/documents/items/3595.php>.

project to finish the CDM Project Cycle before 2007 and on average 2.9 years after the rules were simplified in 2007.<sup>485</sup>

The World Bank BioCarbon Fund Report 2011 asserted that there is a high transaction cost of meeting CDM rules at every stage of the CDM Project Cycle.<sup>486</sup> Manguiat (2005) claimed that the five-year periodic review on forest carbon storage can increase transaction costs.<sup>487</sup> Jindal et al. (2008) asserted that even with the simplified guidelines from the CDM, the approval process of CDM is still too slow to actually increase carbon sequestration in Africa.<sup>488</sup> The project cycle of CDM A/R projects is longer than other CDM projects, with higher transaction costs compared to technology-based CDM projects.<sup>489</sup> The international implementation rules for forest carbon projects need to be tailor-made, updated, and simplified for people with less relevant experience and knowledge.

### 3.4.2 Low Capacity to Apply Legal Rules

For the stakeholders, who are largely the local farmers of the project area with very limited knowledge of English and law, it is very challenging to apply the CDM implementation rules and keep track with the updates.<sup>490</sup> To facilitate the application of A/R CDM projects, the Climate Change Secretariat of the UNFCCC published a reference manual.<sup>491</sup> This manual does add transparency and accessibility to the relevant rules, but the manual needs to be properly translated and accessible to the local stakeholders. In addition, the manual claims to ‘not substitute, modify, override, or otherwise imply any specific interpretation of the official UNFCCC document’.<sup>492</sup> Therefore, it is the users’ responsibility to be aware of new requirements and the authors disclaim liability for any inaccuracies in the manual.

The content of the manual focuses on a practical, technical and professional overview of project operation. It does not illustrate the rights of the local stakeholders, the environmental risks of the projects, and basic concerns which they should consider. However, all these considerations are

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<sup>485</sup> 2007 CDM Validation and Verification Manual (VVM) simplified the implementation rules. See Salinas and Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects*, 35.

<sup>486</sup> *Ibid.*, 96.

<sup>487</sup> Manguiat, *Legal Aspects in the Implementation of CDM Forestry Projects*, 6.

<sup>488</sup> Rohit Jindal, Brent Swallow, and John Kerr, "Forestry-Based Carbon Sequestration Projects in Africa: Potential Benefits and Challenges" (paper presented at the Natural Resources Forum, 2008), 126.

<sup>489</sup> Salinas and Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects*, 34-43 and 96-97.

<sup>490</sup> *Ibid.*, 36.

<sup>491</sup> UNFCCC, *Afforestation and Reforestation Projects under the Clean Development Mechanism: A Reference Manual*.

<sup>492</sup> Disclaimer, *ibid.*

necessary to ensure that the projects do not cause long-term irreversible damage to the environment in comparison to the current, small portion of economic benefits they would bring.

### 3.4.3 “Race to the Bottom” for DOEs

The accuracy and independence of the contractual relationship between the DOEs and project participants concerns scholars. The DOEs operate in a market environment as a major international entity validating and verifying CDM projects. They are paid by project participants to review projects.<sup>493</sup> Schneider (2007) concluded three market features that may result in a “race to the bottom” in the quality of DOEs’ validation and verification.<sup>494</sup> First, the market for validation and verification services becomes more competitive in terms of falling prices and shorter reviewing time. To remain competitive in the market, DOEs may reduce the cost and time of their services. Second, project developers increasingly deny or delay the validation fee, if the projects are not validated by the DOEs. Considering legal suits against project developers may be costly and cumbersome, the DOEs may be under pressure to deliver positive validating results. Third, sanctions for DOEs are not sufficient to deter misconduct. From October 2004 to July 2007, the share of projects that were rejected by the CDM EB after being approved by the DOEs increased from around three percent to eighteen percent.<sup>495</sup>

The higher rejection rate can be a result of decreasing performance of DOEs or increased scrutiny by CDM EB reviews. In March 2006, the CDM EB established a special team, RIT, to review projects’ documentation, replacing the previous individual review of CDM EB members. In 2008, the CDM EB simplified verification procedures through the CDM VVM in 2008 and the CDM VVS in 2012.<sup>496</sup> The liability of DOEs was enhanced by the CDM EB so that the DOEs are responsible for replacing the certified CERs for their significant deficiencies.<sup>497</sup> However, the discrepancy between CDM EB’s expectations and the performance of DOEs was not reduced by these measures.<sup>498</sup> A study even shows that DOEs sanctioned by the CDM EB are associated with a poorer performance afterwards.<sup>499</sup>

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<sup>493</sup> "Decision 5/CMP.1: Modalities and Procedures for Afforestation and Reforestation Project Activities under the Clean Development Mechanism in the First Commitment Period of the Kyoto Protocol (Former COP Decision 19/CP.9)," (2005).

<sup>494</sup> Schneider, "Is the CDM Fulfilling Its Environmental and Sustainable Development Objectives? An Evaluation of the CDM and Options for Improvement," 5-6.

<sup>495</sup> *Ibid.*, 20-23.

<sup>496</sup> "Annex 1: Clean Development Mechanism Validation and Verification Manual (Version 01.2)," CDM-EB55 (2010). "Validation and Verification Standard Version 07.0," CDM (2013). "Validation and Verification Standard Version 09.0," (2015).

<sup>497</sup> Lambert Schneider, "Options to Enhance and Improve the Clean Development Mechanism (CDM)," *European Topic Centre on Air and Climate Change, ETC/ACC Technical Paper 15* (2008): 18.

<sup>498</sup> Lambert Schneider and Lennart Mohr, "2010 Rating of Designated Operational Entities (DOEs) Accredited under the Clean Development Mechanism (CDM)," (Ökoinstitut Berlin, 2010), 3-4.

<sup>499</sup> Hui Chen, Peter Letmathe, and Naomi S. Soderstrom, *Estimation Bias and Monitoring in Clean Development Mechanism Projects* (2016), accessed 12 July 2017, [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2597443](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2597443).

### 3.5 Summary and Concluding Remarks

This chapter first discussed the implementation rules for CDM A/R projects and REDD+ programmes and then critically analysed them based on literature review. In a nutshell, CDM A/R projects are, like other CDM projects, subject to the CDM Project Circle regulated by the decisions of the CDM EB. The CDM Project Circle consists of eight stages, involves three monitoring entities, and contains eight types of regulatory or guiding documents. The CDM EB designs special regulatory or guiding documents for CDM A/R projects.

Regarding the REDD+, although its decision-making process is prior to implementation, we can still draw a few key operational considerations and review lessons from pilot projects. The REDD+ projects have three phases of implementation: first reforming forest polices and setting up forest emissions accounting systems, then implementing forest activities on the ground, and lastly receiving results-based payments. This research only addresses the latter two phases. REDD+ programmes under the UNFCCC are subject to five types of legal forms, environmental and social safeguards, and country-specific emission accounting systems. In practice, REDD+ activities are implemented at the project level, which is beyond the scope framed by the UNFCCC.

The analysis shows that international implementation rules on forest carbon projects have massive and frequent rule changes, which increases legal complexity and uncertainty for practitioners. Legal complexity and uncertainty can significantly increase transaction costs, particularly, for the local stakeholders with little knowledge and experience of international governing rules. Furthermore, scholars have greatly questioned the credibility of DOEs on assessing the performance of CDM projects.

This chapter provides the following insights for the institutional design. First, legal complexity and uncertainty can hinder local stakeholders from knowing their environmental and social rights and protecting their rights through the legal procedures in project implementation. The institutional design needs to address this problem either by reducing the complexity and uncertainty of international implementation rules or by providing sufficient financial and technical support to facilitate the local stakeholders with applying the rules.

In addition, given the deficiency of DOEs, it would not be smart for the institutional design to employ DOEs to detect unsustainable environmental and social conduct in forest carbon projects in developing countries. Therefore, this study seeks alternative entities and approaches to detect unsustainable environmental and social conduct.



After Chapter 2 and Chapter 3 elaborating on the general international policies, laws and implementation rules, Chapter 4 will discuss the specific assessing rules and practices on the sustainability of forest carbon projects in developing countries. By reviewing the implementation process, this chapter paves the way for the next chapter, because sustainability assessments are conducted in the implementation process of the projects. The following chapter critically reviews regulatory and private sustainability assessments on forest carbon projects in developing countries.



## **4 INTERNATIONAL SUSTAINABILITY ASSESSMENTS ON FOREST CARBON PROJECTS IN DEVELOPING COUNTRIES**

### **4.1 Introduction**

This chapter reviews international regulatory and private sustainability assessments based on literature review to explore existing problems that may lead to unsustainable environmental and social results in forest carbon projects in developing countries. As discussed in Chapter 2, the international community could not reach an agreement on to what extent to protect the environmental and social rights of the local stakeholders in developing countries.<sup>500</sup> Because of the international political divergence on this issue, minimum rules are inserted into the implementation procedure of CDM projects on sustainability assessment as discussed in Chapter 3.<sup>501</sup> These rules cannot meet the demands from certain countries and investors, who seek forest-based carbon credits with sustainable environmental and social benefits. Therefore, private sustainability assessments on forest carbon projects in developing countries are developed.

The rest of the chapter is structured as follows. Based on a legislative analysis and case studies, Section 4.2 and Section 4.3 respectively discuss the current international regulatory and private sustainability assessments. Subsequently, Section 4.4 analyses these two types of sustainability assessments. Lastly, Section 4.5 summarises and concludes this chapter.

### **4.2 Regulatory Sustainability Assessment**

This section reviews four types of regulatory sustainability assessments conducted by national and international authorities. Section 4.2.1 first reviews the sustainability assessment of CDM projects conducted by the host developing country at the second stage of the CDM Project Cycle procedure, National Approval. Section 4.2.2 discusses the application materials assessed by investing countries. Section 4.2.3 examines the international sustainability assessment tool issued by the CDM Executive Board (CDM EB) in response to the considerable criticism on the contribution of the CDM projects to sustainable development.<sup>502</sup> Section 4.2.4 elaborates on the environmental and social safeguards on REDD+ activities.

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<sup>500</sup> See Chapter 2, Section 2.4 and 2.5.

<sup>501</sup> See Chapter 3, Section 3.2.2.

<sup>502</sup> Carbon Market Watch, "New Sustainable Development Tool Is a Small Step Forward," 9 April 2014.

#### 4.2.1 Host Countries' Regulatory Sustainability Assessment

At the second stage of the CDM Project Cycle, National Approval, the project is to be evaluated by the Designated National Authorities (DNAs) of the countries involved in the project.<sup>503</sup> The countries involved in a CDM project normally include one developing country which hosts the project and at least one developed country which invests in or purchases CERs from the project.

The national authorities of the investing parties and of the host party have different tasks when assessing the participants and the project under the CDM rules. If an investing country's authority approves the project and the participation of its domestic participant, it will issue a LoA indicating that the investing country has ratified the Kyoto Protocol and the participation is voluntary.<sup>504</sup> A LoA from a host country indicates that the host country has ratified the Kyoto Protocol, the participants are voluntary, and it confirms the contribution of the project to sustainable development.<sup>505</sup> Under the CDM rules, it is compulsory for the projects to pass the host developing country's assessment on whether the project assists sustainable development.<sup>506</sup>

Only with positive statements in the letters of approvals from both sides, can a project move to the subsequent stage of the CDM Project Cycle. To acquire the approval letters from the involved countries, the project proponent must comply with relevant national requirements of each involved country. In practice, the national authorities of the parties have discretion in stipulating their national requirements. The CDM rules only regulate what issues shall be stated in the LoA and do not prevent the host countries from conducting the national assessment as per their national laws.

The national authorities can have additional requirements and assess on other issues that are not required by the CDM. In fact, the national approval procedure has evolved diversely in different countries.<sup>507</sup> The sustainability assessments of host developing countries emerge with their own characteristics in the approval procedures and requirements.<sup>508</sup> This will be further discussed in the next section.

The CDM rules do not require DOEs to conduct substantial reviews on the projects' design and implementation on sustainability issues.<sup>509</sup> Nevertheless, a formal review is required. The PDD needs

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<sup>503</sup> CDM, "Designated National Authorities," accessed 17 March 2017, <http://cdm.unfccc.int/DNA/index.html>.

<sup>504</sup> Para. 1, "Annex 6: Clarification on Elements of a Written Approval," CDM-EB16 (2004).

<sup>505</sup> Ibid.

<sup>506</sup> Ibid.

<sup>507</sup> Luis Rodrigo Chaparro M., "DNA Structure and CDM Project Approval Process in Five Latin American Countries: Argentina, Brazil, Chile, Mexico, and Peru," *CDM Investment Newsletter*, no. 2 (2006): 7-10.

<sup>508</sup> Tewari, "Mapping of Criteria Set by DNAs to Assess Sustainable Development Benefits of CDM Projects," 4.

<sup>509</sup> Para. 12 (c), Annex, "Decision 5/CMP.1: Modalities and Procedures for Afforestation and Reforestation Project Activities under the Clean Development Mechanism in the First Commitment Period of the Kyoto Protocol (Former COP Decision 19/CP.9)," UNFCCC (2005).

to demonstrate an environmental impact analysis and a social-economic impact analysis.<sup>510</sup> Moreover, the project developer must conduct an environmental or social impact assessment, if the host country requests.<sup>511</sup> However, the international entities only review whether the analysis is presented and whether an assessment is conducted. They will not assess whether the analysis or the assessment is accurate, sufficient or credible. In summary, from the discussion above, we can see that only the host country has the authority and responsibility to assess the sustainability of a CDM project in the CDM Project Cycle.

#### 4.2.2 Any Assessments from Investing Countries?

In practice, the national approval procedures in investing countries vary. This section elaborates on the application materials of Germany, the United Kingdom (UK), and Switzerland for issuing national approvals as summarised in Table 4-1. Because of the ease of obtaining a LoA from the UK and Switzerland, these two countries have become trading hubs accounting for almost half of the total primary CER demand in 2012.<sup>512</sup> These two countries are also major investors of CDM forest carbon projects. On the contrary, Germany does not issue a LoA to project participants of CDM A/R projects.<sup>513</sup> The following paragraphs compare seven items in the national approval procedures of these three countries. From the comparison, we can see different levels of strictness from the governments of countries that invest in CDM projects.

**Table 4-1: Application Materials for the National Approval of Investing Countries**

Requested Items	Germany <sup>514</sup>	UK <sup>515</sup>	Switzerland (before 2012) <sup>516</sup>
Project Design Document (PDD)	PDD	PDD	The latest version of the PDD
Application Form	A written application for approval	No	A completed Excel sheet entitled "Request for LoA"

<sup>510</sup> Section D and E, CDM, "CDM-AR-PDD-FORM Version 08.0."

<sup>511</sup> Para. 132, "Annex 1: Clean Development Mechanism Validation and Verification Manual (Version 01.2)," CDM-EB55 (2010).

<sup>512</sup> Igor Shishlov and Valentin Bellassen, *10 Lessons from 10 Years of the CDM* (Auto-saisine, 2012): 17.

<sup>513</sup> Part I, Section 1 (1) and Section 2, para. 5, "German Act on Project-Based Mechanisms JI and CDM (Promechg)," German Emissions Trading Authority (DEHSt) (2005), accessed 15 April 2017, <https://www.dehst.de/SharedDocs/Downloads/EN/Legislation/ProMEchG.html>.

<sup>514</sup> "German CDM Manual – Guidance for Applicants," (2015): 39-40.

<sup>515</sup> "UK Guidance on Approval and Authorisation to Participate in Clean Development Mechanism Project Activities," UK Department for Environment Food and Rural Affairs (2005): 7-11.

<sup>516</sup> "Clean Development Mechanism (CDM) and Joint Implementation (JI) Projects," Swiss Federal Office for the Environment Climate Division (2014), accessed 17 March 2017, <https://www.bafu.admin.ch/bafu/en/home/topics/climate/publications-studies/publications/cdm-ji-projects.html>: 12-16.

Pre-approval from the host country	If applicable: host country's LoA	Host country's LoA	If available: host country's LoA
Validation Report from a DOE	Validation Report	No	The draft Final Validation Report of the chosen DOE
Additional documents	No	Declaration of Compliance with the CDM's rules	A Non-Objection Letter by the project owner.
Period for consideration	Within two months	Within two weeks after the receipt of all the information	Deadline for submission documents is the 10th of each month. The issuance of LoAs should be between the 25 <sup>th</sup> and 27 <sup>th</sup> of the same month.
Fee	Between 20 and 600 Euros depending on the size and complexity of the project <sup>517</sup>	£250 per CDM project	None

The first document that is required by these three countries is the Project Design Document (PDD), which includes basic and detailed information about the project.<sup>518</sup> The PDD includes the geographical and environmental information of the project. It also demonstrates the legal titles to the project land, to the rights to the GHGs' removals and the eligibility of the land. It contains the technical methods for measuring and reporting carbon flux in trees. Finally, it demonstrates the socio-economic and environmental impact analysis of the project.

Second, all three countries require the host country's LoA, which should indicate the project's social and environmental contributions to the sustainable development in the host country. Germany and Switzerland require the Validation Report from a DOE, which should indicate the project's additional emission reductions. Both the LoA and the Validation Report are also required to apply for the registration and verification from the CDM. Therefore, even if the investing country such as the UK does not require any of them, the project developer still needs to acquire them from the host country and a DOE. Therefore, requirements like this in investing countries' national approval procedures do not add substantial credibility to the project performance.

Thirdly, other than the documents simultaneously required by the CDM, the investing countries may require some additional documents. For instance, the UK requires a declaration from the project

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<sup>517</sup> Interview 2, "A DEHSt Employee (Email, April 2017)."

<sup>518</sup> CDM, "CDM-AR-PDD-FORM Version 08.0." For more discussion about the PDD, please see Chapter 3, Section 3.2.1.

developer demonstrating its compliance with the CDM's rules. Switzerland requires a non-objection letter from the project owner.

Before 2012, the Swiss DNA guideline illustrated that foreign entities/project participants may apply for a LoA for already-registered projects including CDM projects.<sup>519</sup> Letters of Approval or Authorisation were issued on the condition that the first verification report demonstrated that the resettlements and compensation have been implemented as per the resettlement/compensation plan. If this requirement is not fulfilled, the Swiss DNA will withdraw its LoA or authorisation. The Swiss DNA started to carry out a more critical evaluation on applications submitted after 10th June 2012 and has been halting approval to applications for CDM A/R projects since then.<sup>520</sup>

In addition, the Swiss DNA will ask for additional documents in case of significant resettlements, including the resettlement/compensation plan and the written confirmation. These additional documents should demonstrate that the resettlements are planned, or are being implemented, or have been implemented (depending on the progress of the project) in a satisfactory manner. It may include an additional report from an independent organisation appointed by the Swiss DNA and at the cost of the project participant requesting the LoA or Authorisation.

Investing countries are not obliged to conduct a substantive review of the sustainability of the project. The requirements of the three countries' national approval procedures also do not contain such a requirement. The investing countries are only responsible for assessing the voluntary participation of the project participants, which are mostly from their own territories. They can make judgments based on the validation report of the DOE. In practice, requirements of the national approval procedures in investing countries evolve differently but do not contain any sustainability, environmental, or social impact assessments for CDM projects located in developing countries.

#### **4.2.3 CDM Voluntary Tool for Describing Sustainable Development's Co-Benefits**

A draft voluntary tool for describing sustainable development's co-benefits was approved by the 70<sup>th</sup> session of the CDM Executive Board meeting.<sup>521</sup> The official version was launched in 2014.<sup>522</sup> This tool provides a platform for projects' proponents to highlight the co-benefits of CDM projects on a

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<sup>519</sup> "National Guidelines and Procedures for Approving Article 12 Projects (Clean Development Mechanism)," Swiss Federal Office for the Environment Climate Division (2012), accessed 17 March 2017, <http://tinyurl.com/yab9ekq5>: 1.

<sup>520</sup> *Ibid.*, 3.

<sup>521</sup> Para. 82, "Meeting Report: CDM Executive Board Seventieth Meeting," CDM-EB70 (2012).

<sup>522</sup> "Information Note: Evaluation of the Use of the Voluntary Online Sustainable Development Co-Benefits Tool (Version 01.0)," CDM (2014), CDM-EB-CMP9-INFO01: 3.

voluntary basis, from social, economic, and environmental perspectives.<sup>523</sup> The tool can be applied and updated at any time in the life of a CDM activity. It maintains the authority of the host countries to define national sustainable development criteria and to assess projects accordingly.<sup>524</sup> The project operating entity needs to fill in a template online to request access to the tool that reflects a project's social, economic and environmental co-benefits in sustainable development.<sup>525</sup> As far as the environment is concerned, the tool assesses a project's benefits in improving air, land, water and natural resources conservation, including biodiversity. Regarding social impact indicators, this tool includes employment, health and safety, education and welfare. Under the economic section, business growth, energy, technology transfer and national economic independence are selected as indicators.

Several drawbacks of the tool were pointed out by Olsen (2012) and the Carbon Market Watch (2012).<sup>526</sup> First, the application of the tool is voluntary. Promoters of projects with few or no contributions on sustainable development may choose not to apply the tool. Second, the accessibility of the tool is limited to project coordinating or managing entities. Other parties, for instance, the indigenous peoples at a forest project area, have no right to fill in or of supplementing the tool. Thirdly, the information about the co-benefits provided by the project coordinating or managing entities is not necessarily verified by an independent third party. The credibility of the information is not guaranteed. Fourthly, negative impacts are excluded from the tool. The project developers are not required to report their negative impacts in the tool. Lastly, there is also no indicator in the tool reflecting the involvement of local stakeholders in a project.

#### 4.2.4 REDD+ Safeguards

Developing country Parties to the Convention that undertake REDD+ activities need to address and respect the seven safeguards stipulated in the Annex I to the decision 1 of COP 16.<sup>527</sup> The safeguards require the REDD+ activities respect the knowledge and rights of indigenous peoples and provide them

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<sup>523</sup> "Voluntary Tool for Describing Sustainable Development Co-Benefits of CDM Project Activities or Programmes of Activitiesactivities (Version 01.1)," (2014), SD-TOOL01: 2.

<sup>524</sup> Para. 5, "Decision 8/CMP7: Further Guidance Relating to the Clean Development Mechanism," UNFCCC (2011), FCCC/KP/CMP/2011/10/Add.2.

<sup>525</sup> CDM, "Request Access to the CDM Sustainable Development Tool (Sd Tool) ", accessed 2 March 2017, [https://www.research.net/r/Request\\_CDM\\_SD\\_Tool?sm=ktjftZTwsI%2fisd%2b5fwVfX5wDtW6VHWQv%2fcPHYOiNv7%2bTo%3d](https://www.research.net/r/Request_CDM_SD_Tool?sm=ktjftZTwsI%2fisd%2b5fwVfX5wDtW6VHWQv%2fcPHYOiNv7%2bTo%3d).

<sup>526</sup> Karen Holm Olsen, "CDM Sustainable Development Co-Benefit Indicators, Measuring the Future We Want – an International Conference on Indicators for Inclusive Green Economy/Green Growth Policies," United Nations Environment Programme (UNEP), accessed 2 June 2017, [http://staging.unep.org/greeneconomy/Portals/88/documents/INDICATORS%20PPT/d2s6.2%20Karen%20Holm%20Ols en\\_CDM%20SD%20co-benefit%20indicators.pdf](http://staging.unep.org/greeneconomy/Portals/88/documents/INDICATORS%20PPT/d2s6.2%20Karen%20Holm%20Ols en_CDM%20SD%20co-benefit%20indicators.pdf). Carbon Market Watch, "The CDM Sustainable Development Tool: Why 'Highlighting' Will Not Deliver."

<sup>527</sup> Para. 71(d) and Annex 1, "Decision 1/CP.16: The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention," UNFCCC (2010).



full and effective participation. The safeguards also require that REDD+ activities should conserve national forests and biodiversity. As stated by the UNEP, ‘in the UNFCCC context, safeguards are viewed as a means to not only avoid social and environmental risks but to further generate positive benefits through the implementation of REDD+ activities.’<sup>528</sup>

Developing countries that undertake REDD+ activities should provide a summary of information on how the safeguards are addressed and respected periodically in a country’s UNFCCC national communications or other communication channels.<sup>529</sup> The information contained in the summary should be transparent, flexible, updated regularly and accessible by all relevant stakeholders.<sup>530</sup> The provision of the information is to ensure ‘consistency, comprehensiveness, and effectiveness’ by clarifying which type of REDD+ is being implemented, relevant national circumstances, and existing monitoring systems.<sup>531</sup> The summary can be voluntarily published on the UNFCCC REDD+ web platform. Developing countries must provide a most recent version of such a summary to receive results-based payments.<sup>532</sup>

Currently, a number of national and multilateral funds have been established to support REDD+ activities. Each of the multilateral funds has published their own REDD+ safeguards. These multilateral funds include the Australian Forest & Climate Initiative, the UN-REDD Programme and the BioCarbon Fund Initiative for Sustainable Forest Landscapes (ISFL). More information about the multilateral funds will be provided in Chapter 6.

### **4.3 Private Forest Certification Schemes in CDM Forest Projects**

Except for the regulatory sustainability assessments, there are projects that additionally employ international private forest certification schemes to test the projects against self-designed sustainability criteria and practices. The private forest certification schemes have been developed since the early 1990s. Due to the ecological features and large scale of forest projects, the schemes are normally implemented by special entities and have been widely applied not only in CDM forest projects but in other forest activities around the world.<sup>533</sup> Among the numerous forest certification schemes at national,

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<sup>528</sup> Ondhowe, *REDD+ Implementation: A Manual for National Legal Practitioners*, 8.

<sup>529</sup> Section I, Paras. 3-4, "Decision 12/CP.17, Guidance on Systems for Providing Information on How Safeguards Are Addressed and Respected and Modalities Relating to Forest Reference Emission Levels and Forest Reference Levels as Referred to in Decision 1/CP.16," UNFCCC (2011).

<sup>530</sup> Section I, Para. 2 (b) (c), *ibid*.

<sup>531</sup> Paras. 3-5, "Decision 17/CP.21: Further Guidance on Ensuring Transparency, Consistency, Comprehensiveness and Effectiveness When Informing on How All the Safeguards Referred to in Decision 1/CP.16, Appendix I, Are Being Addressed and Respected," (2015).

<sup>532</sup> Para. 4, "Decision 9/CP.19: Work Programme on Results-Based Finance to Progress the Full Implementation of the Activities Referred to in Decision 1/CP.16," (2013).

<sup>533</sup> Non-forest CDM projects may also apply private schemes to assess projects’ sustainability. One of the most widely used is the Gold Standard. Moritz A Drupp, "Does the Gold Standard Label Hold Its Promise in Delivering Higher

regional or international level, only two prevail in the CDM forest projects' practices. They are the Climate, Community and Biodiversity Standard (CCBS) and the Forest Stewardship Council (FSC).

Until August 2014, among fifty-five CDM A/R projects, thirteen (23.6 percent) were certified by private forest certification schemes.<sup>534</sup> Six of them are certified by the CCBS and another seven certified by the FSC.<sup>535</sup> Additionally, one project mentions that it will apply FSC's best practices.<sup>536</sup> Another project claims being operated by the companies certified by the Programme for the Endorsement of Forest Certification (PEFC).<sup>537</sup>

Many articles have discussed the legitimacy, reputation and acceptability of private forest certificate schemes including Raines (2003), Barnett (2006) and Deephouse and Carter (2005).<sup>538</sup> However, this section focuses on the credibility of the private forest certification schemes in CDM forest projects in the market, namely to what extent such private sustainability assessment can reflect the true status of a project's sustainability. To do so, this section selects the two dominating forest certification schemes as study subjects: the CCBS and the FSC. This section first elaborates on how the market of private forest certification schemes works in general. Then I discuss the CCBS and the FSC respectively.

#### **4.3.1 The Rationale of Private Forest Certification Schemes Acting as Governing Bodies**

Private forestry certification schemes are conducted in a market environment. In contrast with regulatory sustainability assessments, the private certification schemes are designed by private independent parties, which gain the monitoring authority through a contract. Those being assessed decide whether to hire an independent entity to perform a sustainability assessment.

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Sustainable Development Benefits? A Multi-Criteria Comparison of CDM Projects," *Energy Policy* 39, no. 3 (2011): 1213.

<sup>534</sup> Data is based on the information documented in the PDD of registered projects on the CDM official website. Relevant documents are available at <https://cdm.unfccc.int/Projects/projsearch.html>, accessed on 31 August 2017.

<sup>535</sup> The six countries hosting CDM A/R project certified by the FSC are Mozambique., Brazil, Uruguay, Nicaragua, Argentina, Colombia and Uganda. Among the six projects certified by the CCB, four are from China. The other two are from Niger and Mozambique.

<sup>536</sup> CDM, "Project 3233: Argos Co2 Offset Project, through Reforestation Activities for Commercial Use, Colombia," (2011), Project Design Document, accessed 15 April 2017, <https://cdm.unfccc.int/Projects/DB/TUEV-SUED1261416776.52/view>.

<sup>537</sup> "Project 4957: Securitization and Carbon Sinks Project, Chile," (2012), Project Design Document, accessed 15 April 2017, <https://cdm.unfccc.int/Projects/DB/ICONTEC1309467081.51/view>. The Pan-European Forest Certification Council (PEFC) was initially established in 1998 to harmonize the various forest certification schemes in Europe. It was rechristened to the Programme for the Endorsement of Forest Certification (PEFC) in 2003. See more at Errol Meidinger, "The Administrative Law of Global Private-Public Regulation: The Case of Forestry," *European Journal of International Law* 17, no. 1 (2006): 56.

<sup>538</sup> Susan Summers Raines, "Perceptions of Legitimacy and Efficacy in International Environmental Management Standards: The Impact of the Participation Gap," *Global Environmental Politics* 3, no. 3 (2003): 47. David L Deephouse and Suzanne M Carter, "An Examination of Differences between Organizational Legitimacy and Organizational Reputation," *Journal of management Studies* 42, no. 2 (2005): 329. Michael L Barnett, "Waves of Collectivizing: A Dynamic Model of Competition and Cooperation over the Life of an Industry," *Corporate Reputation Review* 8, no. 4 (2006): 272.

Private forest certification schemes originally emerged in the market to provide standards and monitoring services to the wood industries. Driven by consumers' interests on the environmental and social impacts of wood products (including timber, paper pulp and biofuel), the projects voluntarily chose a certifying entity and paid for assessment services.<sup>539</sup> The assessing entities are mostly non-governmental organisations (NGOs). Once contracted, the private institution gains the authority for decision-making, setting criteria, monitoring and verification.<sup>540</sup> Certification from a credible certification entity would prove the projects' sustainability to the host countries, investors and consumers of wood products. Although there is no superior authority overseeing the conduct of the assessing entities, they are supervised by the market and influence each other.

In CDM forest projects, project developers may seek to prove the sustainability of the projects, the generated CERs and wood products to the host countries, investors and the consumers of wood products. In some cases, the investors directly request the project developers obtain such a certificate as an additional condition on the investment. For instance, the World Bank BioCarbon Fund requires financed CDM A/R projects to be certified against the CCB.<sup>541</sup>

To enter national markets, international forest certification institutions such as FSC need to obtain legitimacy in national jurisdictions. The assessing schemes need to adapt to the local socio-economic contexts and to face local competitors. Cashore et al. (2004)'s empirical studies on the emergence of the FSC in the US and the Europe show the interaction between the international forest certification scheme FSC and the local competitors.<sup>542</sup> In developing countries, there is a limited number of certified forests.<sup>543</sup> Van Kooten et al. (2005) revealed several reasons for this phenomenon and concluded a few motivations for firms in developing countries to seek forest certification.<sup>544</sup>

#### 4.3.2 Forest Stewardship Council

The Forest Stewardship Council (FSC) was established in 1993 and was the earliest transnational forest certification scheme that emerged to promote sustainable forest management (SFM).<sup>545</sup> The FSC is

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<sup>539</sup> Susan Subak, "Forest Certification Eligibility as a Screen for CDM Sinks Projects," *Climate Policy* 2, no. 4 (2002): 337.

<sup>540</sup> Timothy M. Smith and Miriam Fischlein, "Rival Private Governance Networks: Competing to Define the Rules of Sustainability Performance," *Global Environmental Change* 20, no. 3 (2010): 511.

<sup>541</sup> Salinas and Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects*, 31.

<sup>542</sup> Benjamin William Cashore, Graeme Auld, and Deanna Newsom, *Governing through Markets: Forest Certification and the Emergence of Non-State Authority* (Yale University Press, 2004), 59-218.

<sup>543</sup> Cashore and Stone, "Can Legality Verification Rescue Global Forest Governance?: Analyzing the Potential of Public and Private Policy Intersection to Ameliorate Forest Challenges in Southeast Asia," 14.

<sup>544</sup> G Cornelis Van Kooten, Harry W Nelson, and Ilan Vertinsky, "Certification of Sustainable Forest Management Practices: A Global Perspective on Why Countries Certify," *ibid.* 7, no. 6 (2005): 857.

<sup>545</sup> Stephen Bell and Andrew Hindmoor, "Governance without Government? The Case of the Forest Stewardship Council," *Public Administration* 90, no. 1 (2012): 145.

governed by members including environmental NGOs such as the WWF and Greenpeace, business and social organisations, companies and individuals.<sup>546</sup> Its ultimate objective is to develop ‘environmentally appropriate, socially beneficial and economically viable’ forest management.<sup>547</sup> To ensure that the environmental, social and economic values are fairly weighted by different interest groups and economic powers, the FSC uses a voting mechanism, in which the votes of the members are equally designated to three groups: environmental, social and economic chambers. Within each chamber, members are distributed to two sub-chambers: The North and the South with an equal number of votes.

To understand the operational structure of the FSC, the following text draws upon the discussions of Subak (2002) and Angelstam et al. (2013).<sup>548</sup> The FSC International sets out ten principles from environmental and social-economic perspectives.<sup>549</sup> These principles are to be further elaborated and supplemented by the national or regional offices, considering the local context of particular countries or regions. The FSC’s international headquarters certifies institutions in different regions or countries in the world and sets up regional or national offices with more local experience and expertise. The FSC only sets the standards for forest practices and lets third parties carry out the assessments.<sup>550</sup> The third parties can issue certificates independently and individually. There are two main steps in the certification process; project plan review and an auditing process.

### 4.3.3 Climate, Community and Biodiversity Standard

The Climate, Community and Biodiversity (CCB) standard is provided by the Climate, Community and Biodiversity Alliance (CCBA). By July 2014, the CCBA partnership had five international NGO members.<sup>551</sup> Since November 2014, the Verified Carbon Standard (VCS) has taken over the governance and development of the CCBS.<sup>552</sup> The VCS governs with the support of the CCB Steering Committee. The committee is constituted of representatives of the five NGO members and the CCB

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<sup>546</sup> FSC, "Governance," accessed 2 March 2017, <https://ic.fsc.org/governance.14.htm>.

<sup>547</sup> "Our Vision and Mission," accessed 2 March 2017, <https://ic.fsc.org/about-us.1.htm>.

<sup>548</sup> Per Angelstam et al., "Evidence-Based Knowledge Versus Negotiated Indicators for Assessment of Ecological Sustainability: The Swedish Forest Stewardship Council Standard as a Case Study," *Ambio* 42, no. 2 (2013): 230.

<sup>549</sup> "Principles and Criteria for Forest Stewardship," FSC (2014), 3.

<sup>550</sup> "Accreditation Programme," accessed 2 March 2017, <https://ic.fsc.org/accreditation.28.htm>.

<sup>551</sup> The five NGO members are Care for global poverty alleviation, Conservation International for nature protection for human well-being, the Nature Conservancy for ecologically important lands and waters and the most pressing conservation threats at the largest scale, Wildlife Conservation Society for wildlife and wild habitats across the world, and Rainforest Alliance for ‘conserving biodiversity and ensuring sustainable livelihoods by transforming land-use practices, business practices and consumer behaviour’. See Care’s official website, accessed 2 June 2017, <http://www.care.org/about>.

Conversation International, accessed 2 June 2017, <http://www.conversation.org/about/Pages/default.aspx>.

The Nature Conservancy, accessed 2 June 2017, <http://www.nature.org/about-us/index.htm?intc=nature.tnav.about>.

Wildlife Conservation Society, accessed 2 June 2017, <http://www.wcs.org/about-us.aspx>.

Rainforest Alliance, accessed 2 June 2017, <http://www.rainforest-alliance.org/about>.

<sup>552</sup> CCBA, "Governance of the Standards."

secretary.<sup>553</sup> Additionally, the CCBA has three Advising Institutions that provides technical input for developing the CCBS.<sup>554</sup> The financial support for developing CCBS is from 9 donors including the global fuel company BP.<sup>555</sup> Complaints to the CCBA are addressed as per the procedures of the VCS.<sup>556</sup> In some cases, the CCBA is supposed to evaluate VCS projects. The independence of the CCBA may be doubted when the VCS is acting as the manager.

The CCBS examines land-based projects' design and implementation based on three elements: global climate change mitigation, local communities' socio-economic benefits, and biodiversity conservation.<sup>557</sup> The CCBS is highly regarded by the World Bank BioCarbon Fund, which requires financed CDM forest projects to apply CCBS to verify the non-carbon benefits for local farmers and local environments.<sup>558</sup>

#### **4.4 Existing Problems in International Sustainability Assessments**

This section draws upon existing literature and reviews the problems in host countries' regulatory sustainability assessments and private sustainability assessments. The discussion aims to identify the main factors that lead to the failure of these assessments in maintaining the sustainability of CDM forest projects.

##### **4.4.1 Problems of Host Countries' Sustainability Assessments**

The institutional capacities of DNAs in developing countries vary from one to another.<sup>559</sup> This study discusses five institutional shortcomings of host countries' sustainability assessments. Firstly, based on an empirical study, Schneider (2008) pointed out that the sustainability assessing criteria of India on CDM projects appear to be too broad and poorly enforced.<sup>560</sup> When an internationally unified

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<sup>553</sup> "CCB Steering Committee," accessed 2 March 2017, <http://www.climate-standards.org/about-ccba/>

<sup>554</sup> "Advising Institutions," accessed 2 March 2017, <http://www.climate-standards.org/about-ccba/>.

<sup>555</sup> "CCB Standards Donors," accessed 2 March 2017, <http://www.climate-standards.org/about-ccba/>.

<sup>556</sup> See more about the Complaints and Appeals Procedure at Section 8, "VCS Programme Guide, Version 3," VCS (2013), accessed 17 March 2017, <http://www.v-c-s.org/sites/v-c-s.org/files/VCS%20Program%20Guide%2C%20v3.5.pdf>.

<sup>557</sup> CCBA, "Climate, Community, and Biodiversity Standards," the REDD Desk, accessed 2 March 2017, <http://theredddesk.org/markets-standards/climate-community-biodiversity-ccb-standards>: 1.

<sup>558</sup> The World Bank Biocarbon Fund contracted 21 projects over 16 countries and 5 regions by November 2011. Salinas and Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects*, 31.

<sup>559</sup> Olsen and Fenham, "Sustainable Development Benefits of Clean Development Mechanism Projects: A New Methodology for Sustainability Assessment Based on Text Analysis of the Project Design Documents Submitted for Validation," 2820.

<sup>560</sup> Schneider, "Options to Enhance and Improve the Clean Development Mechanism (CDM)," 26.

definition for sustainable development is lacking, project data indicates that most approved projects put economic attraction as the priority.<sup>561</sup>

Additionally, Schneider (2008) also pointed out when a host country vies for a larger market share of the global carbon market, the government is more inclined to give approvals to projects that are more economically profitable and with fewer financial risks.<sup>562</sup> Enforcing sustainability requirements would increase the cost for project management.<sup>563</sup> Conversely, those CDM forest projects carried out in an unsustainable manner may bring more short-term profits for local governments and communities.<sup>564</sup> Therefore, the host countries may intentionally dilute their sustainability assessments to attract more foreign investment.

Thirdly, it is urgent for host countries to address another problem in their sustainability assessments: the absence of *ex-post* monitoring mechanism during and after the implementation of the forest carbon projects. The host countries' sustainability assessment is conducted at an early stage of project preparation or implementation and is based only on a document review of the project design. The current CDM legal regime is unclear about the host countries' authority on *ex-post* monitoring after the LoA is granted. Although the CDM has rules on verifications during and after project implementation, such verifications only review carbon removals rather than environmental and social impacts.<sup>565</sup>

The problem mentioned above is particularly reflected in two cases. At Barro Blanco, Panama, a CDM forest project turned out to have a severe negative impact on biodiversity.<sup>566</sup> An environmental group asked to withdraw the approval and questioned the accuracy of the environmental impact assessment which was carried out. In another case, in Colombia, the government sought the right to withdraw the LoA for registered CDM projects because of a controversy involving human rights issues in a CDM forest project.<sup>567</sup> At the 69<sup>th</sup> meeting of the CDM Executive Board, it was recommended that a host

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<sup>561</sup> "Is the CDM Fulfilling Its Environmental and Sustainable Development Objectives? An Evaluation of the CDM and Options for Improvement," 46.

<sup>562</sup> "Options to Enhance and Improve the Clean Development Mechanism (CDM)," 26.

<sup>563</sup> J Fehse et al., "Forest Carbon and Other Ecosystem Services: Synergies between the Rio Conventions," in *Forests, Climate Change and the Carbon Market: Risks and Emerging Opportunities*, ed. C. Streck, O" Sullivan, R. and Janson-Smith, T. (London, Washington: EarthScan, Brookings, 2008), 60.

<sup>564</sup> Luca Tacconi, "Decentralization, Forests and Livelihoods: Theory and Narrative," *Global Environmental Change* 17, no. 3 (2007): 344.

<sup>565</sup> The first time of verification of a CDM forest project should be decided by the project participants, and afterwards, the verification will be conducted every five years until the end of the crediting period. See "Decision 3/CMP.1: Modalities and Procedures for a Clean Development Mechanism as Defined in Article 12 of the Kyoto Protocol (Former COP Decision 17/CP.7)," UNFCCC (2005), 6.

<sup>566</sup> Antonia Vorner and Oscar Sogandares, "Press Release: Un's Offsetting Project Barro Blanco Hampers Panama Peace-Talks," *Carbon Market Watch*, 15 March 2012.

<sup>567</sup> Carbon Market Watch, "The Mandate to Protect Human Rights in the CDM," 04 July 2011.

country should be able to withdraw its LoA if a project is proven to have a harmful impact on sustainable development.<sup>568</sup> However, the CDM EB stated its point of view that the suspension of a LoA is up to each of the relevant parties of the project and it is not for the board to control or to comment on.<sup>569</sup>

The CDM's attitude indicates that the value of the produced CERs in the international carbon market is not directly affected by the sustainability of a CDM project. The current CDM legal framework does not contain international *ex-post* sanctions or punishments on CDM projects for sustainability issues. Without further supervision during or after the project implementation, the actual contribution of the projects may vary from what is planned.

Fourthly, some regulatory sustainability assessments of the host countries show a lack of assessment on the compensation plans for indigenous peoples. CDM forest projects normally occupy a large area of land, which may previously have been used by indigenous peoples to conduct unsustainable, short-term rotation forest activities.<sup>570</sup> Sustainable plantations with fewer fertilisers and longer rotations may end up with less income for the local communities.<sup>571</sup> In many CDM forest projects, local communities receive compensation or revenue for providing land to projects for a certain period. However, once the project is terminated, local people may just go back to their original ways of forests exploitation. Moreover, insufficient compensation within the project period may increase leakage. This means that if the compensation within the project period is not fairly contracted and is not enough for the local people to live on, it is likely that the local people will commit illegal logging or unsustainable forestry activities on unprotected lands outside the project area. Therefore, the sustainability assessment of host countries should also assess the compensation plans for indigenous peoples to ensure they have a sustainable livelihood while conserving environmental sustainability in CDM forest projects.

Fifthly, the sustainability assessment of some host developing countries, such as China, lacks transparency. The national approval for CDM projects is not conducted by China's DNA, the National Development and Reform Commission, but an expert team.<sup>572</sup> The expert team can assess the project

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<sup>568</sup> CDM Policy Dialogue, *Climate Change, Carbon Markets and the CDM: A Call to Action* Report of the High-Level Panel on the CDM Policy Dialogue (CDM Policy Dialogue, 2012): 6.

<sup>569</sup> Para. 101, "Annual Report of the Executive Board of the Clean Development Mechanism to the Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol," UNFCCC FCCC/KP/CMP/2012/3 (Part I) .

<sup>570</sup> Juan Chen and John L. Innes, "The Implications of New Forest Tenure Reforms and Forestry Property Markets for Sustainable Forest Management and Forest Certification in China," *Journal of Environmental Management* 129 (2013): 207.

<sup>571</sup> Subak, "Forest Certification Eligibility as a Screen for CDM Sinks Projects," 339.

<sup>572</sup> Chinese Renewable Energy Industries Association Ministry of the Environment Japan and Institute for Global Environmental Strategies, *CDM Country Guide for China* (Institute for Global Environmental Strategies, 2005), accessed 2 May 2017, <https://pub.iges.or.jp/pub/cdm-country-guide-china>: 2.

documents, requests a resubmission, or reject an application.<sup>573</sup> Neither the composition of the expert team nor the sustainability criteria used by the team is revealed by the authority.<sup>574</sup>

#### 4.4.2 Problems of Private Forest Certification Schemes in CDM Forest projects

The first problem associated with the private forestry certification schemes is that the party being assessed is also the buyer who pays for the assessing service. Therefore, the assessing entity may diminish their assessing quality to attract more clients (the “race to the bottom”).<sup>575</sup> The lack of supervision is another problem of the private forestry certification schemes. The race to the bottom is more likely to happen in a highly competitive market with a weak sanctioning scheme.<sup>576</sup> The private certification schemes are not legally constrained by any authorities or sanctions. Their misconduct would not be easily detected and does not necessarily lead to any sanction.

In addition, Melo et al. (2013) considered that the technocracy of private certification schemes may imperil their assessing capacities.<sup>577</sup> Because of the privileges of scientific expertise and standardised monitoring systems, cultural and intrinsic values are usually neglected. Indigenous peoples’ participation in decision-making and implementation is often not clearly defined, such as the CCBS, which reduces the equity and transparency of the certification schemes.

#### 4.5 Summary and Concluding Remarks

This chapter introduced and examined regulatory assessments and private forest certifications on the sustainability of forest carbon projects. Furthermore, the analysis shows existing problems in current regulatory and private institutions. In terms of host countries’ sustainability assessments, the national assessing authority may apply broad criteria and have a poor enforcement system. Second, there is a lack of an *ex-post* monitoring system to ensure long-term, sustainable results. Furthermore, the assessing procedures in some host developing countries lack transparency. Regarding the private sustainability assessments, a race to the bottom may exist among self-regulating entities to attract more clients. In addition, some self-regulating entities lack local participation and may ignore cultural and intrinsic values.

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<sup>573</sup> Keisuke Iyadomi, *CDM Country Fact Sheet: China* (Institute for Global Environmental Strategies 2008), accessed 2 March 2017, <http://environmentportal.in/files/Nov08-CDM-Factsht-china-IGES.pdf>: 3.

<sup>574</sup> Tewari, "Mapping of Criteria Set by DNAs to Assess Sustainable Development Benefits of CDM Projects," 32.

<sup>575</sup> Melo, Turnhout, and Arts, "Integrating Multiple Benefits in Market-Based Climate Mitigation Schemes: The Case of the Climate, Community and Biodiversity Certification Scheme," 49-56.

<sup>576</sup> Schneider, "Is the CDM Fulfilling Its Environmental and Sustainable Development Objectives? An Evaluation of the CDM and Options for Improvement," 5-6.

<sup>577</sup> Melo, Turnhout, and Arts, "Integrating Multiple Benefits in Market-Based Climate Mitigation Schemes: The Case of the Climate, Community and Biodiversity Certification Scheme," 50.



The analysis in this chapter shows that both regulatory and private sustainability assessments have deficiencies. There are scholars who have proposed certain solutions to reform the current regulatory or private sustainability assessments to deliver more sustainable results in developing countries. However, these solutions have some weaknesses. To have a comprehensive discussion on all previously proposed solutions, this study conducts its discussion at the end, after reviewing all problems in the international institutional framework and the incentive schemes. The intention is to integrate the pros and cons of proposals raised in previous literature with the current institutional design by avoiding their weaknesses and combining their strengths.

All in all, from the analysis in Part I, we can see that the international regulatory regime merely assesses the climate effect of forest carbon projects in developing countries and leaves sustainability issues to host developing countries. Private certification schemes may contribute to ensuring sustainable results, but they are not widely used in practice and lack supervision and local participation. Additionally, financial entities entered the picture because we see that the BioCarbon Fund can contribute to promoting sustainable results by requesting all invested projects to apply for a private certification scheme.

This part discussed the international institutional framework that shapes the incentive schemes of major actors and the financial streams from the North to the South. Part II will review the incentive schemes to examine existing risks that can lead to unsustainable results in foreign forest carbon projects in developing countries. In addition, the next part will also explore the financial streams to investigate to what extent existing financial measures can be employed in the institutional design to redirect the behaviours of project actors.



**PART II:**  
**THE INCENTIVE SCHEMES AND FINANCIAL STREAMS OF**  
**FOREIGN FOREST CARBON PROJECTS IN DEVELOPING COUNTRIES**

## INTRODUCTION TO PART II

Foreign funding for forest-based carbon offsets creates incentives to develop foreign forest carbon projects in developing countries. Having sketched the international institutional framework for forest carbon projects in developing countries in Part I, this part investigates how foreign forest carbon activities in developing countries are incentivised and financed under the current international institutional framework.

Judging from the existing unsustainable results as discussed in the introductory chapter, the current international institutional framework fails to deter unsustainable behaviour in practice.<sup>578</sup> Hence, this part looks alternatively at the financial measures, which can influence the incentives of projects' actors. Most importantly, this part explores what financial measures the institutional design can incorporate to redirect practitioners' behaviour to more sustainable activities. The incentive schemes and the financial streams in foreign forest carbon projects in developing countries are formed under the international institutional framework and may influence the development of relevant international rules.

The current international legal framework allows various actors to participate in foreign forest carbon projects in developing countries. Their economic, environmental and social objectives in a project form the incentive schemes in forest carbon projects in developing countries. Chapter 5 investigates which actors' incentives may lead to forest conservation in forest carbon projects in developing countries or, on the contrary, which of them may lead to unsustainability risks. This chapter concludes with the institutional necessities to address these risks from the perspective of financial measures.

In addition, the main actors play different roles in the financial streams, through which the North delivers investments to the South for forest carbon projects. Chapter 6 investigates how the investments are delivered under the current international institutional framework. Concretely, it investigates what financial instruments the investors use to deliver investments and the functions of financial intermediaries in the financial streams.

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<sup>578</sup> See Chapter 1 section 1.1.2



## **5 THE INCENTIVE SCHEMES FOR FOREIGN FOREST CARBON PROJECTS IN DEVELOPING COUNTRIES**

### **5.1 Introduction**

The UNFCCC has recognised sustainable development as a pivotal principle for all climate activities.<sup>579</sup> Then under what incentives do practitioners still conduct unsustainable activities in forest carbon projects in developing countries?<sup>580</sup> This chapter analyses the incentives of the main actors, explores factors that influence practitioners' incentives, and examines incentives that can lead to unsustainability risks. Lastly, this chapter aims to sketch the institutional necessities for the institutional design to address these risks.

The incentive schemes of forest carbon projects in developing countries are constituted by the incentives of major players in the projects. This study assumes that the participation of various actors in a forest carbon project is the result of a set of choices. Each actor decides to be engaged in a forest carbon projects based on a cost-benefit analysis of their own. The actors are assumed to be in the pursuit of maximising their own utilities or achieving their goals with least costs. However, their goals are not necessarily short-term economic returns, but rather environmental conservation or improving the social welfare of the local community.

To analyse the incentives of the major projects' actors, the rest of this chapter is structured as below. Section 5.2 discusses the incentives of the main actors based on data from NGOs, literature review, and interviews. Section 5.3 identifies the risks in the current incentive schemes that may lead to unsustainable results in forest carbon projects in developing countries. Lastly, Section 5.4 summarises and concludes this chapter with recommendations on the institutional design to address the unsustainability risks in the incentive schemes.

### **5.2 The Incentives of the Main Actors**

Driven by certain incentives, the investors choose to finance a forest carbon project in a particular developing country rather than other developing countries; the recipients choose to partake in forest carbon projects rather than other types of activities or nothing at all. To analyse the incentives of main project actors, Section 5.2.1 firstly categorises different types of actors in forest carbon projects in developing countries. Section 5.2.2 to Section 5.2.4 assess the incentives of each type of actors engaged in the projects including finance providers, host countries' governments, and local stakeholders.

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<sup>579</sup> See Chapter 1, Section 1.1.1.

<sup>580</sup> See Chapter 1, Section 1.1.2.

### **5.2.1 The Main Actors in the Forest Carbon Projects in Developing Countries**

Primarily, the major project players include parties in an emission reduction transaction relating to forest carbon projects. One party in this transaction is the public or private entities from the Annex I countries, which act as the investors or the buyers of the carbon offsets. The investors aim to purchase GHGs emission reductions at a lower price in developing countries than would the case in their home countries.

The other party in the transaction is the seller of the CERs. Normally, the end sellers are the landowners of the project or the indigenous peoples whose lives depend on the forests in the project area. They are also called the project's stakeholders. To facilitate the transaction and the communication, the landowners or the indigenous peoples would normally establish a private entity with support from the local government or from the investors. This entity manages the project as the 'project developer'. The project developer is therefore in charge of writing the Project Design Document (PDD) and contracting the transaction of the carbon offsets.<sup>581</sup>

The third major player in a forest carbon project is the government of the host country. The host country is a developing country in which the project is located, and which would receive financial and/or technical support from investing countries through forest carbon projects. Although some host countries' governments are not directly participating in the transaction or in the project operation, they have significant functions that can influence the establishment and the success of the project. The following sections will discuss the incentives of these three main players identified above in detail.

### **5.2.2 Incentives of the Finance Providers of Forest Carbon Projects**

Forest carbon projects have multiple financial sources. To discuss the incentives of the finance providers, this section starts with categorising the finance providers of forest carbon projects. The categorisation intends to clarify the identities of the finance providers and set limits for the following discussions of this section. The second and third sub-sections discuss the incentives of two types of major finance providers: foreign public finance providers and private finance providers.

#### **5.2.2.1 Grouping Finance Providers of Forest Carbon Projects**

Currently, there are four approaches to categorising the finance providers of forest carbon projects in the literature. The first approach classifies the finance providers into two groups based upon their

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<sup>581</sup> Salinas and Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects*, 140.

identities: public and private finance providers. Second, the finance providers can be sorted into foreign and domestic ones based on their nationalities. Thirdly, there are also scholars classifying finance providers into two groups based on their ultimate goals for climate change: to generate funding for climate change mitigation or for climate change adaptation.<sup>582</sup> Because forests can contribute to both mitigation and adaptation, forest carbon projects can enjoy funding from both sources.<sup>583</sup> Finally, financial sources can also be divided based on the financial mechanisms that are used to collect and deliver investments such as loans, grants, bilateral or multilateral agreements, multilateral funds and carbon markets.<sup>584</sup>

In this study, public finance providers refer to public institutions that generate the funding.<sup>585</sup> Public institutions include governmental agencies, NGOs, research institutions and other non-profit organisations.<sup>586</sup> Private finance providers, on the contrary, refer to private institutions including individuals and private corporations. Foreign finance providers refer to finance providers from outside the host country's territory.

This study classifies the finance providers based on their identities and the nationalities (approaches 1 and 2). The reasons to classify financial sources as such are threefold. First, public and private financial sources are empirically proved to have different incentives.<sup>587</sup> Second, the incentives of foreign public finance providers and domestic public finance providers may vary depending on national interests. Third, foreign public and private finance providers may use multifarious financial instruments to deliver their investments to developing countries.<sup>588</sup>

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<sup>582</sup> Climate change mitigation refers to reducing emissions and enhancing sinks. The Intergovernmental Panel on Climate Change (IPCC) provided a more comprehensive definition. Mitigation: "Technological change and substitution that reduce resource inputs and emissions per unit of output. Although several social, economic and technological policies would produce an emission reduction, with respect to Climate Change, mitigation means implementing policies to reduce greenhouse gas emissions and enhance sinks." Adaptation refers to enhancing the natural and human capacities to adapt to the climate change effects. A more comprehensive definition is provided by the IPCC, adaptation: "initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects." See the "Glossary" of IPCC, *Climate Change 2007: Synthesis Report*.

<sup>583</sup> Forests' contribution to both climate change mitigation and adaptation is recognised by the IPCC report. See *Climate Change 2014: Synthesis Report*, 90.

<sup>584</sup> Peters-Stanley et al., *Covering New Ground: State of the Forest Carbon Markets 2013*, 37.

<sup>585</sup> Sometimes, public financial sources are also defined as finance comes from a mechanism controlled by a public body. Charlotte Streck and Charlie Parker, "Financing REDD+," in *Analyzing REDD+: Challenges and Choices*, ed. Arild Angelsen, et al. (CIFOR, 2012), 116.

<sup>586</sup> NGOs are considered as institutions from the private sector in Ivan Tomaselli, *Brief Study on Funding and Finance for Forestry and Forest-Based Sector*, Final Report to the United Nations Forum on Forests Secretariat (Curitiba – Brazil: United Nations Forum on Forests, 2006): 4. This study, however, distinguishes between public and private investors based on their general goals rather than the goal of an investment in a specific forest carbon project. Therefore, NGOs serving for socio-economic or environmental goals with non-profit policies are considered as public finance providers.

<sup>587</sup> A World Bank report provided empirical data demonstrating that public and private investors turn out to have different preferences towards the sustainable performance of forest carbon projects. Salinas and Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects*, 90.

<sup>588</sup> More details about the financial instruments are discussed in Chapter 6.



As a result, the following discussions on the incentives of the finance providers for forest carbon projects are divided into three parts: foreign public finance providers, domestic public finance providers, and foreign and domestic private finance providers. The foreign and domestic private investors are analysed together, because this study assumes that as private entities, their incentives are similar in terms of maximising the interests of their own companies. Furthermore, given that domestic finance providers in a forest carbon project are largely the central or local governments of a host developing country, relevant discussions will be continued in the next section together with the functions of the host countries' governments. Therefore, the following two sections will focus on the incentives of two groups of investors: foreign public finance providers and private finance providers.

### **5.2.2.2 Incentives of the Foreign Public Finance Providers**

Funding from foreign public finance providers largely comes from the governments of developed countries and NGOs. A survey conducted by the Forest Trends' Ecosystem Marketplace (FTEM) in 2012 revealed that NGOs purchased 0.7 percent of the total forest carbon offsets in the market.<sup>589</sup> NGOs may purchase to support projects that conserve forests resources and the environment.<sup>590</sup> Government purchases account for about three times (two percent) more than the NGOs' purchases.<sup>591</sup>

Government funding from the North (developed countries) to the South (developing countries) is critical to reducing deforestation, considering that deforestation mainly occurs in developing countries.<sup>592</sup> The two formats of forest carbon projects discussed in Chapter 2 receive finance from the North under the UNFCCC legal framework for different political reasons.<sup>593</sup> A CDM A/R project is one of the fifteen types of CDM projects that are designed to provide 'some flexibility' to Annex 1 countries to meet their emission reduction obligations. Therefore, Annex 1 countries can purchase certified emission reductions (CERs) from CDM A/R projects in developing countries to meet their

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<sup>589</sup> Peters-Stanley et al., *Covering New Ground: State of the Forest Carbon Markets 2013*, 41. This survey received 162 responses from project developers from North America (48), Europe (37), Latin America (30), Asia (12), and Africa (8) operating 513 forest and other land-use carbon projects in the world with approximately 25.6 MtCO<sub>2</sub>e carbon offsets worth US\$237 million in 2011 and 28 MtCO<sub>2</sub>e carbon offsets with a total market value of US\$216 million in 2012. The data collected is not exhaustive, but the result of the survey provides the state of play of a range of existing financing mechanisms for forest carbon projects.

<sup>590</sup> John Pender et al., "Development Pathways and Land Management in Uganda," *World Development* 32, no. 5 (2004): 783.

<sup>591</sup> Peters-Stanley et al., *Covering New Ground: State of the Forest Carbon Markets 2013*, 41.

<sup>592</sup> Brent Sohngen, "Assessing the Economic Potential for Reduction of Deforestation in Developing Countries," in *Avoided Deforestation: Prospects for Mitigating Climate Change*, ed. Charles Parmler and Stefanie Engel (Routledge, 2009), 49.

<sup>593</sup> See Chapter 2, Section 2.5.2 and 2.5.3.

obligations.<sup>594</sup> As a result, the foreign investment for CDM A/R projects is subject to the economic benefits of the Annex 1 countries from the transaction of CERs.

In contrast, the funds for the REDD+ activities derive from a political consensus concerning the significance of forest conservation. Emission reductions produced by the REDD+ projects are currently not eligible to meet international emission reduction obligations under the UNFCCC legal framework. Nations agreed that funding is necessary for the REDD+ projects in developing countries, because in the short-term forests are worth considerably more when they are used for logging or converted to other uses.<sup>595</sup> Demand for timber, crops and livestock from all over the world lead to massive deforestation in developing countries. Therefore, it is necessary to collect funding from international beneficiaries to compensate the indigenous peoples and their home countries for the loss of income by not abusively extracting their forest resources.

With a different political context, foreign governmental investments in forest carbon projects in developing countries may arise from the following three initiatives. The first initiative is the emission reduction obligations of the Annex I countries under the UNFCCC. The second initiative comprises the financial pledges from developed countries to developing countries at the Conferences of the Parties (COP) to the UNFCCC. The third involves some investment in forest carbon projects as part of the Official Development Aid (ODA) from developed countries. These three initiatives are explained further below.

To meet their emission reduction commitments, many Annex I countries invest in forest carbon projects in developing countries. The FTEM survey shows that governments, mainly from European countries, Latin America, North America and Oceania, purchased eighteen percent of forest carbon offsets in the market in 2011.<sup>596</sup> However, the amount of forest carbon offsets transacted to foreign governments shrank greatly to two percent in 2012, and the price fell during 2012 and 2013.<sup>597</sup> The international regulatory environment for forest carbon projects was uncertain after 2012 because it was the last year of the first commitment period of the Kyoto Protocol. Without accurate information of how forest carbon offsets can be used for future compliance after 2012, governments were cautious about whether to purchase emission reductions from forest carbon projects in developing countries.

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<sup>594</sup> Para. 7 (a) (b), "Decision 17/CP.7: Modalities and Procedures for a Clean Development Mechanism as Defined in Article 12 of the Kyoto Protocol," UNFCCC (2001).

<sup>595</sup> For the REDD+, member countries of the UNFCCC have agreed on "the provision of adequate and predictable support to developing country Parties". See Art. III (C), "Decision 1/CP.16: The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention," (2010).

<sup>596</sup> Peters-Stanley et al., *Covering New Ground: State of the Forest Carbon Markets 2013*, vii and 41.

<sup>597</sup> *Ibid.*, 35 and 41.

Despite the low number of purchases, foreign governments are still playing a weighty role in the international market for emission reductions from forest carbon projects. For instance, to be prepared for the new regulations on carbon tax in Australia and the cap-and-trade programme in California, companies were motivated to purchase more emission reductions (4.3 MtCO<sub>2</sub>e) from forest carbon projects in developing countries in 2012.<sup>598</sup> Because the carbon tax and cap-and-trade programmes indicate obligations imposed by the authorities on the private sector, these types of incentive-based mechanisms are dubbed the compliance carbon market.<sup>599</sup> Hence, foreign governments may stimulate demand by incorporating emission reductions from forest carbon projects in developing countries into their domestic or regional compliance carbon market. This type of incentive that is motivated by the compliance market can be called the pre-compliance incentive.

Another initiative stimulated by the UNFCCC legal framework is the financial pledges from developed countries at the Conferences of the Parties (COP) to the UNFCCC. The pledges are committed by Annex I countries for supporting activities in developing countries that contribute to climate mitigation and adaptation. At the 16<sup>th</sup> COP in 2010 in Cancun, developed countries agreed to mobilise US\$100 billion per year by 2020 to 'address the needs of developing countries' in response to climate change.<sup>600</sup> Further actions towards this goal included more financial pledges at COP 21 at Paris in 2015.<sup>601</sup> These pledges may flow into both CDM A/R and REDD+ forest carbon projects.

The reason for developed countries to bear emission reduction obligations and to give climate aid to developing countries may be threefold. First, it is deemed that developing countries are geographically more exposed to enormous environmental disasters resulting from climate change.<sup>602</sup> Second, developing countries are very vulnerable to climate disasters, considering their unfavourable socio-economic, scientific, and technical status.<sup>603</sup> Thirdly, developed countries are considered to be more responsible for reducing the current GHG emissions in the atmosphere as the original polluters.<sup>604</sup> This

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<sup>598</sup> Ibid., 42.

<sup>599</sup> Ibid., v.

<sup>600</sup> IV. (A), para. 98, "Decision 1/CP.16: The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention," UNFCCC (2010).

<sup>601</sup> For more details please see "Overview of Announced Climate Finance Pledges Ahead of Paris,," accessed 2 March 2017, <http://newsroom.unfccc.int/financial-flows/climate-finance-building-ahead-of-paris-overview-of-recent-announcements/>.

<sup>602</sup> M. Monirul Qader Mirza, "Climate Change and Extreme Weather Events: Can Developing Countries Adapt?," *Climate Policy* 3, no. 3 (2003): 235.

<sup>603</sup> Karen L. O'Brien and Robin M. Leichenko, "Double Exposure: Assessing the Impacts of Climate Change within the Context of Economic Globalization," *Global Environmental Change* 10, no. 3 (2000): 229. Mirza, "Climate Change and Extreme Weather Events: Can Developing Countries Adapt?," 247. Para. 19, IUCC, "The Noordwijk Ministerial Declaration on Climate Change."

<sup>604</sup> Agarwal and Narain, *Global Warming in an Unequal World: A Case of Environmental Colonialism*, 2. This point of view was recognised in the ministerial conference in Bergen, Norway, in May 1990, see IUCC, *The Bergen Conference*

is because the current anthropogenic greenhouse gases result largely from the historical emissions of the developed countries during the process of industrialisation.<sup>605</sup>

Furthermore, some developed countries may invest in forest carbon projects as part of their Official Development Aid (ODA) to developing countries.<sup>606</sup> For instance, the Global Environment Facility (GEF) receives ODA funding and supports various environmental conservation activities including forest carbon projects.<sup>607</sup> The ODA is the financial aid from the North (developed countries) to the South (developing countries) for poverty alleviation and development.<sup>608</sup> The ODA may be delivered in various financial mechanisms including debt relief, new lending, grant, contributions to international financial institutions, and bilateral aid for development programmes.<sup>609</sup> In many cases, the ODA funding goes to the most vulnerable countries together with technical assistance and policy guidance.<sup>610</sup>

The reasons for developed countries to consider funding forest carbon projects in ODA programmes are twofold. First, forests can provide climate security by removing greenhouse gases (GHGs) from the atmosphere.<sup>611</sup> Climate change is deemed to be one significant barrier for the long-term development in developing countries, because natural disasters caused by climate change can reverse the collected development efforts over night.<sup>612</sup> By supporting forest carbon activities in developing countries, the investments can help developing countries mitigate and adapt to climate change. Therefore, supporting forest carbon activities in developing countries contributes to their development in the long run.

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*and Its Proposals for Addressing Climate Change* (IUCC, 1990), accessed 15 March 2017, <http://unfccc.int/resource/ccsites/senegal/fact/fs220.htm>.

<sup>605</sup> United States Congressional Budget Office, *The Economics of Climate Change: A Primer* (Congressional Budget Office, 2003), 12. DS Ward and NM Mahowald, "Contributions of Developed and Developing Countries to Global Climate Forcing and Surface Temperature Change," *Environmental Research Letters* 9, no. 074008 (2014): 6.

<sup>606</sup> Tomaselli, *Brief Study on Funding and Finance for Forestry and Forest-Based Sector*, 6.

<sup>607</sup> Box A, Annex, "Decision 1/CP.16: The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention," UNFCCC (2010).

<sup>608</sup> The term ODA was originally created by the Development Assistance Committee (DAC) of the OECD in 1969. The official definition of this term is available at OECD, "Glossary of Statistical Terms: Official Development Assistance (ODA)," accessed 27 June 2017, <http://stats.oecd.org/glossary/detail.asp?ID=6043>. For more details about its definition, see Helmut Führer, *The Story of Official Development Assistance: A History of the Development Assistance Committee and the Development Co-Operation Directorate in Dates, Names and Figures* (Organisation for Economic Co-operation and Development, 1994), 21.

<sup>609</sup> OECD, "Development Aid Rose in 2009 and Most Donors Will Meet 2010 Aid Targets," accessed 17 March 2017, <http://www.oecd.org/dac/stats/developmentaidrosein2009andmostdonorswillmeet2010aidtargets.htm>.

<sup>610</sup> Streck and Parker, "Financing REDD+," 111.

<sup>611</sup> Simon L Lewis et al., "Increasing Carbon Storage in Intact African Tropical Forests," *Nature* 457, no. 7232 (2009): 1003.

<sup>612</sup> Sameena Dost, *Development and Climate Change: A Strategic Framework for the World Bank Group* (Washington, DC: the World Bank, 2012), accessed 12 July 2017, <http://documents.worldbank.org/curated/en/732681468150874549/Development-and-climate-change-a-strategic-framework-for-the-World-Bank-Group>: 7.

Moreover, forests provide at least another five types of ecosystem services for human life. Except the climate security mentioned above, forests also contribute to food production, energy security, health security, and the livelihood security of local communities, especially for poor farmers whose lives highly depend on forest.<sup>613</sup> More importantly, forests can also provide water security by purifying and managing water runoff.<sup>614</sup> Forest carbon projects can conserve and enhance forests to deliver these ecosystem services. Therefore, investing in forest carbon projects is consistent with the ODA goals for poverty alleviation.

### 5.2.2.3 Incentives of the Private Finance Providers

Following Parker et al. (2010), this chapter defines the scope of the private finance for forest carbon projects as investments raised from and remain controlled by the private sector.<sup>615</sup> The private investors in forest carbon projects include individuals and private corporations, which purchased nearly 97.3 percent of emission reductions in the market in 2012 and drives eighty-four percent of voluntary market demand in 2015.<sup>616</sup>

Private finance providers may purchase forest carbon offsets for one or more of the following five reasons.<sup>617</sup> First, the carbon retailers, which have the biggest demand in the market, may purchase emission reductions to make a profit in the future by selling them at a higher price. Some retailers expect to sell the carbon offsets (twenty-seven percent in the market) to future obligors of emission reductions. Another twelve percent was transacted to voluntary buyers. Furthermore, twenty-three percent of the forest carbon offsets in the market were purchased by corporates to meet their corporate social responsibility, while twenty percent were purchased by companies for demonstrating climate leadership, and fourteen percent were purchased to prepare for possible emission reduction obligations in the near future. The remaining one percent was for business branding.

Some private buyers prefer forest carbon offsets rather than emission reductions from other climate projects for specific reasons.<sup>618</sup> First, emission reductions from forest carbon projects are more cost-effective, since it is presently a ‘potentially over-supplied market’.<sup>619</sup> Second, some companies find it

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<sup>613</sup> Parker and Cranford, *The Little Biodiversity Finance Book: A Guide to Proactive Investment in Natural Capital*, 17.

<sup>614</sup> IPCC, *Climate Change 2007: Synthesis Report*, 61.

<sup>615</sup> Parker and Cranford, *The Little Biodiversity Finance Book: A Guide to Proactive Investment in Natural Capital*, 53.

<sup>616</sup> Peters-Stanley et al., *Covering New Ground: State of the Forest Carbon Markets 2013*, 41. Allie Goldstein and Franziska Ruef, *View from the Understory: State of Forest Carbon Finance 2016* (Washington, DC: Forest Trends’ Ecosystem Marketplace, 2016): 16.

<sup>617</sup> Peters-Stanley et al., *Covering New Ground: State of the Forest Carbon Markets 2013*, 41.

<sup>618</sup> *Ibid.*, 42-43.

<sup>619</sup> *Ibid.*, 18.

more straightforward to explain why purchasing forest carbon credits is beneficial for the environment.<sup>620</sup>

Thirdly, there are buyers who choose forest carbon offsets because of their co-benefits for sustainable development, including multiple environmental benefits and social benefits.<sup>621</sup> For instance, there are voluntary forest carbon projects (and buyers of their offsets) that are motivated by biodiversity conservation, which gain revenue from (or pay for) carbon offsets for forest protection, and therefore choose projects' locations specific to certain ecosystems.<sup>622</sup> In the voluntary market, some forest carbon offsets marked with sustainable environmental and social co-benefits can earn higher prices.<sup>623</sup> In fact, a survey conducted among global project developers in 2016 indicates that forty percent of buyers purchased forest carbon offsets for their environmental and social co-benefits.<sup>624</sup>

Fourth, industries with a high interest in land show preference to forest carbon offsets. For instance, Communications & Information, Finance & Insurance, and Entertainment respectively purchase four percent, two percent, and two percent of the forest carbon offsets in the market. Compared to them, industries related to land, such as Agriculture & Forestry (seventeen percent), Transportation (eleven percent), and Food & Beverage (eight percent) account for higher market shares.<sup>625</sup> One explanation may be that those industries realise their high dependence on land and would thus contribute to forest carbon projects for land conservation for the continuation of their business.

Lastly, there are scholars who have claimed that many CDM forest carbon projects in developing countries are driven by the demand for wood.<sup>626</sup> Wood products are valuable for many sectors including pulp and paper, building and transmission poles, lumber and wood-based panels, furniture and joinery, and bamboo-based industries.<sup>627</sup> In some CDM forest carbon projects, the investors are gigantic forestry companies, which invest to receive wood products. Such companies include Green

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<sup>620</sup> Ibid., 43.

<sup>621</sup> Ibid.; Kelley Hamrick and Melissa Gallant, *Unlocking Potential: State of the Voluntary Carbon Markets 2017* (Washington, DC: Forest Trends' Ecosystem Marketplace, 2017): 10.

<sup>622</sup> *Unlocking Potential: State of the Voluntary Carbon Markets 2017*, 13.

<sup>623</sup> Goldstein and Ruef, *View from the Understory: State of Forest Carbon Finance 2016*, 14.

<sup>624</sup> Ibid., 22.

<sup>625</sup> Peters-Stanley et al., *Covering New Ground: State of the Forest Carbon Markets 2013*, 41.

<sup>626</sup> Carriere, Lohmann, and Lohmann, *Pulping the South: Industrial Tree Plantations and the World Paper Economy*, 17. Adrian Nel and Khadija Sharife, "East African Trees and the Green Resource Curse," *The CDM in Africa Cannot Deliver the Money: Why the Carbon Trading Gamble and 'Clean Development Mechanism' Won't Save the Planet from Climate Change, and How African Civil Society is Resisting* (Durban, South Africa: Centre for Civil Society, University of KwaZulu-Natal, 2012), <https://cdmscannotdeliver.wordpress.com/chapters/chapter-5/>. 54.

<sup>627</sup> John Spears, "Regional Investment Opportunities, Constraints to Investment, and Potential Solutions," in *Investment Opportunities Constraints to Investment and Potential Solutions* (Pietermaritzburg, South Africa: PROFOR at the World Bank, 2006), 21-22.

Resources Ltd, Norwegian corporation TRG, the UK's New Forest, and an American private initiative Global Forest Solidarity Fund.<sup>628</sup>

The International Union for Conservation of Nature (IUCN) listed some CDM A/R projects which are motivated by commercial purposes such as timber production and biomass energy.<sup>629</sup> This means that the plantation comes with harvesting goals, which may be more attractive and significant for the poor and local government in developing countries.

For instance, the Kachung project in Africa has Lango Forestry Co. Ltd, formerly known as the Norwegian Afforestation Group, and Green Resources AS as investors, the largest operators in Africa combining forest carbon projects with commercial wood production.<sup>630</sup> In the project, logs are harvested at an increasing rate as the plantations mature to receive sharply growing revenues from commercial wood production.<sup>631</sup> In another case, the Argos CO<sub>2</sub> Offset Project in Colombia is completely financed by private enterprises and commercial uses of wood products were set as one of the objectives of the project.<sup>632</sup> The project operator is Cementos Argos S.A., a cement company in Colombia. The buyer of the expected emission reductions is a Luxemburg private company, MGM Carbon Portfolio SARL.<sup>633</sup> A Colombian senator alleged that this project occupies illegally-seized lands.<sup>634</sup>

### **5.2.3 Incentives and Functions of Host Countries' Governments**

The host countries' central and local governments may be involved in a forest carbon project in a developing country. The following text analyses the incentives of the governments and types of support that they can provide for a forest carbon project.

#### **5.2.3.1 Incentives of Host Countries' Governments**

Forest carbon projects can contribute to reducing deforestation by planting more trees and reducing logging. Therefore, it seems evident that developing countries joined the REDD+ projects under the pressure to halt domestic deforestation. However, to conduct a more detailed study on the incentives

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<sup>628</sup> Nel and Sharife, "East African Trees and the Green Resource Curse," 53.

<sup>629</sup> Manguiat, *Legal Aspects in the Implementation of CDM Forestry Projects*, 7.

<sup>630</sup> CDM, "Project 4653: The Kachung Forest Projects: Afforestation and Reforestation," (2012), Project Design Document, accessed 17 April 2017, <https://cdm.unfccc.int/Projects/DB/TUEV-SUED1301918616.32/view>: 4.

<sup>631</sup> Green Resources, "Welcome to Green Resources ", accessed 2 March 2017, <http://www.greenresources.no/>.

<sup>632</sup> CDM, "Project 3233: Argos Co<sub>2</sub> Offset Project, through Reforestation Activities for Commercial Use, Colombia," Project Design Document, 2.

<sup>633</sup> China Economic Information Network, "Cer Buyers: Mgm Carbon Portfolio, Sarl," CDM Information Platform, accessed 17 March 2017, <http://cdm-en.ccchina.gov.cn/website/cdm/pdf/Buy/Buy94.pdf>.

<sup>634</sup> Carbon Market Watch, "The Mandate to Protect Human Rights in the CDM."

of host countries' governments, it is necessary to investigate their preferences between short-term economic benefits and long-term social and environmental benefits.

One approach to detect the incentives of the host country is to look at the projects' locations. Lin et al. 2012's paper concluded some preferences among host countries when selecting project sites. First, afforestation and reforestation projects are more likely to be located in remote areas and in jurisdictions with higher deforestation rates and higher forest carbon densities in Brazil and Indonesia.<sup>635</sup> Second, countries or jurisdictions with more protected area and high biodiversity are more likely to have forest carbon projects for biodiversity conservation.<sup>636</sup>

Additionally, an NGO asserts that some developing countries welcome forest carbon projects for immediate foreign investments.<sup>637</sup> Hence, the governments chose to neglect the negative social and environmental impacts of unsustainable projects.<sup>638</sup> The choice may be made by national policy makers, sub-national policy makers, or a few corrupt government officials. More details about this issue will be discussed in the following section about the unsustainability risks in the incentive schemes.

### 5.2.3.2 Giving Permits to the Project

First, a host country's government can give three types of permits to a foreign forest carbon project. Under the CDM rules, a project can only be registered by the CDM Executive Board if it receives a LoA from the host country's designated national authority (DNA).<sup>639</sup> Second, under national laws, both CDM A/R and REDD+ projects need to be licensed for trees to be planted in the project area. For instance, in the Kachung forest project in Uganda, 2,669 hectares (ha) of land was authorised and a tree planting permit was issued by the National Forest Authority in 1999 for the implementation of the project.<sup>640</sup> In a reforestation project in Qinghai Province, China, which applied the international Verified Carbon Standard (VCS), the local government provided land-use approvals.<sup>641</sup> In addition, the projects need a license issued by the local government for harvesting and selling the forest products including timber and non-wood forest products.<sup>642</sup>

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<sup>635</sup> Lin et al., "Site Selection for Forest Carbon Projects," 229.

<sup>636</sup> *Ibid.*, 230.

<sup>637</sup> World Rainforest Movement, "Bulletin # 37," accessed 2 March 2017, <http://wrm.org.uy/oldsite/bulletin/37.html>: 10.

<sup>638</sup> *Ibid.*

<sup>639</sup> CDM, "Designated National Authorities." For more details of the LoA, please see Para. 1, "Annex 6: Clarification on Elements of a Written Approval," CDM-EB16 (2004).

<sup>640</sup> Green Resources, "Company Report," accessed 15 April 2017,

[http://www.greenresources.no/Portals/0/reports/gr\\_Company\\_report.pdf](http://www.greenresources.no/Portals/0/reports/gr_Company_report.pdf): 16. CDM, "Project 4653: The Kachung Forest Projects: Afforestation and Reforestation," Project Design Document, 4.

<sup>641</sup> VCS, "Project 1361: Reforestation Project in Qinghai Province," (2015), Project Description, accessed 18 April 2017, [http://www.vcsprojectdatabase.org/#/project\\_details/1361](http://www.vcsprojectdatabase.org/#/project_details/1361): 15.

<sup>642</sup> CDM, "Small-Scale Reforestation for Landscape Restoration at the South of the Gaoligongshan Nature Reserve," (2006), Project Design Document, accessed: 22.



### 5.2.3.3 Providing a Favourable Investment Environment

Despite the permits, the investors, particularly foreign investors still need more guarantees of a safe or even favourable investment environment due to the long duration and high risks of the projects.<sup>643</sup> The governments may issue favourable policies for forest carbon projects on tax, land tenure, and may set strict constraints for necessary expropriations.

### 5.2.3.4 Supporting Stakeholders

The third role a host country's government may play is to facilitate stakeholders. The identities of the stakeholders vary depending on the domestic property law on land and forest of the host country. If the stakeholders do not have enough financial or technical capacity, the local government can support the stakeholders in operating the project. After the stakeholders obtain more experience about project operation, the government's share of responsibilities and rights may be gradually reduced.<sup>644</sup>

For instance, the Uganda National Forestry Authority (UNFA) provided most of the finance for three CDM A/R projects in Uganda.<sup>645</sup> In the Uganda No. 5 project, the UNFA provided eighty-five percent of the funding, seedlings, and some technical advice to the local communities.<sup>646</sup> The UNFA acted as the project developer, which bore the overall responsibility for project implementation, negotiating with the buyers about the price for tCO<sub>2</sub>, the delivery of the emission reductions, and protecting the national forests and the plantations.<sup>647</sup> It had all the rights and was entitled to the interests of the emission reductions produced in the project.<sup>648</sup>

The dominating involvement of the UNFA was a result of at least two reasons. First, the local communities were not experienced enough at this new project concept. Second, foreign investors require a guarantee from the government against financial risks. As to the Uganda No. 5 project, the UNFA was considered the only organisation in Uganda that was 'able to provide confidence' and

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<sup>643</sup> As stated in the finance analysis of many forest carbon projects, the projects bear high risks and have difficulties in borrowing commercial loans because of its long duration and unfavourable land conditions. See more at *ibid.*, 48. "Small-Scale Afforestation for Combating Desertification at Kangping County, Liaoning Province, China," (2007), Project Design Document, accessed: 24. "Multiple-Purposes Reforestation on Degraded Lands in Longyang, Yunnan, P.R. China," (2008), Project Design Document, accessed: 39.

<sup>644</sup> "Project 4466: Uganda Nile Basin Reforestation Project No. 5," Project Design Document, 2.

<sup>645</sup> The UNFA accounts for 85 % of the investment in *ibid.* The UNFA accounts for 93 % of the investment in "Project 1578: Uganda Nile Basin Reforestation Project No. 3," Project Design Document, 3. The UNFA accounts for 90 % of the investment in "Project 4940: Uganda Nile Basin Reforestation Project No. 2," Project Design Document, 2. The UNFA accounts for 86 % of the investment in "Project 4939: Uganda Nile Basin Reforestation Project No. 1," Project Design Document, 2.

<sup>646</sup> "Project 4466: Uganda Nile Basin Reforestation Project No. 5," Project Design Document, 2.

<sup>647</sup> *Ibid.*, 3. Forest Trends, "Forest Carbon Portal: Uganda Nile Basin Reforestation Project No 5," accessed 2 March 2017, <http://www.forestcarbonportal.com/project/uganda-nile-basin-reforestation-project-no-5>.

<sup>648</sup> CDM, "Project 4466: Uganda Nile Basin Reforestation Project No. 5," Project Design Document, 3.

guarantees to international investors in this ‘new investment concept’.<sup>649</sup> The shares of communities and/or private enterprises will be gradually increased considering the learning curve and the available track record from this first project cluster.<sup>650</sup>

### 5.2.3.5 Financial Support

By providing funds through the national budget, a host country’s government appears to be a major source of domestic public finance for forest carbon projects. Streck & Parker (2012) stated that Brazil and Mexico have devoted an annual public expenditure of US\$500 million and US\$460 million respectively to forest conservation.<sup>651</sup> Indonesia allocated on average US\$489 million of its national budget on forest conservation from 2005 to 2011.<sup>652</sup>

Even with these financial supports, Mexico, Brazil and Indonesia still suffered high deforestation rates of 0.24 percent, 0.42 percent and 0.72 percent respectively from 2005 to 2010.<sup>653</sup> These countries are among the nations with the greatest tree cover loss from 2001 to 2014. Expressed in millions of hectares, Brazil was first with 29.67, Indonesia fifth with 17.08, and Mexico fourteenth with 1.89.<sup>654</sup>

The Eliasch Review (2008) estimated that US\$17 billion to US\$33 billion per year is needed to reduce deforestation by fifty percent by 2030.<sup>655</sup> Compared to that amount, the national financial support from these three countries is just a fraction. As shown in Table 5-1, these three countries are middle-income developing economies with a high GDP and the largest forested area in the world in 2012.<sup>656</sup> We can hardly expect the rest of the developing world to have the financial capacity to make up the financial gap.

**Table 5-1: Domestic Public Finance on Forest and Land Use in Developing Countries**

Country	Forest Cover (million hectare); World Ranking (2012) <sup>657</sup>	GDP (millions of US\$); World Ranking (2012) <sup>658</sup>	Finance on Forest Activities (millions of US\$ per year)	Tree Cover Loss (million hectares) 2001-2014	Deforestation Rate (2005-2010) (1000 ha/year)
Mexico	64.49; 11th	1,184,500; 15th	460	1.89; 14th	0.24%; 155

<sup>649</sup> Ibid., 2. Forest Trends, "Forest Carbon Portal: Uganda Nile Basin Reforestation Project No 5."

<sup>650</sup> CDM, "Project 4466: Uganda Nile Basin Reforestation Project No. 5," Project Design Document, 2.

<sup>651</sup> Streck and Parker, "Financing REDD+," 111 and 17.

<sup>652</sup> The original unit of measure of the World Bank is sq. km, which the table above uses "1000 ha". Therefore, the data is transformed according to 1 sq. km = 100 ha. See "Data: Forest Area," accessed 17 March 2017, [http://data.worldbank.org/indicator/AG.LND.FRST.K2/countries/1W?order=wbapi\\_data\\_value\\_2012%20wbapi\\_data\\_value%20wbapi\\_data\\_value-last&sort=desc&display=default](http://data.worldbank.org/indicator/AG.LND.FRST.K2/countries/1W?order=wbapi_data_value_2012%20wbapi_data_value%20wbapi_data_value-last&sort=desc&display=default).

<sup>653</sup> "Data: GDP at Market Prices (Current US Dollars)," accessed 2 March 2017,

[http://data.worldbank.org/indicator/NY.GDP.MKTP.CD?order=wbapi\\_data\\_value\\_2012+wbapi\\_data\\_value&sort=desc](http://data.worldbank.org/indicator/NY.GDP.MKTP.CD?order=wbapi_data_value_2012+wbapi_data_value&sort=desc).

Indonesia	93.06; 8th	917,870; 16th	489	17.08; 5th	0.71%; 685
Brazil	515.13; 2nd	2,413,136; 7th	500	29.67; 1st	0.42%; 2,194

#### 5.2.4 Incentives of Local Stakeholders

This section aims to study what motivates local people to plant trees and protect forests. It is an unconventional perspective, because many scholars endeavour to reveal the causes of household deforestation activities because many developing countries suffer from illegal logging by local people.<sup>659</sup>

This section first investigates the incentives of local people based on their benefit-sharing arrangements in forest carbon projects. In many benefit-sharing agreements, the local farmers provide land use rights and labour to receive all or part of the carbon revenues and forest products in return.<sup>660</sup> Forest products include fodder for livestock and firewood.<sup>661</sup> For instance, in the Uganda Nile Basin Reforestation Project No. 5, the local communities receive payments for the CO<sub>2</sub> sequestered by the planted trees in the project as stipulated in the Emission Reductions Purchase Agreement.<sup>662</sup> In a reforestation project in Qinghai Province, China, the local farmers were motivated by promised

<sup>654</sup> Global Forest Watch, "Tree Cover Stats," accessed 2 March 2017,

<http://www.globalforestwatch.org/countries/overview>. The data in the Excel downloaded from the website is different with the data shown online. This paper chose the data in the Excel because it is more comprehensive and consistent.

<sup>655</sup> Johan Eliasch, *Climate Change: Financing Global Forests*, The Eliasch Review (UK: the Stationery Office Limited on behalf of the Controller of Her Majesty's Stationery Office, 2008): 75.

<sup>656</sup> The World Bank, "World Bank List of Economies: Middle-Income Developing Economies," the World Bank, accessed 17 March 2017, <http://siteresources.worldbank.org/DATASTATISTICS/Resources/CLASS.XLS>. Middle-income countries' data is also available at "Middle Income," the World Bank IBRD-IDA, accessed 7 April 2017, <http://data.worldbank.org/income-level/middle-income>.

<sup>657</sup> The original unit of measure of the World Bank is sq. km, which the table above uses "1000 ha". Therefore, the data is transformed according to 1 sq. km = 100 ha. See "Data: Forest Area," accessed 17 March 2017, [http://data.worldbank.org/indicator/AG.LND.FRST.K2/countries/1W?order=wbapi\\_data\\_value\\_2012%20wbapi\\_data\\_value%20wbapi\\_data\\_value-last&sort=desc&display=default](http://data.worldbank.org/indicator/AG.LND.FRST.K2/countries/1W?order=wbapi_data_value_2012%20wbapi_data_value%20wbapi_data_value-last&sort=desc&display=default).

<sup>658</sup> "Data: GDP at Market Prices (Current US Dollars)," accessed 2 March 2017,

[http://data.worldbank.org/indicator/NY.GDP.MKTP.CD?order=wbapi\\_data\\_value\\_2012+wbapi\\_data\\_value&sort=desc](http://data.worldbank.org/indicator/NY.GDP.MKTP.CD?order=wbapi_data_value_2012+wbapi_data_value&sort=desc).

<sup>659</sup> Studies about drivers for household deforestation activities include Arild Angelsen and David Kaimowitz, "Rethinking the Causes of Deforestation: Lessons from Economic Models," *The World Bank Research Observer* 14, no. 1 (1999): 77. Rinku Roy Chowdhury, "Landscape Change in the Calakmul Biosphere Reserve, Mexico: Modeling the Driving Forces of Smallholder Deforestation in Land Parcels," *Applied Geography* 26, no. 2 (2006): 129. Lawrence Damnyag et al., "Role of Tenure Insecurity in Deforestation in Ghana's High Forest Zone," *Forest Policy and Economics* 14, no. 1 (2012): 90. Helmut J Geist and Eric F Lambin, "Proximate Causes and Underlying Driving Forces of Tropical Deforestation: Tropical Forests Are Disappearing as the Result of Many Pressures, Both Local and Regional, Acting in Various Combinations in Different Geographical Locations," *BioScience* 52, no. 2 (2002): 143. Yoshito Takasaki, "Dynamic Household Models of Forest Clearing under Distinct Land and Labor Market Institutions: Can Agricultural Policies Reduce Tropical Deforestation?," *Environment and Development Economics* 12, no. 3 (2007): 423.

<sup>660</sup> Christopher Carr and Flavia Rosembuj, "World Bank Experiences in Contracting for Emission Reductions," *Environmental Liability* 15, no. 2 (2007): 111.

<sup>661</sup> Seth Shames et al., *Institutional Innovations in African Smallholder Carbon Projects* (Copenhagen, Denmark: Climate Change Agriculture and Food Security, 2012), accessed 12 July 2017, <http://hdl.handle.net/10568/21222>: 15.

<sup>662</sup> CDM, "Project 4466: Uganda Nile Basin Reforestation Project No. 5," Project Design Document, 2.

economic returns such as increased employment opportunities and benefits from carbon trading.<sup>663</sup> In addition, they were also expecting improvement in the local environment and more educational opportunities from project operations.<sup>664</sup>

Furthermore, based on previous literature we look in depth at how the local people benefit from the carbon revenues. The carbon revenues were sometimes used for constructing agricultural infrastructure, for instance in the Humbo Assisted Natural Regeneration Project in Ethiopia (a CDM A/R project).<sup>665</sup> Additionally, it is also claimed that to prepare for the implementation of the project, the property rights of the local area are better protected by law.<sup>666</sup> The construction and the legalisation of rights benefit the local people. Such changes might be planned as part of the project and incentivise the local people to participate in forest carbon projects.

### 5.3 Risks in the Current Incentive Schemes

When connecting the incentives discussed above to their possible results in the sustainability of the project, some risks emerge in the current incentive schemes. As shown in Table 5-2, this section examines the incentives of each type of project participants and identifies the existing risks that may lead to unsustainable environmental and social results.

**Table 5-2: Risks in the Current Incentive Schemes of Forest Carbon Projects in Developing Countries**

Project Players	Risks
Foreign public finance providers	a. Willing to pay the lowest price
	b. Double-counting the investments
	c. Insufficient use of other public funds
Private finance providers	d. Underperformance
	e. Minimal efforts
	f. Not additional, but subsidised investments
Stakeholders	g. Excluded from decision-making
	h. Insufficiently compensated
	i. Lack of knowledge of negative impact and prioritising economic benefits
Host countries' governments	j. National plans neglect the long-term negative impact
	k. Sub-national policies prioritise economic benefits

<sup>663</sup> VCS, "Project 1361: Reforestation Project in Qinghai Province," Project Description, 46.

<sup>664</sup> Ibid.

<sup>665</sup> Salinas and Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects*, 113.

<sup>666</sup> Arthur G. Green and Jon D. Unruh, "Clean Development Mechanism Afforestation and Reforestation Projects: Implications for Local Agriculture," *CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources* 5 (2010): 6.

	l. Governmental corruption
	m. Institutional incompetence

### 5.3.1 Risks in the Incentives of Foreign Public Finance Providers

As the buyers of emission reductions, developed countries may have the incentive to reduce their costs of compliance and to minimise the price of the emission reductions. As a result, the first risk at stake is that an adverse selection will appear in the market. In fact, a project practitioner in China mentioned that there was a case where a deal on the emission reductions was not completed because foreign buyers and domestic sellers disagreed on the price.<sup>667</sup> Since price can affect buyers' decisions, emission reductions with a lower price may be chosen over those with a higher price. The higher price can be due to the extra costs of maintaining environmental and social sustainability. Thus, carbon credits with a higher price from sustainable forest carbon projects will not have enough buyers. In an extreme case, when the buyers' willingness to pay is heavily affected by the price of emission reductions, project developers that care about the sustainability of the projects will be squeezed out of the market. The remaining projects in the carbon market may increasingly reduce expenses on sustainability measures to compete for a lower price.

The second risk is that the finance to developing countries may be double counted. This issue has been a concern of developing countries in the international negotiations about future financial aids from the North to the South to combat climate change. The Cancun agreement required that further climate aid to developing countries should be 'new' and 'additional'.<sup>668</sup> Furthermore, the newly established Green Climate Fund under the UNFCCC also considers 'new and additional' as an essential element for its funding.<sup>669</sup> However, these terms are not defined clearly in the legal documents and lead to controversies in practice.

For instance, as mentioned above, long before the UNFCCC financial pledges, developed countries started providing ODA to developing countries. Some scholars and NGOs suspected that the existing aid (including ODA) to developing countries may be double counted as UNFCCC financial pledges.<sup>670</sup>

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<sup>667</sup> Interview 15, "A Project Leader of the World Bank, Beijing, China (Face-to-Face Interview, 10 June 2015)."

<sup>668</sup> Para. 2 (d) and Para. 97, "Decision 1/CP.16: The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention," UNFCCC (2010).

<sup>669</sup> Annex: Governing instrument for the Green Climate Fund, "Decision 3/CP.17: Launching the Green Climate Fund," (2011), FCCC/CP/2011/9/Add.1.

<sup>670</sup> See more details at Simon D Donner, Milind Kandlikar, and Hisham Zerriffi, "Preparing to Manage Climate Change Financing," *Science* 334, no. 6058 (2011): 908. Aaron Atteridge, *Will Private Finance Support Climate Change Adaptation in Developing Countries: Historical Patterns as a Window on Future Private-Sector Climate Finance* (Stockholm Environment Institute, 2011), accessed 12 July 2017, <http://www.jstor.org/stable/resrep00511>: 3. Jessica Brown, Neil Bird, and Liane Schalatek, "Climate Finance Additionality: Emerging Definitions and Their Implications," *Climate Finance Policy Brief* 2 (2010): 2-3.

The Food and Agriculture Organization of the United Nations (FAO) suggested that the public funding involved in CDM projects should be separated from ODA and the UNFCCC financial pledges.<sup>671</sup> In spite of these concerns, the UNFCCC legal documents stipulates no specific rules to determine what is new and additional funding.<sup>672</sup> Consequently, the actual finance from the North to the South for forest conservation may be significantly exaggerated.

The third risk is that foreign public funding with parallel objectives is not sufficiently employed in forest carbon projects in developing countries. Parallel objectives refer to, for instance, biodiversity conservation and climate change mitigation, which can be achieved at the same time in forest carbon projects. On the one hand, supporting forest carbon projects can contribute to conserving existing natural forests and the terrestrial biodiversity inside.<sup>673</sup> On the other, investments for biodiversity conservation could be very helpful for promoting the environmental sustainability of forest carbon projects.

Nonetheless, until now there is no clear and effective cooperation between international public finance for biodiversity conservation and for climate change in promoting forest carbon projects in developing countries. For instance, the GEF supports more than 60 national and 8 regional forest projects for biodiversity conservation.<sup>674</sup> However, none of them is climate-related reforestation, afforestation or REDD+ projects, or counting GHGs' removals. With CDM A/R projects, public finance from the biodiversity channel was rarely involved because their main goal is to mitigate climate change.<sup>675</sup> If the financing of these two channels can be coordinated, forest carbon projects in developing countries would gain extra funding for biodiversity conservation and reduce environmentally unsustainable results.

### 5.3.2 Risks in the Incentives of Private Finance Providers

To motivate private finance in response to climate change, policy makers opened the gates for private investors to be involved in forest carbon projects.<sup>676</sup> Nevertheless, this study suggests that it is

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<sup>671</sup> Alain Karsenty, Cécile Blanco, and Thomas Dufour, "The Clean Development Mechanism: Promoting Investment Flows from Developed to Developing Countries," in *Forest and Climate Change: Instruments Related to the United Nations Framework Convention on Climate Change and Their Potential for Sustainable Forest Management in Africa* (France: FAO, 2003), 36.

<sup>672</sup> The current design of the Green Climate Fund does not include the definition of "new" and "additional" nor distinguishes the themes of its financial inputs from developed countries. UNFCCC, *Report of the Transitional Committee for the Design of the Green Climate Fund*, FCCC/CP/2011/6 (Bonn, Germany: UNFCCC, 2011): 8 and 12.

<sup>673</sup> Peter Crane FRS and Patrick Bateson, *Measuring Biodiversity for Conservation* (the Royal Society, 2003), accessed 12 July 2017, [https://royalsociety.org/~media/Royal\\_Society\\_Content/policy/publications/2003/4294967955.pdf](https://royalsociety.org/~media/Royal_Society_Content/policy/publications/2003/4294967955.pdf): 23.

<sup>674</sup> GEF, "Projects," accessed 2 March 2017, <http://tinyurl.com/lxrdjic>.

<sup>675</sup> CDM, "Project Search."

<sup>676</sup> Zhongxiang Zhang and Aki Maruyama, "Towards a Private–Public Synergy in Financing Climate Change Mitigation Projects," *Energy Policy* 29, no. 15 (2001): 1363–78.

necessary to consider the additional risks and barriers involving public-private synergies in financing CDM projects. If we assume that private investors have the incentive to maximise their own interests, they would minimise the costs of the project to gain a competitive advantage in the market. Hence, private investors may influence the design and the implementation of the project to save the necessary costs for maintaining the sustainability of the project. The following sections discuss three possibilities for private parties to do so.

### 5.3.2.1 Underperforming Without Proper Monitoring

When there is no specific requirement for sustainable measures, or if there are requirements but without proper monitoring, the private parties may underperform at maintaining the sustainability of the projects. As discussed above, the demand for wood products has been one of the major motivations for private entities engaged in forest carbon projects in developing countries. In most of the CDM forest carbon projects, exotic industrial tree species are planted for the sale of wood products. These projects plant industrial trees such as pine or eucalyptus that give high-yield pulps but have little biodiversity value and may deteriorate the land with the massive use of fertiliser.<sup>677</sup> Moreover, these types of trees need huge amounts of water to grow and hence can disturb the ecological balance by depleting groundwater reserves.<sup>678</sup>

The following paragraphs will take three projects as examples to illustrate their negative socio-economic impact on the local community. They are registered with private entities as investors at the CDM in 2012 and 2013. The first project is in Bukaleba, Uganda, financed by Green Resources AS (GR) mentioned above (hereafter *the Bukaleba project*). Although the project achieved the Voluntary Carbon Standard (VCS) in 2012 and the FSC certification in 2010, the company has been heavily attacked for its conflicts with the local community.<sup>679</sup>

The complaints are twofold. First, the project occupied the farmland of the local people and left them nowhere to farm.<sup>680</sup> Additionally, the project did not deliver the payment that had been promised to the local farmers for the first commitment period. The local peasants provided labour for the weeding and managing of trees but received no payment. Instead, they needed to pay for using the land that they rent to the company for agriculture. The land was leased for 50 years through a contract with the

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<sup>677</sup> FAO, "Global Demand for Wood Product," in *State of the World's Forests 2009* (FAO, 2009), 13.

<sup>678</sup> Centre for Science and Environment, "Cheap Fix: The Rush to Make Profits out of Carbon-Fixing Engenders Another Kind of Colonialism," accessed 25 April 2017, <http://www.cseindia.org/node/3136>.

<sup>679</sup> Green Resources, "Company Report," 16.

<sup>680</sup> Susanne Bondevik, *Carbon Forestry and Trading: A Case Study of Green Resources in Uganda* (2014), accessed 12 July 2017, <http://hdl.handle.net/11250/95091>: 88.

company. GR, on the contrary, claimed that it has contributed to the social welfare of the local community by funding the construction of a fully-equipped maternity ward and providing drugs and medical equipment.<sup>681</sup> With two parties claiming two different stories, we would need an impartial third party to discover the true situation on the ground.

The second project, Namwasa, was established 3 years later and received investment from a British private company, New Forest Co. Ltd.<sup>682</sup> It was also granted a 50-year land license to plant trees on 6,000 hectares in the Namwasa Forest Reserve in Uganda.<sup>683</sup> This project was criticised for evicting the local farmers.<sup>684</sup> This incident is considered as an 'early warning of how 'standards' and 'safeguards' can be wilfully ignored'.<sup>685</sup> It is worth noticing that the eviction of local farmers was not secretly committed only by the private party. The Uganda government was also involved in depriving the local farmers of their rights.<sup>686</sup>

Even when native species are planted, the production of timber is still one of the purposes of some projects. Scholars point out that private investments tend to invest in projects with high, short-term economic returns.<sup>687</sup> For example, in Kenya there is an area where no alternative land-use is permitted but forestry to protect the land.<sup>688</sup> However, native species are planted in this project for timber production to cover the establishment costs, which means planted trees will be cut into logs when the project terminates.<sup>689</sup>

### 5.3.2.2 Minimal Efforts to Meet the Obligations

Assuming that there are sufficient regulations and monitoring systems in developing countries to control the unsustainable results of a project, the situation is still not optimal. Currently, many

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<sup>681</sup> Green Resources, "Company Report," 37.

<sup>682</sup> CDM, "Project 7949 : Namwasa Central Forest Reserve Reforestation Initiative," (2013), Project Design Document, accessed 17 March 2017, <https://cdm.unfccc.int/Projects/DB/RWTUV1351672180.88/view: 2>.

<sup>683</sup> Ibid.

<sup>684</sup> World Rainforest Movement, "Africa: Carbon Sinks and Money Needs," accessed 2 March 2017, <http://wrm.org.uy/oldsite/bulletin/37/Africa.html>. Matt Grainger and Kate Geary, "The New Forests Company and Its Uganda Plantations: 'I Lost My Land. It's Like I'm Not a Human Being'," *Oxfam International*, 22 September 2011, accessed 15 March 2017, <http://www.oxfamblogs.org/eastafrica/wp-content/uploads/2010/09/cs-new-forest-company-uganda-plantations-220911-en-FINAL.pdf>.

<sup>685</sup> Chris Lang, "Ugandan Farmers Were Kicked Off Their Land for New Forests Company's Carbon Project," *REDD Monitor*, 23 September 2011, accessed 15 March 2017, <http://www.redd-monitor.org/2011/09/23/ugandan-farmers-kicked-off-their-land-for-new-forests-companys-carbon-project/>.

<sup>686</sup> Spears, "Regional Investment Opportunities, Constraints to Investment, and Potential Solutions," 18.

<sup>687</sup> Streck and Parker, "Financing REDD+," 111.

<sup>688</sup> CDM, "Project 5585: Aberdare Range/ Mt. Kenya Small Scale Reforestation Initiative Kibanyeki Small Scale a/R Project," (2012), Project Design Document, accessed 17 March 2017, <https://cdm.unfccc.int/Projects/DB/JACO1324448535.95/view: 20>.

<sup>689</sup> Establishment costs refer to costs for site preparation, seedling, weeding and project preparation (including PDD preparation, validation, registration, and verification). See "Project 2700: Afforestation and Reforestation on Degraded Lands in Northwest Sichuan, China," (2009), Project Design Document, accessed: 2 and 47.



developing countries use environmental or social impact assessments to monitor the impact of the projects on sustainable development. As scholars have asserted, this type of “command and control” regulation would leave private entities with no voluntary endeavour to enhance the sustainability of the project.<sup>690</sup>

The concern is that private parties are only willing to provide minimum efforts to meet their obligations or to protect their brands.<sup>691</sup> For instance, they may be prone to apply the lowest standard written in the law at the minimum cost, particularly in developing countries which have lower standards. Additionally, if the legislative procedure of public authorities is complex and inflexible, it may delay the application of new information or technologies to forest carbon projects for sustainable development.<sup>692</sup>

On the other hand, an incentive-based mechanism would be a better option to motivate the private entities to put more effort into strengthening the sustainability of the project. Therefore, this chapter suggests employing incentive-based measures from multilateral funds to monitor the sustainability of the project and to provide positive incentives to the private parties. Chapter 9 will discuss more details about such measures.

### 5.3.2.3 Not Additional but Subsidised Private Investment

Additionality has been an essential standard for climate activities, which requires that the activities involved in a project would only happen because of the project and the mitigating effect on climate change is additional.<sup>693</sup> Although the additionality of a CDM project is evidently regulated to be assessed by the Designated Operational Entity (DOE) of the CDM EB, there are still projects built on business-as-usual practices. It is encouraged to use incentive-based mechanisms like the CDM to stimulate additional private investments.<sup>694</sup> However, the additionality of the funding involved in a

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<sup>690</sup> Sinclair, "Self-Regulation Versus Command and Control? Beyond False Dichotomies," 530.

<sup>691</sup> UK Department of Energy and Climate Change, *An International Climate Fund Business Case for Decc Investment in the BioCarbon Fund and the Forest Carbon Partnership Facility – Carbon Fund*, Climate change international action (UK: Department of Energy and Climate Change, 2014): 9. The DECC stands for Department of Energy and Climate Change.

<sup>692</sup> Holly Doremus, "A Policy Portfolio Approach to Biodiversity Protection on Private Lands," *Environmental Science & Policy* 6, no. 3 (2003): 230.

<sup>693</sup> The additionality requirement is defined in Para. 43, Annex, "Decision 3/CMP.1: Modalities and Procedures for a Clean Development Mechanism as Defined in Article 12 of the Kyoto Protocol (Former COP Decision 17/CP.7)," UNFCCC (2005).

<sup>694</sup> Climate Action, "Leveraging Climate-Friendly Investments," European Commission, accessed 2 March 2017, [http://ec.europa.eu/clima/policies/finance/index\\_en.htm](http://ec.europa.eu/clima/policies/finance/index_en.htm). Aaron Atteridge, *Private Sector Finance and Climate Change Adaptation: How Can Voluntary Private Finance Support Adaptation in Developing Countries*, Stockholm Environment Institute (SEI) Policy Brief (Sweden: Stockholm Environment Institute, 2010), accessed 21 June 2017, <https://www.sei-international.org/mediamanager/documents/Publications/Climate-mitigation-adaptation/policybrief-privatesectorfinance-adaptation.pdf>: 3.

forest carbon project is not discernibly required. In fact, it is difficult to detect or to guarantee the additionality of the private investments in forest carbon projects because there is no established monitoring system. Thus, the last risk is that the private funding involved may not be additional. Instead, forest carbon projects became a channel where forestry companies can obtain subsidies from the public sector for commercial wood production.

### **5.3.3 Risks in the Incentives of Stakeholders and Indigenous Peoples**

Based on an empirical study, Lin et al. (2012) claimed that forest carbon projects are normally located in areas where the lives of the villagers depend highly on agriculture.<sup>695</sup> Therefore, it is essential to ensure that the basic living needs of the local people in the project area are not diminished by the project. However, as discussed below, the interests of the local people are often neglected in the decision-making process of a project. Alternatively, their interests may be considered but insufficiently compensated. Lastly, it may be the stakeholders themselves that choose to prioritise short-term economic benefits and lack consideration of the long run.

#### **5.3.3.1 Neglecting the Needs of the Indigenous Peoples**

In many cases, local people are excluded from the decision-making process of the project. Project developers often assign local communities with a consulting position rather than a legal vote to participate in the decision-making process. Furthermore, the local people are regularly represented by an entity established particularly for the project to participate in decision-making or benefits sharing.

For instance in the Humbo Assisted Natural Regeneration Project in Ethiopia revenues were distributed to the local people through the cooperatives which were established to represent the local farmers in project activities and who were entitled to the land rights by law.<sup>696</sup> The cooperatives were open to all local farmers and were established after consulting the government and the local people.<sup>697</sup> Scholars regard the formulation of such cooperatives as an institutional innovation to facilitate project activities.<sup>698</sup> However, when the title of the land is given to the cooperatives rather than to the farmers themselves, their “open-for-all policy” does not guarantee that the interests of all local farmers are considered because there can be farmers who do not join the cooperatives or whose opinions are not reflected by the cooperatives.

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<sup>695</sup> Lin et al., "Site Selection for Forest Carbon Projects," 228.

<sup>696</sup> Salinas and Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects*, 113.

<sup>697</sup> Ibid.

<sup>698</sup> Shames et al., *Institutional Innovations in African Smallholder Carbon Projects*, 14.

In other cases, the opinions of the local communities are not actually consulted because it is too costly to investigate whether all local communities or individuals are properly recognised and listed as project stakeholders. Local small householders or non-documented tenant farmers are excluded from participating in the projects.<sup>699</sup> Instead, large corporations are granted land titles by the government. The local farmers are even evicted from their own land in some cases.<sup>700</sup>

### 5.3.3.2 Insufficiently Compensated

The local people are deemed to possess weak bargaining power compared to large-scale investing companies in negotiating benefit sharing.<sup>701</sup> The reasons for their weak bargaining power include their low competence in business and the asymmetric information. The local communities or governments may have not fully realised or sufficiently predicted the long-term social, environmental and economic effects of the project at the time of signing the contract.

For instance, in the Kaching project mentioned above, the land lease is for 50 years with the option to be extended for another 50 years.<sup>702</sup> According to the price set in the contract, which can be adjusted every ten years, the investors can expect millions of profits at a cost of only a few hundred thousand US dollars (US\$) over about 25 years.<sup>703</sup> The company can receive revenues from trading carbon credits and commercial wood products. In return, it only needs to pay for the areas with plantations.<sup>704</sup> There is no provision preventing the company from leaving the land unplanted or leasing it for other activities.<sup>705</sup>

Within the contract period, the international political environment will change along with technological developments. It is possible that the host developing country will need the contracted land to generate emission reductions to meet its own emission reductions obligations in the future. However, the government of the host country and the local communities will be constrained by the

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<sup>699</sup> Köger, "The Expansion of Industrial Tree Plantations and Dispossession in Brazil," 948.

<sup>700</sup> Leo Peskett and David Brown, *Comparative Case Study 4: The UN Framework Convention on Climate Change*, ed. David Brown, Verifor Case Studies (London: Overseas Development Institute, 2006): 10.

<sup>701</sup> Spears, "Regional Investment Opportunities, Constraints to Investment, and Potential Solutions," 22.

<sup>702</sup> Centre for Science and Environment, "Cheap Fix: The Rush to Make Profits out of Carbon-Fixing Engenders Another Kind of Colonialism."

<sup>703</sup> *Ibid.*

<sup>704</sup> Harald Eraker, "Co2lonialism - Norwegian Tree Plantations, Carbon Credits and Land Conflicts in Uganda," *Norwatch* (2000). Centre for Science and Environment, "Cheap Fix: The Rush to Make Profits out of Carbon-Fixing Engenders Another Kind of Colonialism."

<sup>705</sup> "Cheap Fix: The Rush to Make Profits out of Carbon-Fixing Engenders Another Kind of Colonialism."

contract preventing a change in land use.<sup>706</sup> Some scholars assert that this phenomenon is a new type of colonialism.<sup>707</sup>

### 5.3.3.3 Prioritising Economic Benefits

For the following reasons, it may be the stakeholders' own initiative to prioritise economic benefits over conserving the environment. People living nearby or inside the forests in developing countries are comparatively poorer than people in other regions.<sup>708</sup> Being tempted by the considerable short-term profits, or due to the ignorance of the negative impact, stakeholders may neglect the externalities of unsustainable forest activities.<sup>709</sup>

Additionally, as scholars have claimed, local people may lack incentives to conserve the environment for the long term because their descendants can move away from the degraded environment.<sup>710</sup> Empirical studies in many developing countries have also established that local farmers with insecure property rights on the land tend to conduct fewer sustainable agricultural management practices.<sup>711</sup> Since they do not have rights over the land for the long term, they maximise their current benefit at the expense of future cost and hence do not invest sufficiently in soil conservation for future uses. As a result, such a practice is likely to degrade land and to convert more forestland to cultivated land.<sup>712</sup>

Lastly, increasing off-farm employment is likely to cause farmers' migration, which may lead to a constraint on labour in the countryside for sustainable measures.<sup>713</sup> Infrastructure developments, particularly road construction, make more off-farm employment accessible to local farmers.<sup>714</sup> When the opportunity cost of the labour is too high, farmers would be more interested to take off-farm employment and leave the countryside. Labour constraint has a greater impact in areas that need labour-intensive measures for land conservation such as highlands or areas with high rainfall.<sup>715</sup> Due

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<sup>706</sup> World Rainforest Movement, "Africa: Carbon Sinks and Money Needs."

<sup>707</sup> Agarwal and Narain, *Global Warming in an Unequal World: A Case of Environmental Colonialism*, 16-17.

<sup>708</sup> Jiang Zeping, "Sustainable Forest Management in China; the Basic Principles and Practices," *Plant Biosystems-An International Journal Dealing with all Aspects of Plant Biology* 136, no. 2 (2002): 161.

<sup>709</sup> Ibid.

<sup>710</sup> Wallace E. Oates and Robert M. Schwab, "Economic Competition among Jurisdictions: Efficiency Enhancing or Distortion Inducing?," *Journal of Public Economics* 35, no. 3 (1988): 351.

<sup>711</sup> Markus Goldstein and Christopher Udry, "The Profits of Power: Land Rights and Agricultural Investment in Ghana," *Journal of Political Economy* 116, no. 6 (2008): 981-1022. Damnyag et al., "Role of Tenure Insecurity in Deforestation in Ghana's High Forest Zone," 90-98.

<sup>712</sup> Elisabeth Hettig, Jann Lay, and Kacana Sipangule, "Drivers of Households' Land-Use Decisions - a Critical Review of Micro-Level Studies in Tropical Regions," *Land* 5, no. 4 (2015): 18.

<sup>713</sup> Christopher Busch and Jacqueline Geoghegan, "Labor Scarcity as an Underlying Cause of the Increasing Prevalence of Deforestation Due to Cattle Pasture Development in the Southern Yucatan Region," *Regional Environmental Change* 10, no. 3 (2010): 191.

<sup>714</sup> Pender et al., "Development Pathways and Land Management in Uganda," 776.

<sup>715</sup> Ibid., 781.

to the labour constraint, practices that require smaller workforces, but are less environmentally friendly, may be implemented.<sup>716</sup>

On the contrary, some scholars state that off-farm income contributes to land conservation, because it releases the pressure on agriculture production, hence reduces farmland expenditure.<sup>717</sup> Considering the analysis above, it is significant for us to realise that additional off-farm opportunities for farmers may lead to two possible, and opposing, results for forest conservation. Thus, this issue should be properly addressed, when contracting with local stakeholders in forest carbon projects.

### **5.3.4 Risks in the Incentives of Host Countries' Governments**

Given that the current forest carbon projects have many negative impacts on the development of developing countries, one may wonder why such projects are continuing.<sup>718</sup> The following sections intend to provide some answers from the perspective of the host countries' governments.

#### **5.3.4.1 National Plans Neglect the Long-Term Negative Impact**

With the urge to stimulate the economy the government's major concern may not be the possible negative environmental and social impact in the far future but short-term economic benefits. From the perspective of developing countries, the incentives to prevent environmental damage may be overruled by the incentives to receive financial and technical support.<sup>719</sup> Therefore, developing countries may intentionally lower their assessing standard (race to the bottom) and may just welcome any projects that would bring foreign investments, even at the cost of deleterious environmental and social effects.<sup>720</sup>

#### **5.3.4.2 Sub-national Policies Prioritise Economic Benefits**

It is possible that the incentive to conduct unsustainable forest carbon projects does not come from the national government, but from a sub-national government in developing countries. For most people

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<sup>716</sup> Busch and Geoghegan, "Labor Scarcity as an Underlying Cause of the Increasing Prevalence of Deforestation Due to Cattle Pasture Development in the Southern Yucatan Region," 191.

<sup>717</sup> Studies have such claims including Jacqueline Geoghegan et al., "Modeling Tropical Deforestation in the Southern Yucatan Peninsular Region: Comparing Survey and Satellite Data," *Agriculture, Ecosystems & Environment* 85, no. 1 (2001): 42. Jorge Rodriguez-Meza, Douglas Southgate, and Claudio Gonzalez-Vega, "Rural Poverty, Household Responses to Shocks, and Agricultural Land Use: Panel Results for El Salvador," *Environment and Development Economics* 9, no. 02 (2004): 227; Douglas Southgate et al., "Payments for Environmental Services and Rural Livelihood Strategies in Ecuador and Guatemala," *ibid.* 15, no. 01 (2010): 26.

<sup>718</sup> For instance, World Rainforest Movement, "Africa: Carbon Sinks and Money Needs." Centre for Science and Environment, "Cheap Fix: The Rush to Make Profits out of Carbon-Fixing Engenders Another Kind of Colonialism."

<sup>719</sup> Faure and Lefevere, "Compliance with Global Environmental Policy: Climate Change and Ozone Layer Cases," 177-78.

<sup>720</sup> World Rainforest Movement, "Carbon Dumps in the South," accessed 22 July 2017, <http://wrm.org.uy/oldsite/bulletin/37.html>: 11-17.

who are not aware of the true details, unsustainable projects seem to bring many job opportunities to the local people and increase forest cover. Theoretically, local governors may initiate unsustainable, but low-cost, forest carbon projects as a way of demonstrating their political achievements, even though there are national policies on environmental protection and the local governor is aware of the possible negative impact. The associated unsustainability risks that may have results decades later would be a problem for future governors.

#### **5.3.4.3 Governmental Corruption**

In cases where neither national policy nor sub-national policy supports unsustainable forest carbon projects, the initiation and continuance of unsustainable projects may be the result of corruption. As recognised by the Central African Forest Commission, corruption is an essential barrier to sustainable forest management in Central Africa.<sup>721</sup> For instance, it is claimed that there were corrupt government officials at the national decision-making level in two projects in Uganda, which are associated with a government-led eviction of the local people.<sup>722</sup>

Additionally, there is also corruption at the local government level in the form of hiring outsiders to provide labour for the project rather than the local people. In this way, the local governors can extract money from the labour fee and it would be more problematic to find out the actual costs of the project.<sup>723</sup> Another form of power abuse is that local governmental officials hire people who are “close” to them for work on the project.<sup>724</sup>

#### **5.3.4.4 Institutional Incompetence**

In some cases, host countries’ governments have the intention to conserve forests and are yet ineffective in implementing relevant policies because of institutional incompetence. For instance, it is reported that the Indonesian National Reforestation Fund was established in 1989 to receive government revenues from the timber levy for reforestation and land rehabilitation.<sup>725</sup> However, due

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<sup>721</sup> Ondhowe, *REDD+ Implementation: A Manual for National Legal Practitioners*, 12.

<sup>722</sup> Spears, "Regional Investment Opportunities, Constraints to Investment, and Potential Solutions," 18.

<sup>723</sup> Interview 17, "Villagers of Koutou Village in Fangshan District, Beijing, China (Face-to-Face Interview, 15 June 2015)."

<sup>724</sup> Ibid.

<sup>725</sup> Kenneth L. Rosenbaum and Jonathan M. Lindsay, *An Overview of National Forest Funds: Current Approaches and Future Opportunities* (Italy: FAO, 2001), accessed 12 July 2017, <ftp://ftp.fao.org/docrep/fao/003/X6821E/X6821E00.pdf>: 4.

to governance issues, this fund made no re-imbursements from 1989 to 2009 with a funding of more than US\$5.8 billion.<sup>726</sup>

Some scholars claim that the fund was never operational because the legislation did not set any detailed implementation rule and only described it as a shared account for the ministries of Forestry and Finance.<sup>727</sup> Others claimed that over US\$1.0 billion from the fund was allocated for commercial plantation instead of for forest restoration.<sup>728</sup> Eventually, even the commercial plantation could not succeed in achieving the plantation targets because of the fraudulent claims from the recipients on projects' costs and results.<sup>729</sup>

#### **5.4 Summary and Concluding Remarks**

This chapter reviewed the incentives of the main actors in a project including public and private investors, stakeholders, and host countries' governments. It points out that there are risks existing in their incentive schemes that may lead to unsustainable results in forest carbon projects in developing countries. These risks are major problems that this study aims to address with the institutional design in Chapter 9.

Some of the risks in the incentive schemes can be addressed by financial measures. For instance, regarding the foreign public finance providers' willingness to pay the lowest price for carbon credits, an impartial, international financial intermediary can mediate between governments to negotiate on a reasonable price for both parties. The financial intermediary should be impartial, and does not merely work for the investors or the recipients. Its existence relies on achieving its ultimate goal, which should be delivering sustainable results in forest carbon projects in developing countries. In the meanwhile, its scale and professional experience as an international financial intermediary should allow it to examine the financial flows from the North to the South to avoid double-counting and publish credible financial data online for public supervision.

To control other risks, we may need more than just financial measures. These risks include the underperformance of the private parties, the lack of participation of local stakeholders, and the insufficient institutional capacity of local governments to monitor project activities adequately. These

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<sup>726</sup> Chris Knight and Jim Stephenson, *Report for the Conservation Finance Alliance: National REDD+ Findings Framework and Achieving REDD+ Readiness - Findings from Consultation* (Conservation Finance Alliance and PricewaterhouseCoopers (PwC), 2010): 87.

<sup>727</sup> Rosenbaum and Lindsay, *An Overview of National Forest Funds: Current Approaches and Future Opportunities*, 6 and 9.

<sup>728</sup> Christopher Barr et al., *Financial Governance and Indonesia's Reforestation Fund During the Soeharto and Post-Soeharto Periods, 1989–2009: A Political Economic Analysis of Lessons for REDD+* (CIFOR, 2010), 5.

<sup>729</sup> *Ibid.*, 58.

risks may be addressed by third-party implementing entities that have more professional knowledge and experience with environmental protection, forest activities, and cooperating with local people. The third-party implementing entities should be independent from the local authorities and able to supervise whether the tree planting activities on the ground are environmentally and socially sustainable.

Then there is the problem of whether the financial streams for forest carbon projects in developing countries involve such financial intermediaries that have an international scale, can impartially mediate between governments, and aim to achieve sustainable results in forest carbon projects. The next chapter will provide answers to this question by reviewing the financial streams of foreign forest carbon projects in developing countries. Furthermore, the next chapter particularly examines the function of multilateral funds in the financial streams and answers to what extent they are cooperating with third-party implementing entities with more experience in forest protection.





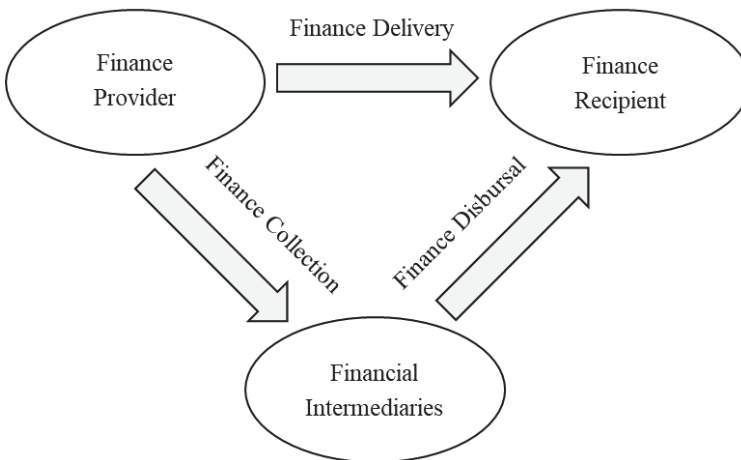
## 6 THE FINANCIAL STREAMS OF FOREIGN FOREST CARBON PROJECTS IN DEVELOPING COUNTRIES

### 6.1 Introduction

This chapter investigates the financial streams formed by actors with various incentives in forest carbon projects in developing countries. Under the current UNFCCC legal framework, the finance providers from the North (developed countries) use various financial instruments to deliver their investments to forest carbon projects in the South (developing countries). By reviewing the financial streams, this chapter clarifies the functions of relevant financial instruments and the role of multilateral funds as financial intermediaries. The discussion intends to provide insights for the institutional design of this study, which aims to incorporate multiple actors and relevant financial instruments.

The financial streams on foreign forest carbon projects in developing countries can be categorised into two groups as demonstrated in the figure below (Figure 6-1). One is where investors directly communicate and contract with the funding recipients. The second is where a financial intermediary is involved. The financial intermediaries act as the go-between for the finance providers and the recipients.

**Figure 6-1: Financing Channels of Foreign-Invested Forest Carbon Projects in Developing Countries**



Financial instruments refer to instruments that are employed in a financing stream, which specify in what forms the investment is delivered and how the repayment and interest are required in return. On the one hand, there are financial instruments for direct delivery. On the other hand, there are financial instruments for collecting the funding and for reimbursement, when the investments are delivered indirectly through financial intermediaries.

The rest of this chapter illustrates the financial streams of foreign-invested forest carbon projects in developing countries in the following structure. Sections 6.2, 6.3, and 6.4 respectively present the financial instruments to deliver funding directly, to collect funding, and to reimburse funding in forest carbon projects in developing countries. Section 6.5 discusses major multilateral funds that are employed as the financial intermediaries in foreign-invested forest carbon projects in developing countries. Section 6.6 summarises and concludes this chapter.

## 6.2 Financial Instruments for the Delivery of Funding

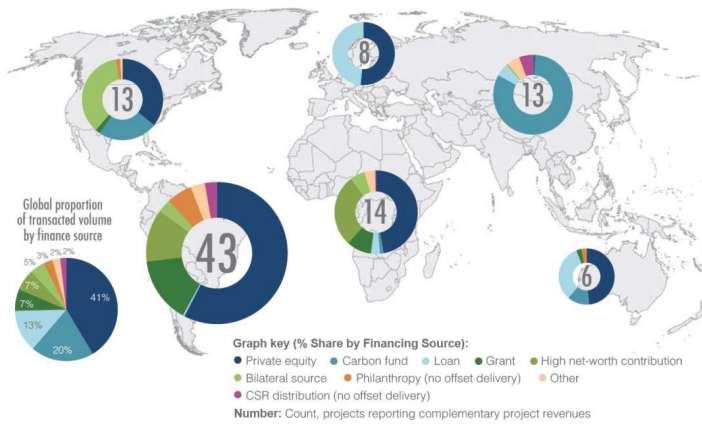
With foreign and domestic public and private financial sources, the question is now how to deliver the money to actual climate actions. Various financial instruments have been applied to distribute the funding in an efficient manner and guarantee the desired project results for different investors. As demonstrated in Table 6-1, among seven categories of major financial instruments for forest and land-use projects, thirty-eight projects were funded by private equity, which accounted for a market value of US\$89 million in 2012. Private loans have a relatively large market value of US\$26 million (thirteen percent) and were employed in nine projects. In addition, sixteen projects received in total US\$14 million in grants. Lastly, carbon funds, although they were applied to only seven out of 104 projects, occupied the second largest market value at US\$35 million.

**Table 6-1: Financing Instruments and Sources for Forest and Land-use Carbon Projects**

Sources	Private Equity	Carbon Fund	Private Loan	Grant	Credits Sale			Other
					<i>Individuals</i>	<i>Corporates</i>	<i>Governments</i>	
Value (Million US\$)	89	35	26	14	13	13	10	5
Total of Projects	38	7	9	16	8	15	6	5

The global distribution of financial instruments for forest carbon projects in six regions is also concluded in the figure below (Figure 6-2). Private equity is the dominant way of finance delivery in Europe, North America, South America, Africa and Pacific, but not in Asia. In Asia, the biggest contribution comes from carbon funds, which account for more than three quarters of the total funding.

**Figure 6-2: Global Distribution of Financial Instruments and Sources in Forest Carbon Projects<sup>730</sup>**



Source: Peters-Stanley et al., "Covering New Ground: State of the Forest Carbon Markets 2013," 37.

Generally, the instruments that are employed to deliver finance to forest carbon projects are similar to those used in other carbon projects. This section will firstly review the basic financial mechanisms to deliver finance in global forest carbon projects. Then, based on secondary data, it will examine the current application of special financial programmes developed for forest carbon projects in developing countries for foreign public finance, domestic public finance and private finance.

## 6.2.1 Basic Financial Mechanisms in Forest Carbon Projects

This section elaborates on the basic financial mechanisms including equity loans, grants and debt swaps, to pave the way for further discussions on special financial programmes for forest carbon projects in developing countries. These basic financial mechanisms are widely used in ordinary financial activities and can create a direct relationship between the debtor and creditor.

### 6.2.1.1 Equity

As shown by empirical results above, equity is a major financing mechanism for global forest carbon projects. Equity, as a traditional financing instrument, requires the borrower to repay the holder (sometimes referred to as donors in this research) of the borrowed amount and an amount of interest

<sup>730</sup> Peters-Stanley et al., *Covering New Ground: State of the Forest Carbon Markets 2013*, 37.

based on the earnings, if there are any.<sup>731</sup> The repayment of the borrowed sum and the interest depends on the earnings of the borrower's business. Therefore, such investment has higher risks and accordingly a higher rate of return. Common stocks and shares of a partnership are examples of equity.

The investors who invest through equities are mostly private entities that seek a share of emission reductions or revenues. The project developer can also offer funding to the project in the form of equity. Investors, which offer this type of investment to forest carbon projects, require a return on the investment and/or the delivery of emission reductions. The repayment of equity depends on the revenues of forest carbon projects, which may come from the sale of generated emission reductions or from forest by-products such as timber and fruit.

### 6.2.1.2 Loan

A loan (debt) is another major financing mechanism for the private sector.<sup>732</sup> It is also a kind of traditional financial mechanism, which requires a fixed amount of financial return. The borrower of the loan owes the debt holder a fixed amount of payment regardless of the earnings of the borrower's business.<sup>733</sup> Loans require a fixed amount of repayment, in contrast with equity whose repayment depends on the earnings of the borrower. Loans have fewer risks for the debt holder and the return rate is also accordingly lower.

Private loans for forest carbon projects require repayment or forest carbon credits. Another type of loan is a concessional loan or "soft" loan, which can be offered by public entities with a more favourable interest rate than private loans.<sup>734</sup> The favourable interest rate can be zero or be converted to a grant which requires no repayment. Concessional loans are mainly for ecosystem protection. The interest rate can be fixed, or variable based on the provision of the ecosystem services.

A concessional loan can reduce investment risks for private finance and achieve cost-efficiency by recycling the repayment to other projects.<sup>735</sup> It can serve as a financial leverage to catalyse private investment by providing upfront investments.<sup>736</sup> It has been used to deliver official development

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<sup>731</sup> Frank J. Fabozzi, Franco Modigliani, and Frank Joseph Jones, *Foundations of Financial Markets and Institutions* (Prentice Hall, 2010), 3.

<sup>732</sup> Ruppel and Luedemann, *Climate Finance Mobilizing Private Sector Finance for Mitigation and Adaption*, 4.

<sup>733</sup> Fabozzi, Modigliani, and Jones, *Foundations of Financial Markets and Institutions*, 3.

<sup>734</sup> Parker and Cranford, *The Little Biodiversity Finance Book: A Guide to Proactive Investment in Natural Capital*, 136.

<sup>735</sup> Jessica Brown Charlie Parker, Jonathan Pickering, Emily Roynestad, Niki Mardas, Andrew W. Mitchell, *The Little Climate Finance Book: A Guide to Financing Options for Forests and Climate Change* (UK: Global Canopy Programme, John Krebs Field Station, 2009), 118.

<sup>736</sup> OECD, "Glossary of Statistical Terms: Definition of Concessional Loans," accessed 2 April 2017, <https://stats.oecd.org/glossary/detail.asp?ID=5901>.

assistance (ODA) from developed countries to developing and least developed countries to support projects in the nascent biodiversity and ecosystem service markets where financial returns are low.<sup>737</sup>

Parker et al. (2009) claim concessional loans have been most suitable for investments with returns below a threshold that would attract commercial investment.<sup>738</sup> Since concessional debt still requires a certain level of repayment, it suits countries with higher GDP, lower levels of debt, lower risks of economic volatility and, more importantly, sufficient institutional capacity to manage repayments. Therefore, a debt instrument is not suitable for the least developed countries without additional support on capacity building.

### 6.2.1.3 Grants

A grant is defined as a transfer made in cash, goods or services for which no returns or repayment is required.<sup>739</sup> Financial resources that are delivered as grants are limited. Therefore, the use of grant should be well targeted. Grants are typically targeted towards activities that provide a public benefit such as conservation, capacity building (including policy reform) and technology transfer.

Grants can be delivered at either the national or project level. Some scholars claim that a delivery at the national level is preferable, since a synthesis with the receiving country's national development strategies could be achieved.<sup>740</sup> Grants come from foreign or domestic governments and can be directly delivered to recipients through bilateral or multilateral programmes.<sup>741</sup>

Other scholars also recommend managing grants by special intermediary funds or public entities.<sup>742</sup> Around US\$3 billion is collected per annum for REDD+ projects from channels including pledges from developed countries made under the UNFCCC and funds such as the Global Environment Facility (GEF).<sup>743</sup> The GEF provides grants without any request of repayment, but for strict purposes. The Policy and Human Resources Development Fund manages grants of the Government of Japan, which support CDM A/R projects under the administration of the World Bank.<sup>744</sup> Similarly, the Government

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<sup>737</sup> Parker and Cranford, *The Little Biodiversity Finance Book: A Guide to Proactive Investment in Natural Capital*, 136.

<sup>738</sup> Charlie Parker, *The Little Climate Finance Book: A Guide to Financing Options for Forests and Climate Change*, 118.

<sup>739</sup> Parker and Cranford, *The Little Biodiversity Finance Book: A Guide to Proactive Investment in Natural Capital*, 134.

<sup>740</sup> Ibid.

<sup>741</sup> Matthew Odedokun, "Multilateral and Bilateral Loans Versus Grants: Issues and Evidence," *The World Economy* 27, no. 2 (2004): 267.

<sup>742</sup> Natasha Landell-Mills and Ina T Porras, *Silver Bullet or Fools' Gold?: A Global Review of Markets for Forest Environmental Services and Their Impact on the Poor* (UK: International Institute for Environment and Development (IIED), 2002): 41.

<sup>743</sup> Streck and Parker, "Financing REDD+," 116.

<sup>744</sup> The World Bank, *Japan Policy and Human Resources Development Fund Annual Report: Fiscal Year 2012* (the Government of Japan and the World Bank, 2012),

[http://siteresources.worldbank.org/EXTPHRD/Resources/PHRD2012\\_AnnualReport.pdf](http://siteresources.worldbank.org/EXTPHRD/Resources/PHRD2012_AnnualReport.pdf): 1.

of Norway also provides grants through the Norwegian Trust Fund to CDM A/R projects under the administration of the World Bank.

Grants can stimulate other financial flows. For example, the GEF has delivered US\$2.88 billion of grants by 2009 through and stimulated in total US\$7.85 billion for biodiversity conservation.<sup>745</sup> However, grants are observed to be less efficiently utilised by recipient governments than loans.<sup>746</sup> Therefore, close monitoring of the use of grants in poor and badly governed countries is needed.

#### 6.2.1.4 Swaps

A swap refers to a donor country agreeing to relieve the debt obligation of a developing country in exchange for a smaller investment in the targeted projects. It has been used as an instrument for generating public finance for forest conservation in developing countries.<sup>747</sup> Developing countries are engaged in debt swaps mainly because of the unlikelihood of the repayment of their debt in full. Debt swaps have also been used to finance environmental, conservation and health projects in developing countries.<sup>748</sup> Debt swaps can be negotiated bilaterally or managed by conservation trust funds.

By 2003, commercial debt-for-nature swaps have been carried out in nineteen countries by Conservation International, the World Wildlife Fund (WWF), and Nature Conservancy.<sup>749</sup> Conservation trust funds are independent agencies employed by the developing-country debtor to take responsibility for investing in targeted projects. Conservation trust funds are deemed to be able to reduce the financial risks such as currency inflation.<sup>750</sup> In March 1991, the WWF, the Royal Government of Bhutan and the United Nations Development Programme (UNDP) established the first hard currency trust fund for conservation, which was able to mobilise US\$20 million from the Global Environment Facility (GEF), the WWF and the Governments of the Netherlands, Norway and Switzerland.<sup>751</sup>

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<sup>745</sup> CBD Secretariat, *Global Monitoring Report 2010: Innovative Financing for Biodiversity*, Pilot edition ed. (Montreal: CBD, 2010), UNEP/CBD/COP/10/INF/22: 10.

<sup>746</sup> Odedokun, "Multilateral and Bilateral Loans Versus Grants: Issues and Evidence," 242.

<sup>747</sup> James R. Kahn and Judith A. McDonald, "Third-World Debt and Tropical Deforestation," *Ecological Economics* 12, no. 2 (1995): 122.

<sup>748</sup> Richard Doornbosch and Eric R. W. Knight, *What Role for Public Finance in International Climate Change Mitigation* (OECD Roundtable for Sustainable Development Discussion Paper, 2008): 16.

<sup>749</sup> John M Shandra et al., "Do Commercial Debt-for-Nature Swaps Matter for Forests? A Cross-National Test of World Polity Theory" (paper presented at the Sociological Forum, 2011), 382.

<sup>750</sup> Parker and Cranford, *The Little Biodiversity Finance Book: A Guide to Proactive Investment in Natural Capital*, 96.

<sup>751</sup> James P Resor, "Debt-for-Nature Swaps: A Decade of Experience and New Directions for the Future," accessed 3 June 2017, <http://www.fao.org/docrep/w3247e/w3247e06.htm>.

The advantage of debt swap is that the independent agency can pro-actively broker political agreements and ensure that investment is made in cost-effective projects. This mechanism can be counted as new and additional, because debt swaps have not yet been deployed for investment in climate change mitigation projects. However, this mechanism can be an unstable source of public finance in the long term. This is because the incentive of developed countries to swap debt diminishes as developing countries improve their economic conditions or undergo structural adjustments.

## **6.2.2 Special Financial Instruments and Programmes in Forest Carbon Projects in Developing Countries**

This section discusses the special financial instruments that are tailor-made for forest carbon projects in developing countries including domestic public financial entities from the host countries, carbon sales through the CDM, and bilateral financial programmes for REDD+ activities.

### **6.2.2.1 Domestic Public Financial Entities**

The domestic public financial entities in developing countries provide funding to domestic forest carbon projects to facilitate the implementation of CDM. The domestic public financial entity may be a domestic government agency, for instance the forest bureau or a government carbon fund. For example, in the CDM afforestation and reforestation project on degraded land in northwest Sichuan, the Daduhe Forestation Bureau from Sichuan province is the single project participant. The project received 35.17 percent (US\$700,000) of government equity.<sup>752</sup> In CDM A/R projects in Uganda, the Uganda National Forestry Authority (UNFA) provided most of the finance and bore the overall responsibility for the project implementation and for delivery of the emission reductions.<sup>753</sup> In addition, the China Green Carbon Foundation (CGCF) is a governmental carbon fund, which provides a platform for combining multiple financial sources for the CDM Afforestation of Degraded Shengle Ecological Zone in Helinge'er, Inner Mongolia, China.<sup>754</sup>

### **6.2.2.2 Carbon Sales Through the CDM**

Many private entities in both industrialised and developing countries are engaged in forest carbon projects in developing countries through the CDM. For instance, the Kachung project in Africa has Lango Forestry Co. Ltd and Green Resources AS as investors, which are both Norwegian private

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<sup>752</sup> CDM, "Project 2700: Afforestation and Reforestation on Degraded Lands in Northwest Sichuan, China," Project Design Document, 98.

<sup>753</sup> See Chapter 5, Section 5.2.3.

<sup>754</sup> CDM, "Project 9525: Afforestation of Degraded Shengle Ecological Zone in Helinge'er of Inner Mongolia, China," (2013), Project Design Document, accessed: 2 and 16.



forestry companies.<sup>755</sup> In another case, the buyer of the expected emission reductions is a private Luxembourg company, the MGM Carbon Portfolio SARL, in the Argos CO<sub>2</sub> Offset Project in Colombia.<sup>756</sup> The PetroChina Xinjiang Oilfield Emission Reduction and Afforestation Project was financed by a private entity, the PetroChina Xinjiang Oilfield Administration.<sup>757</sup>

Government funds from developed countries also purchase carbon credits from CDM A/R projects. For instance, the Australian Emissions Reduction Fund purchases emission reductions on behalf of the Australian government as part of its portfolio investment.<sup>758</sup> The government of Norway facilitates the CDM forestry projects through the Norwegian Trust Fund for Private Sector and Infrastructure (NTF-PSI) managed by the World Bank.<sup>759</sup> The government of Japan is the single donor of the Policy and Human Resources Fund managed by the World Bank, which also purchases CERs from CDM forest carbon projects.<sup>760</sup>

### 6.2.2.3 Bilateral Financial Programmes for REDD+ Activities

To strengthen the coherence and coordination in financing climate change and forest activities Internationally, the Standing Committee on Finance (SCF) of the UNFCCC was requested to ‘focus its soonest possible forum’ on finance for forest including the implementation of REDD+ at COP 19.<sup>761</sup> When delivering the UNFCCC pledges, the governments of developed countries may establish a national fund managed by a public entity with expertise. For forest carbon projects, such funds or public entities may be engaged in bilateral financial programmes.

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<sup>755</sup> Forest Carbon Portal, "Kachung Forest Project: Afforestation on Degraded Lands," accessed 7 January 2018, <http://www.forestcarbonportal.com/project/kachung-forest-project-afforestation-degraded-lands>.

<sup>756</sup> China Economic Information Network, "Cer Buyers: Mgm Carbon Portfolio, Sarl," 1.

<sup>757</sup> CDM, "Petrochina Xinjiang Oilfield Emission Reduction and Afforestation Project," (2007), Project Design Document, accessed: 14.

<sup>758</sup> Dirk Forrister, *IETA Comments on the Green Paper for the Design of the Emissions Reduction Fund* (International Emissions Trading Association (IETA), 2013), accessed 15 April 2017, <http://www.environment.gov.au/submissions/emissions-reduction/green-paper/292-international-emissions-trading-association.pdf>: 4. The Green Paper outlined governmental design options for the Australian Emissions Reduction Fund. Australian Government: Department of the Environment and Energy, "Emissions Reduction Fund-Green Paper," accessed 15 April 2017, <http://www.environment.gov.au/climate-change/emissions-reduction-fund/green-paper>.

<sup>759</sup> Norad (Norwegian Agency for Development Cooperation), "Results of Ntf-Psi Activities," accessed 2 March 2017, <http://www.norad.no/en/thematic-areas/macro-economics-and-public-administration/norwegian-support-to-world-bank-trust-funds/the-norwegian-trust-fund-for-private-sector-and-infrastructure>.

<sup>760</sup> The World Bank, *Japan Policy and Human Resources Development Fund Annual Report: Fiscal Year 2012*, 1; Wahida Huq et al., "Catalyst for Progress the Japan Policy and Human Resources Development Fund," accessed 2 March 2017, <http://viewer.zmags.com/publication/7a0cd269#/7a0cd269/6>: v.

<sup>761</sup> Para. 20, "Decision 9/CP.19: Work Programme on Results-Based Finance to Progress the Full Implementation of the Activities Referred to in Decision 1/CP.16," UNFCCC (2013). The SCF was established at COP 16 to the UNFCCC. It collects paper and data and develops documents about climate change financing. See Para. 121, "Decision 2/CP.17: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention," (2011).

From 2008 to 2010, bilateral programmes accounted for almost two-thirds of international public finance to REDD+ projects, which is presently estimated to be US\$4.76 billion.<sup>762</sup> Norway (48.8%) is currently the largest source of bilateral programmes for REDD+, followed by Japan (31%), France (5.7%), Germany (4.5%) and the European Commission (2.8%).<sup>763</sup>

For instance, the Norwegian government established the International Climate and Forest Initiative in 2007 for REDD+ projects with a pledge of US\$2.6 billion over 5 years.<sup>764</sup> Norway entered into bilateral agreements with many forest countries including Brazil, Guyana, Indonesia, Mexico and Tanzania. Additionally, Norway also participates in multilateral funds with long-term commitments, for instance, US\$250 million to the Amazon Fund and the Guyana REDD+ Investment Fund (GRIF).<sup>765</sup>

In another case, the UK government has pledged £2.9 billion to support climate action in developing countries through its International Climate Fund.<sup>766</sup> A significant portion of this funding is expected to be used to support “REDD+ readiness” projects, which aim to help countries build capacity and implement effective policies to scale-up REDD+ activities.

Bilateral financing programmes are mainly delivering foreign public finance to forest carbon projects in developing countries. These programmes may operate independently, or induce domestic public funding from the host countries, or work together with private funding, or engage in multilateral projects through financial intermediaries such as multilateral funds.

### **6.3 Financial Instruments to Collect Funding from Multilateral Sources**

To incentivise investments for climate activities, international financial entities and governments create financial instruments that can provide secure and lucrative investing mechanisms. Sections 6.3.1 and 6.3.2 discuss two of them, the green bonds and environmental exchange markets which are used for forest carbon projects.

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<sup>762</sup> Markku Simula, *Analysis of REDD Financing Gaps and Overlaps* (Bangkok, Thailand: REDD Partnership, 2011): 30-32.

<sup>763</sup> *Ibid.*, 34.

<sup>764</sup> Streck and Parker, "Financing REDD+," 117.

<sup>765</sup> Simula, *Analysis of REDD Financing Gaps and Overlaps*, 34.

<sup>766</sup> PricewaterhouseCooper (PwC), "Funding for Forests: UK Government Support for REDD+," accessed 2 March 2017, <http://www.pwc.co.uk/services/sustainability-climate-change/insights/funding-for-forests-uk-government-support-for-redd.html>.

### 6.3.1 Green bonds

A bond is a tradable financial security, which allows entities to borrow large amounts of cash from global capital markets and pay it back over a pre-specified period with a fixed amount of interest.<sup>767</sup> Because a bond receives a fixed interest, it is a financial asset with relatively less risk for investors and a lower interest rate compared with high-risk financial products. Recently, bonds have been increasingly used to raise finance for climate change, mitigation and adaptation activities. Such bonds are called Green Bonds. The period before the repayment could be as long as ten to thirty years, with the option of interest periodically paid in advance.<sup>768</sup>

Large institutional investors prefer the bond.<sup>769</sup> It has been used for decades to generate upfront financing for activities in sectors including water, energy, development and health.<sup>770</sup> Through bonds, long-term government pledges are converted into immediately available cash flow to support targeted projects. Green bonds are considered central to mobilising private finance for climate change solutions. It reduces the financing gap and spurs additional private sector investment. Green bonds can easily be channelled to feasible forest conservation initiatives and forest carbon projects including REDD+ projects.<sup>771</sup>

For instance, the World Bank's green bonds include forest carbon projects in its investment portfolios. World Bank green bonds totalled more US\$7 billion between 2008 and November 2014.<sup>772</sup> They have attracted the world's biggest sovereign wealth funds, banks and trillion-dollar-investors in green investing.<sup>773</sup> In total, the World Bank's green bonds involve forty-five eligible projects in nineteen countries. In the forest sector, projects promoting forest management are mainly in Mexico and Tunisia.

The World Bank acts as the issuer, financial adviser and/or treasury manager of the bonds. The repayment of the bonds is guaranteed by developed country governments at fixed intervals and upon maturity.<sup>774</sup> As the issuer of the green bonds, the World Bank develops terms defining the bonds in collaboration with the original group of investors. The World Bank hires specialised expertise to select

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<sup>767</sup> Charlie Parker et al., *The Little Biodiversity Finance Book* (Oxford: Global Canopy Programme, 2012), 83.

<sup>768</sup> The World Bank, "Green Bond Issuances to Date", accessed 2 March 2017, <http://treasury.worldbank.org/cmd/htm/GreenBondIssuancesToDate.html>.

<sup>769</sup> Aaron Atteridge et al., *Adaptation Finance under a Copenhagen Agreed Outcome* (Stockholm Environment Institute, 2009), 130.

<sup>770</sup> Parker et al., *The Little Biodiversity Finance Book*, 83.

<sup>771</sup> Dewan, "Green Growth Capital Locked Down by Lackluster Governments: Credit Suisse."

<sup>772</sup> The World Bank, "Green Bond Issuances to Date".

<sup>773</sup> Dewan, "Green Growth Capital Locked Down by Lackluster Governments: Credit Suisse."

<sup>774</sup> Prince's Charities and Prince's Rainforests Project, "An Emergency Package for Tropical Forests," Prince's Rainforests Project, accessed 2 March 2017, [http://princes.3cdn.net/f29d276ce664b2db67\\_y6m6vtxpe.pdf](http://princes.3cdn.net/f29d276ce664b2db67_y6m6vtxpe.pdf): 7.

projects and uses a reputable third party, the Center for International Climate and Environmental Research (CICERO), to develop criteria.<sup>775</sup> Transparency is a key factor in this process. The criteria are published on the website and documented in the terms for each bond.<sup>776</sup> Investors also have access to detailed project information on the website.

Inspired by the World Bank green bonds, there are a growing number of issuers of green bonds or climate-related bonds in the market and increasing bond sizes. From 2010 to 2013, the International Finance Corporation issued US\$3.46 billion in green bonds.<sup>777</sup> In 2013, the European Investment Bank issued a climate awareness bond of €650 million. The Asian Development Bank, African Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank and Nordic Investment Bank also issued bonds for green, or similar themes, as did government agencies such as the Export Import Bank of Korea, the German Rentenbank, and the first US municipality (the State of Massachusetts). By 2014, climate-themed bonds were worth US\$502.6 billion globally.<sup>778</sup>

### 6.3.2 Carbon or Other Environmental Services Exchange Markets

An environmental services exchange market offers a platform for the sale of vital environmental service offsets and reducing transaction costs. Ecosystem-service-based exchange markets are created to generate long-term funding for the maintenance of the environment. They may require a strong institutional framework to create demand. These markets may also require complex measuring and reporting methodology to access countable credits.

The current international, national, and regional carbon exchange markets provide finance for low-carbon activities by offering a platform for the sale of emissions offsets. The carbon markets can be categorised into compliance market and voluntary market depending on the purpose of the carbon transactions. Compliance carbon markets are for buyers to purchase carbon credits to meet their compliance targets. Such buyers include the Annex B countries with international emission reduction obligations or private corporations with national emission reduction obligations.<sup>779</sup> Instead, voluntary

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<sup>775</sup> CICERO, 'Second Opinion' on World Bank's Green Bond Framework (CICERO, 2015), accessed 17 March 2017, <http://treasury.worldbank.org/cmd/pdf/CICERO-second-opinion.pdf>: 2.

<sup>776</sup> the World Bank, "World Bank Green Bond Project Selection Criteria," accessed 2 March 2017, <http://treasury.worldbank.org/cmd/htm/GreenProjects.html>.

<sup>777</sup> IFC, "Green Bond," accessed 15 April 2017, <http://www.ifc.org/wps/wcm/connect/353c8f004325cabfa308ef384c61d9f7/Green+Bonds+March+2014+final.pdf?MOD=AJPERES>.

<sup>778</sup> Climate Bonds Initiative, *Bonds and Climate Change: The State of the Market in 2014* (Climate Bonds Initiative, 2014), accessed 2 March 2017, <http://www.climatebonds.net/files/files/-CB-HSBC-15July2014-A4-final.pdf>: 3.

<sup>779</sup> Annex B countries are countries listed in Annex B to the Kyoto Protocol to the UNFCCC, mostly developed countries.

carbon markets are for buyers who purchase carbon offsets to prepare for possible future obligations or out of corporate social responsibility.

In 2012, twenty-eight MtCO<sub>2</sub>e of forest carbon offsets were transferred in the global markets with a value of US\$216 million for immediate or future delivery, representing a nine percent increase in transactions but an eight percent decline in value from 2011.<sup>780</sup> On the demand side, ninety-five percent of the offset amounts were sold to pre-compliance voluntary buyers in California and Australia. Conversely, compliance buyers contracted ninety-one percent less volume than in 2011 through CDM projects. Historically, voluntary buyers have been the major consumers of forest carbon offsets. From 2006 to 2012, many of the contracted forest carbon offsets (134 MtCO<sub>2</sub>e), valued at approximately US\$879 million, were purchased by hundreds of voluntary for-profit entities at project level. On the supply side, project developers provided seventy-eight percent of the total amount in 2012. Carbon retailers accounted for the rest and collected an unprecedented number of offsets in 2011. In 2012, more forest carbon offsets were sold to the retailers compared with 2011.<sup>781</sup>

Retailers purchased forest carbon offsets in previous years at a lower price and resold them in later years for a higher price to obtain interest from the price difference without creating new and additional carbon offset. Therefore, retailers increase the transaction cost, while policy makers intend to realise cost-effective carbon offsets.

Apart from the carbon exchange market, there are some other ecosystem-service-based exchange markets. Some provide a platform for the exchange of hectares of habitat.<sup>782</sup> Others exchange biodiversity-related products. Sustainable forest carbon projects could provide additional ecosystem services apart from climate change mitigation or adaption, such as soil erosion control, water infiltration, and biodiversity maintenance.<sup>783</sup>

There are some markets which are open for the exchange of multiple forest ecosystem services. Let us take the Australian native vegetation markets as an example. First, the regulations about the BushBroker programme create demand in the market. This programme is a permitting system introduced to allow vegetation clearance to be offset by the protection of existing ecological assets.<sup>784</sup>

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<sup>780</sup> Peters-Stanley et al., *Covering New Ground: State of the Forest Carbon Markets 2013*, 5-6.

<sup>781</sup> *Ibid.*, 9.

<sup>782</sup> *Ibid.*, 48.

<sup>783</sup> IPCC, *Climate Change 2007: Synthesis Report*, 61.

<sup>784</sup> COAG Standing Council on Environment and Water, "Australia's Native Vegetation Framework," Australian Government, Department of Sustainability, Environment, Water, Population and Communities, accessed 2 March 2017, <http://www.environment.gov.au/system/files/resources/76f709dc-ccb3-4645-a18b-063fbbf0a899/files/native-vegetation-framework.pdf>. The COAG stands for Council of Australian Governments.

The buyers pay for their clearance activities of native vegetation. The buyers include urban residential and commercial developers, road-building agencies, water infrastructure providers (dams and pipelines), extractive industries, energy companies, and agricultural landowners.<sup>785</sup> The buyers can create their own offset or purchase an offset from a third party. Second, the government accredits private assessors who can determine the amounts and types of tradable credits project-by-project. The government also provides online tools, hands-on outreach and facilitation.<sup>786</sup> When a transaction of credits occurs, a set amount is sent to the BioBanking Trust Fund and the remaining portion will be the profits of the landowners.<sup>787</sup>

The exchange markets can generate payments for products generated by carbon projects. However, they do not provide funding for the preparation or implementation of projects, where the financial gap mostly exists. Buyers on the market have limited influence on project operation and decision-making. The price of the credits is an essential element influencing the purposes and results of the projects.

#### 6.4 Financial Instruments to Reimburse Funding

The financial mechanisms for reimbursement deal with the distribution of funding to the end-project practitioners. Payments can be awarded in two formats.<sup>788</sup> The first is *ex ante*, which provides an upfront payment for project preparation and project operation at the early stage of implementation.<sup>789</sup> For instance, Norman & Nakhooda (2014) conclude that at least sixty-one percent of public funding for REDD+ is channelled as *ex ante* grants for readiness activities.<sup>790</sup> The second is *ex-post*, which rewards payments for delivered results.

To date, both *ex ante* and *ex-post* payments are employed in the reimbursement mechanisms of forest carbon projects in developing countries. The reimbursement mechanisms that widely appear in the documents of forest carbon projects have two names: performance-based payments and results-based

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<sup>785</sup> Becca Madsen, Nathaniel Carroll, and Kelly Moore Brands, "State of Biodiversity Markets: Offset and Compensation Programmes Worldwide," accessed 27 June 2017, <http://www.ecosystemmarketplace.com/wp-content/uploads/2015/09/sbdlmr.pdf>: 47.

<sup>786</sup> Victorian Government Department of Sustainability and Environment, "Native Vegetation Credit Registration and Trading: Information Paper," accessed 2 March 2017, [http://www.dpi.vic.gov.au/CA256F310024B628/0/E42AA88543BD2B57CA25712B0012E9A4/\\$File/bb+information+aper+05\\_03+1.pdf](http://www.dpi.vic.gov.au/CA256F310024B628/0/E42AA88543BD2B57CA25712B0012E9A4/$File/bb+information+aper+05_03+1.pdf).

<sup>787</sup> BioBanking, "The Science Behind Biobanking," accessed 2 March 2017, <http://www.environment.nsw.gov.au/resources/biobanking/09476biobankingscience.pdf>.

<sup>788</sup> Parker et al., *The Little Biodiversity Finance Book*, 135.

<sup>789</sup> Jacob Phelps, Edward L Webb, and Arun Agrawal, "Does REDD+ Threaten to Recentralize Forest Governance?," *Science* 328, no. 5976 (2010): 312.

<sup>790</sup> Marigold Norman and Smita Nakhooda, *The State of REDD+ Finance*, Climate and Forest Paper Series #5 (Center for Global Development, 2015): 15. Readiness activities comprise capacity building activities and improving the recipient country's institutional environment in REDD+ projects. See more at Chapter 2, Section 2.5.3.

payments. However, in essence, they refer to a similar way of reimbursement as discussed below. In addition, some scholars consider payment for forest-based carbon credits as a type of payment for ecosystem services.

#### 6.4.1 Results-Based and Performance-Based Payments

The performance-based (or results-based) payment mechanism, includes both *ex ante* and *ex-post* payments. The performance-based and the results-based payment mechanisms reimburse based on the achievements of the project rather than the inputs. COP 13 to the UNFCCC stipulates: ‘estimates of reductions or increases of emissions from REDD+ demonstration activities should be results based ... and estimated consistently over time.’<sup>791</sup> The performance-based, or results-based, payments reward the project based on the periodical or final results, also called cash-on-delivery payment.

The finance provider transfers a fixed amount of payment for the agreed project progress or products to the recipient. Scholars assert that this payment method reduces the real cost of corruption in recipient countries, because it disburses finance based on the results rather than the inputs.<sup>792</sup> The UNFCCC decisions call on the parties to employ results-based payment.<sup>793</sup> Some financial initiatives for REDD+ documented this method as the performance-based payment method, such as the US\$1 billion REDD+ finance from Norway to Indonesia.<sup>794</sup>

Currently, these payment mechanisms measure the achievements of forest carbon projects merely in terms of the amount of GHG emission reductions. In some early REDD+ projects, for instance, the investors pay for the quantified results achieved by the projects in terms of avoided emissions.<sup>795</sup> Other environmental and socio-economic indicators are not adopted in the payment mechanisms, although quite a few major donors of the REDD+ projects, such as the UK, Germany and the US are willing to invest in REDD+ for biodiversity conservation and poverty alleviation.<sup>796</sup> The finance reimbursement mechanisms may be adjusted accordingly to include payment for other ecosystem services in the future.

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<sup>791</sup> Para. 2, Annex, "Decision 2/CP.13: Reducing Emissions from Deforestation in Developing Countries: Approaches to Stimulate Action," UNFCCC (2007).

<sup>792</sup> Charles Kenny and William Savedoff, *Results-Based Payments Reduce the Real Costs of Corruption in Foreign Aid* (Washington, DC: Center for Global Development, 2014): 3.

<sup>793</sup> Annex, "Decision 2/CP.13: Reducing Emissions from Deforestation in Developing Countries: Approaches to Stimulate Action," UNFCCC (2007). Article 5(2), "Paris Agreement," (2015).

<sup>794</sup> Chris Lang, "Norway and Indonesia Sign US\$1 Billion Forest Deal," *Redd-Monitor*, 27 May 2010, accessed 18 April 2017, <http://www.redd-monitor.org/2010/05/27/norway-and-indonesia-sign-us1-billion-forest-deal/>.

<sup>795</sup> Hamrick and Gallant, *Unlocking Potential: State of the Voluntary Carbon Markets 2017*, 22. This discussion refers to two REDD+ agreements: one is between Germany, Norway, and Ecuador in 2014; the other is between Germany and Acre, Brazil in 2013.

<sup>796</sup> Norman and Nakhoda, *The State of REDD+ Finance*, 15.

## 6.4.2 Payments for Ecosystem Services

CDM A/R projects are considered as a programme of payments for ecosystem services (PES) by some scholars.<sup>797</sup> The PES is a voluntary transaction between the buyer and the provider of a well-defined environmental service, or a land use, that is likely to secure that service.<sup>798</sup> The PES, as one of the market-based approaches, internalises ecological externalities and diversifies sources of conservation.

In a PES contract, the buyers could be the government or service users. Service users, who can have a greater willingness than the governments to enforce the payment conditions on project performance, can monitor the projects to be more closely tailored to local conditions and needs.<sup>799</sup>

Adhikari (2009) identifies four essential elements in how landowners decide to participate in a PES scheme in Asia.<sup>800</sup> The first is the institutional element: property rights and tenure security. The second is the transaction cost for negotiations and enforcement of PES-related contracts. The third and fourth elements are characteristics of the local households and communities, and the availability of PES-related information.

Wunder (2007) defines four indicators for monitoring and evaluating the efficiency (success) of a PES program.<sup>801</sup> The first indicator is the additionality of the project. It means compared to a business-as-usual baseline, additional amounts of GHG emissions are reduced because of the project. The second indicator is the leakage, which refers to emissions resulting from a logging business nearby but out of the project area. Because of the CDM A/R projects, the lands are protected. However, those who previously logged trees on the protected lands may go to somewhere nearby to continue the activity. Emissions caused by this type of activity should be prevented. The third indicator is the permanence at time level, which refers to the period for maintaining the planted trees. The last indicator is the transaction cost to implement a PES scheme.

## 6.5 Financial Intermediaries: Multilateral Funds

Multilateral funds refer to funds functioning as financial intermediaries between investors from the North and the recipients from the South for forest carbon projects in developing countries, and which

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<sup>797</sup> Parker et al., *The Little Biodiversity Finance Book*, 135.

<sup>798</sup> Sven Wunder, *Payments for Environmental Services: Some Nuts and Bolts*, CIFOR Occasional Paper No. 42 (Jakarta Indonesia: CIFOR, 2005), 3.

<sup>799</sup> Sven Wunder, Stefanie Engel, and Stefano Pagiola, "Taking Stock: A Comparative Analysis of Payments for Environmental Services Programmes in Developed and Developing Countries," *Ecological Economics* 65, no. 4 (2008): 834-52.

<sup>800</sup> Bhim Adhikari, *Market-Based Approaches to Environmental Management: A Review of Lessons from Payment for Environmental Services in Asia*, ADBI Working Paper Series (Asian Development Bank Institute (ADB), 2009): 1-27.

<sup>801</sup> Sven Wunder, "The Efficiency of Payments for Environmental Services in Tropical Conservation," *Conservation Biology* 21, no. 1 (2007): 51-52.



receive and distribute funding internationally. Multilateral funds gain funding and operate to realise their goals and values.<sup>802</sup> This study excludes funds supporting forest carbon projects with a regional character. The regional character refers to the fact that either financial sources are from a particular region of the world, or the distribution of the funding is only to forest carbon projects located in a particular region.

The rest of this section discusses relevant multilateral funds in detail. First, Section 6.5.1 reviews major multilateral funds that involve forest carbon activities in developing countries in terms of their goals, financial structures, and governing systems. Section 6.5.2 introduces the rationale of employing multilateral funds to achieve sustainable results in forest carbon projects in developing countries. Section 6.5.3 discusses the economic advantages of multilateral funds in reducing financial and unsustainable risks. Lastly, Section 6.5.4 provides a critical comparison of the multilateral funds.

### **6.5.1 Major Multilateral Funds Involved in Forest Carbon Activities in Developing Countries**

This section provides an overview of seven major multilateral funds on an international scale, based on information from the official websites of the multilateral funds, literature review, and interviews. The following sub-sections discuss the goal, the financial structure, and governance of each fund.

#### **6.5.1.1 World Bank BioCarbon Fund and the ISFL**

##### **The Goal of the Fund**

The World Bank BioCarbon Fund (BioCF) was the first fund set up to tackle land-use issues for climate change. This fund was established in 2004 with the goal to ‘help develop projects that sequester or conserve carbon in forest and agro-ecosystems’ to restore degraded land and reduce deforestation.<sup>803</sup> The BioCF is managed under the Environmental Department of the World Bank and has initiated three financing tranches.

Investors of the BioCF Tranches 1 and 2 consist of twelve private companies and six governments and public entities.<sup>804</sup> Tranches 1 and 2 have raised around US\$90 million for over 20 projects in sixteen

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<sup>802</sup> Antonio Cassese, *International Law 2/E*, trans. Congyan Cai (Oxford University Press (Mainland China, Law Press China), 2005 (translated version published in 2007)), 650.

<sup>803</sup> The World Bank, "BioCarbon Fund," Carbon Finance at the World Bank, accessed 2 March 2017, <https://wbcarbonfinance.org/Router.cfm?Page=BioCF&ItemID=9708&FID=9708>.

<sup>804</sup> *BioCarbon Fund Brochure* (Carbon Finance at the World Bank), accessed 8 April 2017 <https://wbcarbonfinance.org/docs/BioCarbon-Fund-Brochure-WebReady.pdf>: 6.

countries across Europe, Africa, Asia, and Latin America.<sup>805</sup> Tranches 1 and 2 operated from 2004 to 2012 and are currently closed to new fund participation.<sup>806</sup>

In November 2013 at COP 19, BioCF Tranche 3, an Initiative for Sustainable Forest Landscapes (ISFL) was launched to promote REDD+ activities, sustainable agriculture, and smarter land-use planning policy and practices.<sup>807</sup> Until June 2014, the ISFL was engaged in REDD+ projects in Ethiopia, Colombia, Zambia, and Indonesia and was building up cooperation with the local governments.<sup>808</sup>

The reason to initiate this new tranche, as presented by the World Bank Climate Change Group, is threefold.<sup>809</sup> First, the ISFL aims to extend its intervention from a single project to the jurisdictional landscape. Second, it aims to combine land-use sectors with different industries, for instance to improve cooperation across forest, agriculture and energy sectors. Third, it aims to promote technical assistance to developing countries with a results-based payment mechanism and dedicated grants. The last feature mentioned about the ISFL is intended to stimulate private financing, an objective shared by the previous two financing tranches of the BioCarbon Fund.

### **The Financial Structure of the Fund**

The BioCF collects investments from both public and private investors. For each tranche, investors can choose between Window 1 and 2. The funding in Window 1 would be used for purchasing carbon credits to meet the Kyoto targets of the investors. The funding in Window 2 would be used for developing 'new methodologies and expanding carbon markets to encompass more activities, countries, and communities'.<sup>810</sup>

The ISFL is established with initial pledges of US\$311 million from the United States, the United Kingdom and Norway. In the ISFL, there are two funding streams. One is the BioCF Plus, which aims to provide *ex ante* technical assistance to the projects with around US\$80 million. The *ex ante* technical assistance includes helping the public sector to improve institutional capability, incentivising private

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<sup>805</sup> Salinas and Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects*, x.

<sup>806</sup> The World Bank, "BioCF T3 Concept Note," accessed 2 March 2017, <https://wbcarbonfinance.org/Router.cfm?Page=BioCF&FID=9708&ItemID=9708&ft=DocLib&CatalogID=68303>: 1.

<sup>807</sup> BioCarbon Fund ISFL, "Programmes," the World Bank, accessed 2 March 2017, <http://www.biocarbonfund-isfl.org/programs>.

<sup>808</sup> BioCarbon Fund, *Initiative for Sustainable Forest Landscapes: Presentation to CSOs* (Washington, DC: the World Bank, 2015), accessed 17 April 2017, <https://www.biocarbonfund-isfl.org/sites/biocf/files/documents/BioCF%20ISFL%20CSO%20Session%20Washington%20March%202015.pdf>: 9. The CSO stands for Civil Society Organization.

<sup>809</sup> *Ibid.*, 6.

<sup>810</sup> Salinas and Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects*, 20.

sector finance and creating integrated programmes among forest, agriculture and energy.<sup>811</sup> The *ex ante* finance is also an advance payment for the future results of the projects. The result is measured against the emission reductions of the projects. For instance, in the Oromia Forested Landscape Carbon Finance Project, a percentage of the agreed final payment for the expected emission reductions in the future was delivered in advance.<sup>812</sup> The *ex ante* payments would be subtracted at the final stage, when the actual emission reductions of the project are verified. The donors are expected to be aware of the financial risk of the advance carbon payments, namely, the risk that they may not receive the expected carbon credits at the end.<sup>813</sup>

The other stream of the ISFL is the BioCF Tranche Three, which provides *ex-post* and results-based finance with approximately US\$220 million.<sup>814</sup> *Ex-post* payment to the project would be delivered based on the result of a REDD+ project. The result to be measured is the emission reductions verified by a third party.<sup>815</sup>

### **The Governance of the Fund**

The BioCF selects project ideas for the investors to consider whether to join the investment portfolio. When selecting project ideas, the BioCF assesses them with due diligence, against the environmental and social safeguards of the World Bank and adopts proper risk mitigation measures.<sup>816</sup> After consulting the investors, the BioCF will invest on behalf of them, by signing an Emission Reductions Purchase Agreement with the project operator. After purchasing emission reductions from the projects, the BioCF will distribute them among investors based on their financial contribution to the fund.<sup>817</sup>

#### **6.5.1.2 World Bank Forest Carbon Partnership Facility (FCPF)**

##### **The Goal of the Fund**

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<sup>811</sup> Judith I. Ajani et al., "Comprehensive Carbon Stock and Flow Accounting: A National Framework to Support Climate Change Mitigation Policy," *Ecological Economics* 89 (2013): 61-72.

<sup>812</sup> The World Bank, "Oromia Forested Landscape Carbon Finance Project (Report No. P15459) Project Information Document: Concept Stage," accessed 18 April 2017, [http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/AFR/2014/10/23/090224b0827ea4ed/1\\_0/Rendered/PDF/Project0Inform0ce0Project000P151294.pdf](http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/AFR/2014/10/23/090224b0827ea4ed/1_0/Rendered/PDF/Project0Inform0ce0Project000P151294.pdf): 4.

<sup>813</sup> *Ibid.*

<sup>814</sup> UNFCCC, *Revised Background Paper on Coherence and Coordination: The Issue of Financing for Forests, Taking into Account Different Policy Approaches*, SCF/2014/7/5/Rev.1 (Bonn, Germany: Eighth Meeting of the Standing Committee on Finance, 2014): 4.

<sup>815</sup> BioCarbon Fund, *Initiative for Sustainable Forest Landscapes: Presentation to CSOs*, 15.

<sup>816</sup> Salinas and Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects*, 20.

<sup>817</sup> The World Bank, *BioCarbon Fund Brochure*, 6.

The World Bank Forest Carbon Partnership Facility (FCPF) is a global partnership, launched in 2008 with a focus on REDD+.<sup>818</sup> The objective of the FCPF is to assist REDD+ related activities in developing countries, which includes financial and technical capacity building, enhancing local livelihoods and biodiversity and spreading knowledge on sustainable forest management.<sup>819</sup>

### **The Financial Structure of the Fund**

From 2000 to 2014, about US\$825 million was delivered to REDD+ through the FCPF.<sup>820</sup> By February 2014, the facility consisted of a Readiness Fund (about US\$355 million) and a Carbon Fund (about US\$470 million). Both apply performance-based payments.<sup>821</sup>

The Readiness Fund became functional in 2008 with a focus on institutional capacity building, including setting up REDD+ management institutions, environmental and social safeguards, reporting and verification systems and reference emission levels. The Carbon Fund became functional in 2011 for results-based payments for the emission reductions from REDD+ projects.<sup>822</sup>

Non-participating countries can receive funding from the FCPF by demonstrating their national commitment to the FCPF standards for REDD+ projects. Specifically, a country needs to prepare a Readiness Preparation Proposal and to execute a public participation procedure by consulting the stakeholders. The Readiness Preparation Proposals from eleven developing countries including Fiji, Pakistan and Sudan have passed the formal assessment of the Participants Committee and the Technical Advisory Panel of the FCPF. Each of those countries had received US\$3.8 million for REDD+ readiness preparation by the end of 2014.<sup>823</sup>

### **The Governance of the Fund**

The FCPF partnership has forty-seven country participants (eighteen in Africa, eighteen in Latin America and the Caribbean, and eleven in Asia-Pacific) and seventeen finance providers (including developed countries, private business and one NGO).<sup>824</sup> Civil society organisations are observers of

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<sup>818</sup> FCPF, *2014 Annual Report* (FCPF, 2014), accessed 2 March 2017, <https://www.forestcarbonpartnership.org/sites/fcp/files/2014/october/FCPF%20Annual%20Report%202014.pdf>: 9 and 11.

<sup>819</sup> "About FCPF," accessed 2 March 2017, <https://www.forestcarbonpartnership.org/about-fcpf-0>.

<sup>820</sup> The World Bank, "Carbon Finance for Sustainable Development: 2013 Annual Report", accessed 2 March 2017, <http://documents.worldbank.org/curated/en/154111468147565227/pdf/882830AR0Carbo040Box385232B00UO090.pdf>: 27.

<sup>821</sup> FCPF, *2014 Annual Report*, 11.

<sup>822</sup> *Ibid.*

<sup>823</sup> *Ibid.*, 21.

<sup>824</sup> "Governance," accessed 2 March 2017, <https://www.forestcarbonpartnership.org/governance>.

the fund. The country participants are members of the FCPF Participants Assembly and the Participants Committee for decision-making. The World Bank is the trustee and secretariat for fund management.

Regarding the governing rules, the FCPF Programme Level Monitoring and Evaluation Framework is designed to keep track of the whole facility's performance and to learn from experience and practice. It was adopted at the 14th meeting of the Participants Committee of the FCPF in March 2013. In addition, a Readiness Assessment Framework was adopted as a benchmark of assessing the readiness progress.<sup>825</sup>

The external implementing entities of the FCPF consist of the World Bank, the Inter-American Development Bank and the United Nations Development Programme for the delivery of support to countries and projects. To harmonise the implementing entities' criteria, the Common Approach to Environmental and Social Safeguards was adopted at the ninth session of the FCPF Participants Council meeting in 2012.<sup>826</sup>

The recipient countries of the funding for REDD+ projects develop related national laws to guide investors of REDD+ activities, to define the legal authority to grant permission for REDD+ projects, and to regulate the legal nature of carbon credits from REDD+ projects. For instance, the Government of Mozambique adopted a regulation in 2013 to facilitate the implementation of REDD+ projects.<sup>827</sup>

### 6.5.1.3 Green Climate Fund (GCF)

#### The Goal of the Fund

The Green Climate Fund (GCF) is a multilateral fund initiated by the UNFCCC with the objective to 'make a significant and ambitious contribution' to the ultimate goal of the UNFCCC, namely, to combat climate change in the context of sustainable development.<sup>828</sup> The fund is devoted to both low-emission development activities (mitigation) and adaptation activities in developing countries. Its operation is subject to the decisions of the Conference of the Parties (COP) to the UNFCCC.<sup>829</sup> In the

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<sup>825</sup> 2014 Annual Report, 27.

<sup>826</sup> "Common Approach to Environmental and Social Safeguards," accessed 17 March 2017, <https://www.forestcarbonpartnership.org/common-approach-environmental-and-social-safeguards>.

<sup>827</sup> 2014 Annual Report, 25.

<sup>828</sup> GCF, "Background," accessed 2 March 2017, <http://www.gcfund.org/about/the-fund.html>. Art. 2, "United Nations Framework Convention on Climate Change," UN (1992).

<sup>829</sup> Para. 1, Art. 11, "United Nations Framework Convention on Climate Change," (1992). The original text in the convention is as following: *'a mechanism for the provision of financial resources on a grant or concessional basis, including for the transfer of technology, is hereby defined. It shall function under the guidance of and be accountable to the Conference of the Parties, which shall decide on its policies, programme priorities and eligibility criteria related to this Convention. Its operation shall be entrusted to one or more existing international entities.'*

forest sector, the GCF can provide finance to all forest carbon projects stipulated by the COP decisions including the CDM A/R projects and REDD+<sup>830</sup>.

### **The Financial Structure of the Fund**

The major and initial financial source of the GCF consists of governmental pledges from developed countries under the UNFCCC legal framework. Industrialised countries pledged at COP 16 to provide up to US\$100 billion per year by 2020 for mitigation and adaptation actions in developing countries.<sup>831</sup> To manage the pledges, a Governing Instrument was considered at COP 17 for the GCF.<sup>832</sup> By 2012, the GCF possessed an initial fast-track finance of US\$30 billion and it seeks financial sources from both public and private sources without a definite fund size.<sup>833</sup>

When providing finance to developing countries, the GCF uses concessional loans or grants that request a favourable interest rate or do not request interest for the investment.<sup>834</sup> With regard to the reimbursement mechanism of the GCF finance policy to the REDD+, an *ex-post* results-based mechanism was designed at COP 19 in Warsaw. The results-based mechanism means that the implementing entities receive funding from the GCF after the results of the project are reviewed and recognised by the GCF.

However, a concern is raised that the actual GCF reimbursement mechanism for REDD+ projects is inconsistent with the REDD+ Framework adopted at COP 19.<sup>835</sup> In practice, the GCF provides *ex ante* funding to projects in countries with low financial and institutional capacities. This issue was addressed on the 8th meeting in October 2014 of the GCF Board. The GCF Board decisions distinguish results-based payments from *ex ante* financing for REDD+ and states that the GCF will provide both *ex ante* and *ex-post* results-based payments to the REDD+ with methodologies to avoid double-counting.<sup>836</sup>

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<sup>830</sup> Para. 70, "Decision 1/CP.16: The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention," UNFCCC (2010). The 2013 GCF Board meeting decided on its support for REDD+ activities. See *Revised Background Paper on Coherence and Coordination: The Issue of Financing for Forests, Taking into Account Different Policy Approaches*, 3.

<sup>831</sup> Para. 98, "Decision 1/CP.16: The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention," (2010).

<sup>832</sup> "Decision 3/CP.17: Launching the Green Climate Fund," (2011), 55-57.

<sup>833</sup> Donner, Kandlikar, and Zerriffi, "Preparing to Manage Climate Change Financing," 908-09.

<sup>834</sup> Para. 1, Art. 11, "United Nations Framework Convention on Climate Change," UN (1992).

<sup>835</sup> Stephen Leonard, "Land Use and the Green Climate Fund: Open for Business?," *CIFOR: Forests News*, 9 June 2014, accessed 27 June 2017, <http://blog.cifor.org/22897/forests-land-use-and-the-green-climate-fund-open-for-business?fnl=en>.

<sup>836</sup> Para. 7, "Initial Logic Model and Performance Measurement Framework for REDD+ Results-Based Payments," GCF Board (2014), GCF/B.08/08/Rev.01, accessed 17 April 2017, [http://www.gcfund.org/fileadmin/00\\_customer/documents/MOB201410-8th/GCF\\_B.08\\_08\\_Rev.01\\_Initial\\_Logic\\_Model\\_fin\\_20141022.pdf](http://www.gcfund.org/fileadmin/00_customer/documents/MOB201410-8th/GCF_B.08_08_Rev.01_Initial_Logic_Model_fin_20141022.pdf).

## The Governance of the Fund

With regard to the internal governance of the GCF, it is stipulated that the GCF should have an 'equitable and balanced representation' of all UNFCCC Parties and a transparent governance structure.<sup>837</sup> In line with this principle, COP 17 adopted institutional arrangements and set up the decision-making body, the GCF Board.<sup>838</sup> The GCF Board consists of twenty-four members and two of them are co-chairs.<sup>839</sup> The members are country parties' representatives and consist equally of representatives from developing and developed country parties to the UNFCCC. The members can serve for one or more terms and each term is three years. The two co-chairs have a serving period of one year within their membership.

For implementation, the recipient countries need to nominate implementing entities through their National Designated Authority (NDA) or focal point to receive GCF finance. By April 2017, there were 144 NDA and focal points from developing countries registered with the GCF.<sup>840</sup> The accredited implementing entities can be sub-national, national and regional.<sup>841</sup> The nominated implementing entities must be accredited by the GCF against its published accreditation criteria.<sup>842</sup>

The GCF accreditation governance consists of the Accreditation Committee that is comprised of four board members and the Accreditation Panel as a technical body.<sup>843</sup> The Accreditation Panel consists of six members with expertise selected by the Accreditation Committee. The Accreditation Panel is in charge of conducting the accreditation process and provides advice to the board on accreditation matters. After being accredited by the GCF, the implementing entities will select proposals to finance and will take into account the environmental and social risks of the proposed projects.

The GCF accrediting criteria include the Initial Fiduciary Standards and Environmental and Social Safeguards.<sup>844</sup> The GCF has adopted the Performance Standards of the International Finance

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<sup>837</sup> Para. 2, Art. 11, "United Nations Framework Convention on Climate Change," UN (1992).

<sup>838</sup> "Decision 3/CP.17: Launching the Green Climate Fund," UNFCCC (2011).

<sup>839</sup> GCF, "Composition," accessed 17 March 2017, <http://www.gcfund.org/board/composition.html>.

<sup>840</sup> "NDA Directory," accessed 2 March 2017, <http://www.greenclimate.fund/partners/countries/nda-directory>.

<sup>841</sup> "Accredited Entities," accessed 2 March 2017, <http://www.greenclimate.fund/partners/accredited-entities/ae-composition>.

<sup>842</sup> "Get Accredited: Standards," accessed 2 March 2017, <http://www.greenclimate.fund/partners/accredited-entities/get-accredited>.

<sup>843</sup> Agenda Item 6, para. 8 (a), "Annex I: Initial Guiding Framework for the Fund's Accreditation Process," (2014), GCF/B.07/11: Decisions of the Board – Seventh Meeting of the Board, 18-21 May 2014, accessed 2 March 2017, [http://gcfund.net/fileadmin/00\\_customer/documents/MOB201406-7th/GCF\\_B07\\_Decisions\\_Seventh\\_Meeting\\_fin\\_20140619.pdf](http://gcfund.net/fileadmin/00_customer/documents/MOB201406-7th/GCF_B07_Decisions_Seventh_Meeting_fin_20140619.pdf).

<sup>844</sup> *Ibid.*, 14-24. "Annex III: Interim Environmental and Social Safeguards of the Fund," (2014), GCF/B.07/11: Decisions of the Board - Seventh Meeting of the Board, 18-2.

Corporation (IFC) as its interim Environmental and Social Safeguards.<sup>845</sup> In addition, the Policy on Environmental and Social Sustainability and the Environmental and Social Review Procedures Manual were developed by the IFC to facilitate the implementation of the Performance Standards.<sup>846</sup>

Based on the IFC documents above, proposals are categorised into four groups depending upon their environmental and social impacts: Category A is with significant diverse, irreversible or unprecedented environmental and social risks and/or impacts; Category B is with few, limited, site-specific, largely reversible adverse risks and/or impacts, which can be addressed by proposed mitigation measures; Group C is with minimal or no adverse risks or impact; and Category FI is for business activities involving financial intermediation and has three sub-groups based on the level of environmental and social risks and/or impacts as in Categories A, B, and C.<sup>847</sup>

Many critics argue that the IFC standards are not “best practice” and are too weak for the GCF.<sup>848</sup> In response to the critics, the GCF Board decided to develop its own Environmental and Social Safeguards based on evolving best practices and multi-stakeholders’ participation within three years after the fund becomes functional.<sup>849</sup>

Another problem of the GCF governance is that the complex accrediting procedure and criteria may create barriers for developing and least developed countries to have implementation bodies and receive finance.<sup>850</sup> A certain level of complexity is unavoidable to deliver desirable outcomes. However, considering the low financial and institutional capacities of Least Developed Countries and Small Island Developing States, it is very difficult for them to achieve accreditation. To address this issue, the GCF Board members suggest providing finance for capacity-building programs, particularly for accreditation.<sup>851</sup> Additionally, there is an exclusion list presented to the GCF Board by more than 300

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<sup>845</sup> The IFC is a member of the World Bank Group. "IFC Performance Standards on Environmental and Social Sustainability," IFC (2012), accessed 15 April 2017, [http://www.ifc.org/wps/wcm/connect/topics\\_ext\\_content/ifc\\_external\\_corporate\\_site/ifc+sustainability/learning+and+adding+knowledge+products/publications/publications\\_handbook\\_pps](http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/learning+and+adding+knowledge+products/publications/publications_handbook_pps).

<sup>846</sup> "International Finance Corporation's Policy on Environmental and Social Sustainability," accessed 17 April 2017, [http://www.ifc.org/wps/wcm/connect/7540778049a792dcb87efaa8c6a8312a/SP\\_English\\_2012.pdf?MOD=AJPERES](http://www.ifc.org/wps/wcm/connect/7540778049a792dcb87efaa8c6a8312a/SP_English_2012.pdf?MOD=AJPERES). "Environmental and Social Review Procedures Manual," (2012), accessed 15 April 2017,

<http://www.ifc.org/wps/wcm/connect/190d25804886582fb47ef66a6515bb18/ESRP+Manual.pdf?MOD=AJPERES>.

<sup>847</sup> "International Finance Corporation's Policy on Environmental and Social Sustainability," 8.

<sup>848</sup> Leonard, "Land Use and the Green Climate Fund: Open for Business?."

<sup>849</sup> World Resource Institute, "Environmental and Social Safeguards at the Green Climate Fund," accessed 2 March 2017, <http://www.gcfreadinessprogramme.org/sites/default/files/Environmental%20and%20Social%20Safeguards%20at%20the%20Green%20Climate%20Fund.pdf>: 5.

<sup>850</sup> Sushanta Kumar Mahapatra and Keshab Chandra Ratha, "Paris Climate Accord: Miles to Go," *Journal of International Development* 29, no. 1 (2017): 151.

<sup>851</sup> Leonard, "Land Use and the Green Climate Fund: Open for Business?."



social groups mainly from developing countries, which fear that the GCF would bow to industry lobbyists.<sup>852</sup> However, harmful land practices are not mentioned in their signed statement.

#### **6.5.1.4 UN-REDD Programme**

##### **The Goal of the Fund**

The UN-REDD Programme, initiated in 2008, is a United Nations collaborative initiative with multiple donors. The UN-REDD Programme builds on the technical expertise of the FAO, the UNDP and the UNEP.<sup>853</sup> Apart from finance for national REDD+ development and strategies, it also encourages transnational cooperation including knowledge sharing.

##### **The Financial Structure of the Fund**

By June 2014, the UN-REDD had provided US\$195.7 million for nationally led REDD+ activities in developing countries.<sup>854</sup> The funding to the UN-REDD is published on its official website and the Multi-Partner Trust Fund Gateway.<sup>855</sup>

##### **The Governance of the Fund**

By April 2015, the UN-REDD had sixty country partners from regions including Latin America and Caribbean, Africa, and Asia-Pacific.<sup>856</sup> For policy making, the UN-REDD Policy Board is responsible for setting strategic directions, deciding financial allocations among programmes, and developing monitoring mechanisms.<sup>857</sup> The composition of the policy board is a combination of representatives

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<sup>852</sup> Global Justice Now, "Keep Dirty Energy out of Green Climate Fund," accessed 17 April 2017, <http://www.globaljustice.org.uk/news/2014/oct/22/keep-dirty-energy-out-green-climate-fund>. International Rivers: People Water Life, "Statement from Global South Civil Society Calling for No Dirty Energy in the Green Climate Fund," accessed 2 March 2017, <https://www.internationalrivers.org/resources/8303>.

<sup>853</sup> UN-REDD, "About the UN-REDD Programme," accessed 2 March 2017, <http://www.un-redd.org/AboutUN-REDDProgramme/tabid/102613/Default.aspx>.

<sup>854</sup> Ibid.

<sup>855</sup> The Multi-Partner Trust Fund Office, "Gateway for the UN-REDD Programme Fund," accessed 2 March 2017, <http://mptf.undp.org/factsheet/fund/CCF00>.

<sup>856</sup> UN-REDD, "Partner Countries," accessed 12 July 2017, [http://www.un-redd.org/Partner\\_Countries/tabid/102663/Default.aspx](http://www.un-redd.org/Partner_Countries/tabid/102663/Default.aspx).

<sup>857</sup> Alain Frechette, Minoli de Bresser, and Robert Hofstede, *External Evaluation of the United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (the UN-REDD Programme). Volume I—Final Report* (UN-REDD Programme, 2014), accessed 15 April 2017, [http://www.fao.org/fileadmin/user\\_upload/oed/docs/UN-REDD%20Global%20Evaluation%20Final%20Report.pdf](http://www.fao.org/fileadmin/user_upload/oed/docs/UN-REDD%20Global%20Evaluation%20Final%20Report.pdf): iv. Mary C Thompson, Manali Baruah, and Edward R Carr, "Seeing REDD+ as a Project of Environmental Governance," *Environmental Science & Policy* 14, no. 2 (2011): 104.

from partner countries, donors, civil society, the chairperson of the UN Permanent Forum on Indigenous Issues (UNPFII) and the three cooperating UN organisations (FAO, UNDP and UNEP).<sup>858</sup>

The procedural rules of the composition of the policy board lay out the rotation of the members and financial support for members and observers to attend meetings.<sup>859</sup> According to this document, donor countries and receiving countries both have nine members on the board, although currently there are only 6 donors. There is only one member seat for a civil organisation from a developed country. Civil organisations from Africa, the Asia-Pacific region, and the Latin America-Caribbean region can only have one seat each as an observer of the board meeting. Indigenous peoples retain one seat on the board and this position must be taken by the chairperson of the UNPFII.

Reviewing the composition of the UN-REDD policy board, we can see that the civil organisations and indigenous peoples from developing countries have no position in the meeting and the influence of being an observer on decision-making is limited and unclear. It is not regulated whether the observers have the right to be selected and informed at a certain period in advance of the meeting, whether they have access to finance, to collect material about the indigenous peoples and the right to speak during the meeting. In addition, as an observer, it is also important for them to convey their opinions about the meeting to the public. Finance or support in this direction is not mentioned in the procedure. The three UN organisations (FAO, UNDP and UNEP) review and release payments with a performance-based approach.<sup>860</sup> However, the policy board was criticised for lacking ‘a joint accountability’ by these three organisations in an external evaluation.<sup>861</sup>

#### **6.5.1.5 Forest Investment Programme**

##### **The Goal of the Fund**

The Forest Investment Programme (FIP) of the Climate Investment Funds supports REDD+ projects in developing countries with a focus on “readiness reforms”. From 2008 to 2015, the FIP had

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<sup>858</sup> UN-REDD, "Policy Board Composition," accessed 2 March 2017, [http://www.unredd.net/index.php?option=com\\_docman&task=doc\\_download&gid=6653&Itemid=53](http://www.unredd.net/index.php?option=com_docman&task=doc_download&gid=6653&Itemid=53).

<sup>859</sup> Ibid.

<sup>860</sup> Ibid.

<sup>861</sup> Frechette, de Bresser, and Hofstede, *External Evaluation of the United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (the UN-REDD Programme). Volume I—Final Report*, 73.

developed fifty-one REDD+ projects in eight developing countries.<sup>862</sup> The eight countries were Brazil, Burkina Faso, the Democratic Republic of Congo, Indonesia, Ghana, Laos, Mexico and Peru.

### **The Financial Structure of the Fund**

By April 2017, the FIP programme had collected US\$775 million.<sup>863</sup> In addition, the FIP opened a special financing channel for indigenous peoples and local communities in REDD+ projects with US\$50 million.<sup>864</sup> The FIP is one of the four climate financing programmes of the CIF, which manages US\$8.3 billion of funding.<sup>865</sup>

### **The Governance of the Fund**

The FIP decision-making body under the Climate Investment Funds is called the FIP Sub-Committee. It consists of up to six representatives from FIP contributor countries and six representatives from eligible recipient countries.<sup>866</sup> The FIP projects are implemented jointly by six multilateral development banks: the African Development Bank, the Asian Development Bank, European Bank for Reconstruction and Development, the Inter-America Development Bank, the International Finance Cooperation (IFC), and the World Bank Group.<sup>867</sup> The FIP has a mid-term evaluation and an *ex-post* evaluation under a results-based framework.<sup>868</sup>

With regard to public participation, the FIP believes that the ‘full and effective participation’ of indigenous peoples and local communities depends on their ‘capacity to play an active role in national REDD+ discussions’.<sup>869</sup> Therefore, the FIP Dedicated Grant Mechanism is designed to provide learning and consulting mechanisms to the local communities.

In 2010 and 2011, the Dedicated Grant Mechanism (DGM) organised workshops (also called consultative meetings) for the eight recipient countries in the African, Asian, Latin American and

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<sup>862</sup> FIP, *FIP Fact Sheet (November 2016)* (Climate Investment Funds, 2016), accessed 15 April 2017, <http://www-cif.climateinvestmentfunds.org/knowledge-documents/fip-fact-sheet-november-2016>: 4.

<sup>863</sup> "Funds & Programmes," accessed 2 March 2017, [https://www.climateinvestmentfunds.org/cif/Forest\\_Investment\\_Program](https://www.climateinvestmentfunds.org/cif/Forest_Investment_Program).

<sup>864</sup> "Dedicated Grant Mechanism: The FIP Indigenous Peoples and Local Communities Dedicated Initiative," accessed 25 June 2017, <http://www.climateinvestmentfunds.org/cif/DGM/About>.

<sup>865</sup> CIF, "What We Do," accessed 2 March 2017, <http://www-cif.climateinvestmentfunds.org/about>.

<sup>866</sup> "FIP Committees," accessed 15 April 2017, <http://www.climateinvestmentfunds.org/cif/cif-committee/fip>

<sup>867</sup> UNFCCC, *Revised Background Paper on Coherence and Coordination: The Issue of Financing for Forests, Taking into Account Different Policy Approaches*, 4.

<sup>868</sup> FIP, "Results Framework and Monitoring and Reporting Toolkit," accessed 17 March 2017, <https://www.climateinvestmentfunds.org/cif/measuring-results/fip-results-framework-and-monitoring-toolkit>.

<sup>869</sup> "Dedicated Grant Mechanism: The FIP Indigenous Peoples and Local Communities Dedicated Initiative."

Caribbean, and Pacific Island regions.<sup>870</sup> Second, the DGM has organised regional and national consultative meetings in Mexico, Indonesia, Peru, Brazil, Turkey and Laos according to its institutional documents: two for the organisation and governance of the DGM,<sup>871</sup> and one for the guidance of the implementation of relevant projects on the ground.<sup>872</sup>

### 6.5.1.6 Global Environment Facility (GEF)

#### The Goal of the Fund

The GEF was initially founded by the UNDP, the UNEP and the World Bank as a pilot programme within the World Bank in October 1991, with the goal of global environment protection and sustainable development.<sup>873</sup> The GEF used to provide finance for transforming projects from being national-interest oriented to being world-interest oriented. In 1992, at the Rio Earth Summit, the GEF was moved out of the World Bank and became an independent entity for the CBD and the UNFCCC, with the World Bank as the trustee of the GEF Trust Fund.<sup>874</sup>

#### The Financial Structure of the Fund

The GEF was established with US\$1 billion initially. The GEF mainly provides grants to targeted environmental activities. By 2009, the GEF had spent US\$2.88 billion in grants and enticed in total US\$7.85 billion of expenditure for biodiversity conservation from other financial sources.<sup>875</sup> By November 2014, the GEF had provided US\$13.5 billion and stimulated US\$65 billion to support over 3,900 projects in 165 developing countries.<sup>876</sup>

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<sup>870</sup> "Regional Consultative Meetings Amongst Indigenous Peoples and Local Communities," accessed 17 March 2017, <http://www.climateinvestmentfunds.org/cif/content/regional-consultative-meetings-amongst-indigenous-peoples-and-local-communities>.

<sup>871</sup> "Dedicated Grant Mechanism (DGM) Programme Document and Global Learning and Knowledge Exchange Project," accessed 17 March 2017, [http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2015/02/13/000442464\\_20150213092424/Rendered/PDF/936660PGD0P128010Box385413B000UO090.pdf](http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2015/02/13/000442464_20150213092424/Rendered/PDF/936660PGD0P128010Box385413B000UO090.pdf). "Dedicated Grant Mechanism (DGM) Framework Operational Guidelines," accessed 17 March 2017, <http://www.dgmglobal.org/documents/>.

<sup>872</sup> The World Bank, *Programmatic Environmental and Social Management Framework*, Dedicated Grant Mechanism (DGM) for Indigenous Peoples and Local Communities Program (the World Bank, 2014), accessed 18 April 2017, <http://documents.worldbank.org/curated/en/2014/10/20430937/global-dedicated-grant-mechanism-indigenous-peoples-local-communities-project-environmental-assessment>.

<sup>873</sup> GEF, "About Us," accessed 2 March 2017, <https://www.thegef.org/gef/whatisgef>.

<sup>874</sup> In 1994, the GEF joined partnership with the Montreal Protocol of the Vienna Convention on Ozone Layer Depleting Substances. Subsequently, the GEF became the financial mechanism for the Stockholm Convention on Persistent Organic Pollutants in 2001, the United Nations Convention to Combat Desertification in 2003, and the Minamata Convention on Mercury in 2013. See *ibid*.

<sup>875</sup> CBD Secretariat, *Global Monitoring Report 2010: Innovative Financing for Biodiversity*, 10.

<sup>876</sup> GEF, "What Is GEF," accessed 2 March 2017, <http://www.thegef.org/gef/whatisgef>.

The GEF provides grants to projects in five areas, chemicals and waste, biodiversity, climate change, international waters and land degradation, which also contribute to poverty alleviation.<sup>877</sup> The GEF also supports developing countries with capacity-building issues (via capable individuals and effective institutions).

The total finance from GEF to forest activities, including sustainable forest management and REDD+, adds up to US\$1.6 billion since 1991 and stimulated around US\$5 billion for 300 forest conservation projects and programmes.<sup>878</sup> From 1991 to 2008, the GEF had financed 298 sustainable forest management projects with more than a third in Latin America and the Caribbean (106), Africa (85), and the rest in Asia and Pacific and Eastern Europe.<sup>879</sup> Furthermore, the GEF had increased its financing to REDD+ from 2010 to 2014 for the co-benefits of REDD+ projects including biodiversity conservation.<sup>880</sup>

### **The Governance of the Fund**

Currently, the GEF is a partnership of governments from 183 developed and developing countries, civil society organisations, the private sector, and international institutions.<sup>881</sup> The GEF is also facilitating many other multilateral funds including the Nagoya Protocol Implementation Fund of the CBD.<sup>882</sup>

The governance structure of the GEF has three layers of hierarchy. The first contains the decision-making bodies. The GEF is subject to the decisions made by the parties of the following five international conventions: the CBD, the UNFCCC, the Stockholm Convention on Persistent Organic Pollutants, the United Nations Convention to Combat Desertification (UNCCD), and the Minamata Convention on Mercury.<sup>883</sup> Internally, the GEF's decision-making body is the assembly, which consists of representatives of all 183 member countries participating through their GEF political focal points.<sup>884</sup> The GEF assembly reviews the GEF's general policies and sets operational rules every three to four years.

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<sup>877</sup> "Areas of Work," accessed 2 March 2017, [http://www.thegef.org/gef/Areas\\_work](http://www.thegef.org/gef/Areas_work).

<sup>878</sup> "Sustainable Forest Management," accessed 17 March 2017, <http://www.thegef.org/gef/SFM>.

<sup>879</sup> Ibid.

<sup>880</sup> Ibid.

<sup>881</sup> "What Is GEF."

<sup>882</sup> "About Us."

<sup>883</sup> "Conventions," accessed 17 March 2017, <https://www.thegef.org/partners/conventions>.

<sup>884</sup> "Focal Point List," accessed 2 March 2017, [https://www.thegef.org/focal\\_points\\_list](https://www.thegef.org/focal_points_list).

The second layer, implementation, consists of the following institutions. The first is the GEF council comprising fourteen participants from the donor countries and eighteen participants from the recipient countries. The council is in charge of developing, adopting and evaluating the GEF policies and of selecting proposals. The council holds meetings every six months.<sup>885</sup> Second, the GEF Secretariat implements policies of the assembly and the council and oversees programmes.<sup>886</sup> The secretariat of the GEF is provided by the UNEP. The common guidelines should address four issues: project identification, adequate review of project proposals, project development and public involvement.<sup>887</sup> Thirdly, the GEF has a Scientific and Technical Advisory Panel (STAP) to particularly focus on strategic, scientific and technical issues.<sup>888</sup>

The third layer of the hierarchy is the implementing entities. The GEF has eighteen external implementing entities and operational focal points from the recipient countries.<sup>889</sup> The implementing entities are in charge of proposing and implementing projects based on a results-based payment mechanism and provide assistance to governments and NGOs cooperating with the GEF. These agencies have comparative advantages in different areas.<sup>890</sup> Sometimes their cooperation is requested by another agency to complement its lack of expertise or experience in a particular case.<sup>891</sup>

The Operational Focal Points of the recipient countries are responsible for endorsing project proposals that are consistent with their national plans and priorities. They also facilitate the GEF at country level for coordination, integration, and consultation in the operation of project activities.<sup>892</sup>

Public involvement in the operation of a GEF-financed project is also required. The public includes the stakeholders of a project, non-profit and commercial entities, and individuals from the public and private sectors. The latest internal governing document of the GEF requests a 'full disclosure of non-confidential information, and consultation with, and participation as appropriate, of major groups and local communities throughout the project cycle'.<sup>893</sup> Furthermore, the public should be involved 'as

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<sup>885</sup> Parker et al., *The Little Biodiversity Finance Book*, 162.

<sup>886</sup> GEF, "Organization," accessed 2 March 2017, <https://www.thegef.org/about/organization>.

<sup>887</sup> Ibid.

<sup>888</sup> GEF STAP, *STAP Work Programme for GEF-6* (GEF STAP, 2016), accessed 17 March 2017, <http://www.stapgef.org/stap-work-program>: 2-3.

<sup>889</sup> GEF, "Agencies," accessed 2 March 2017, <https://www.thegef.org/partners/gef-agencies>.

<sup>890</sup> More details of the comparative advantages of the GEF agencies are presented on the GEF official website: *ibid.*

<sup>891</sup> Para. 28, "Instrument for the Establishment of the Restructured Global Environment Facility" (2015), accessed 17 April 2017, [https://www.thegef.org/gef/sites/thegef.org/files/publication/GEF\\_Instrument\\_Oct2011\\_final\\_0.pdf](https://www.thegef.org/gef/sites/thegef.org/files/publication/GEF_Instrument_Oct2011_final_0.pdf).

<sup>892</sup> "Focal Point List."

<sup>893</sup> Para. 5, "Instrument for the Establishment of the Restructured Global Environment Facility" (2015).

appropriate, in the identification of project concepts and objectives, selection of sites, design and implementation of activities, and monitoring and evaluation of projects.<sup>894</sup>

However, it is doubtful that these provisions can ensure information disclosure and public involvement. First, it is not clear what is ‘non-confidential information’ and who has the right to define or claim that a piece of information is confidential and therefore is entitled to avoid disclosure. Second, it is also not clear who are the ‘major groups’ and who has the right to decide or claim one group is major and should be consulted. Notwithstanding, the term ‘as appropriate’ may extend the discretion of the obligatory party so that they can prevent the public from knowing the core of the information for self-protection. Without clarifying these three terms, these provisions would be too arbitrary to apply. Responsible parties can easily find a way to avoid their obligation of information disclosure or public involvement.

### **6.5.1.7 Adaptation Fund**

#### **The Goal of the Fund**

The Adaptation Fund was established to finance adaptation activities in developing countries ‘that are Parties to the Kyoto Protocol and are particularly vulnerable to the adverse effects of climate change’.<sup>895</sup> The Adaptation Fund was established through intergovernmental negotiations and is subject to the decisions of the CMP to the Kyoto Protocol. Its operational time was delayed from 2001 to 2010 mainly because the Kyoto Protocol did not enter into force until 2006.<sup>896</sup>

Although forest conservation is essential for the adaption to climate change, this fund currently does not claim to have activities in the forest sector. However, in the projects from the agriculture and rural development sectors, tree planting activities are conducted. Those tree planting activities are not using methodologies to calculate emission reductions from the CDM.

#### **The Financial Structure of the Fund**

The Adaptation Fund, with the World Bank as the interim trustee, raised US\$357.5 million from 2010 to 2017 from the sale of certified emission reductions (CERs) and from contributions of public and private donors.<sup>897</sup> Annually, this fund approves US\$43 million and disburses US\$12.34 million of

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<sup>894</sup> "Organization."

<sup>895</sup> The Adaptation Fund, "About the Adaptation Fund," accessed 2 March 2017, <https://www.adaptation-fund.org/about/>.

<sup>896</sup> GCF, *Report on the Survey of Relevant Funds and Institutions and Lessons Learned: A Note on the Results of Surveys and Interviews* (GCF Transitional Committee Third Meeting, 2011), TC-3/INF.2: 2.

<sup>897</sup> The Adaptation Fund, "About the Adaptation Fund."

funding through basic financial instruments to the governments of recipient countries (governments of the non-Annex I countries are the only eligible recipients).<sup>898</sup>

### **The Governance of the Fund**

The fund has the following governing and operational bodies: the fund board, the secretariat, the Accreditation Panel, and external implementing entities. The board of the Adaptation Fund recognises stakeholders as observers and consults them for project design, but does not involve stakeholders in decision-making.<sup>899</sup> In board meetings, when a consensus of the board members cannot be reached during decision-making, a two-thirds majority can determine the outcome of debates.

The secretariat of the fund consists of seven regular employees and fifteen staff members from the GEF on an ad-hoc basis. The costs of the secretariat account for 0.47 percent of the total funds.<sup>900</sup> The Accreditation Panel is to guarantee compliance with the fiduciary standards of the recipients of the funding.

The implementing entities of the Adaptation Fund can be multilateral, regional and national entities, which receive direct financial transfers from the fund.<sup>901</sup> The Adaptation Fund does not have an independent evaluation department or a separate evaluation entity. However, it has a fund-wide result-reporting system. The sustainability of its projects relies on the environmental and social safeguards of its implementing entities.<sup>902</sup>

### **6.5.2 The Rationale of Achieving Sustainable Results through Multilateral Funds**

As the trustee of the investments, the multilateral funds receive funding from an assortment of investors. The multilateral funds invest and purchase emission reductions on behalf of the investors. The multilateral funds negotiate contracts with the sellers and receive the rights of the emission reductions after paying the sellers. Along with the financial interactions, the process to complete a project in a multilateral fund can be divided into three phases as demonstrated in Figure 6-3 below. The first phase is proposal selection, where the funds receive project proposals and select those that fit their selection

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<sup>898</sup> GCF, *Report on the Survey of Relevant Funds and Institutions and Lessons Learned: A Note on the Results of Surveys and Interviews*, 2-9.

<sup>899</sup> *Ibid.*, 4.

<sup>900</sup> *Ibid.*, 5.

<sup>901</sup> The Adaptation Fund, "Implementing Entities," accessed 12 July 2017, <https://www.adaptation-fund.org/apply-funding/implementing-entities/>.

<sup>902</sup> GCF, *Report on the Survey of Relevant Funds and Institutions and Lessons Learned: A Note on the Results of Surveys and Interviews*, 10.



criteria. In some multilateral funds, the project proposals selected by the funds need to be approved by the investors.

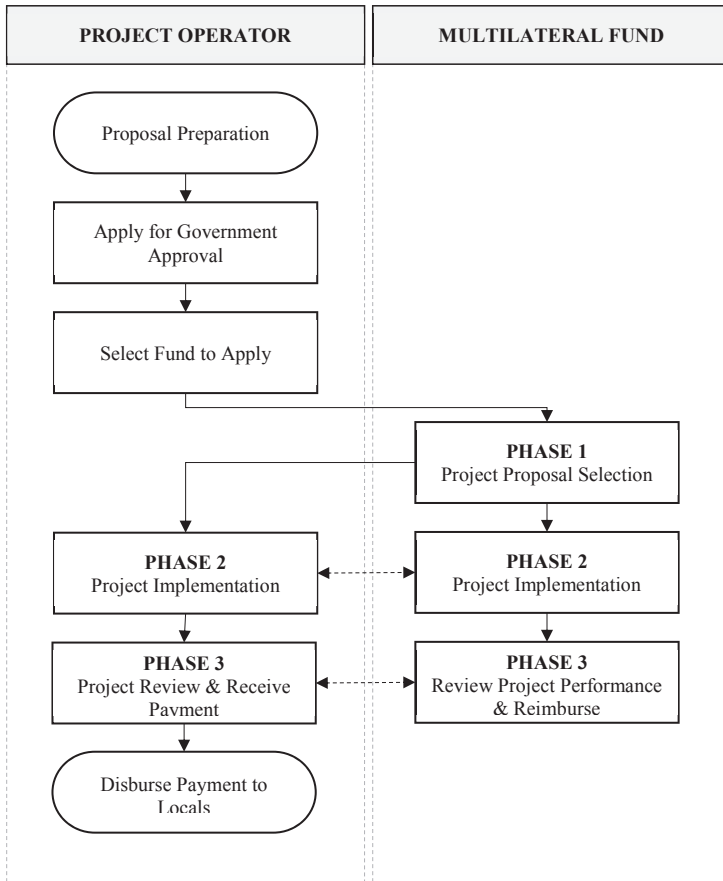
The second phase is project implementation, where the design of the project proposal will be put into practice. Once a project proposal is selected, a few legal agreements will be contracted between the funds and the local farmers concerning the transfer of emission reductions, benefit sharing issues, and the use of the project land. These agreements govern the implementation of the project and will be the criteria to assess the project. The funds may conduct periodic reviews or require certain certificates from a third, independent party to ensure the quality of the project in practice.

The third phase is finance disbursement, where the investments in the project will be disbursed. The funds will provide upfront payment to support the initiation of the project. The payment is for emission reductions which would be delivered afterwards. In a forest carbon project financed by the World Bank BioCarbon Fund, the transaction of the emission reductions is completed by two agreements: the Emission Reduction Purchase Agreement (ERPA) and the Carbon Transfer Subsidiary Agreements.<sup>903</sup> These two agreements define the subject of the transaction and set the volume, price, delivery schedule, payment and remedies for delivery failure of the emission reductions.

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<sup>903</sup> Carr and Rosembuj, "World Bank Experiences in Contracting for Emission Reductions," 114.

**Figure 6-3: The Process to Complete a Project with Multilateral Funds**



Within the three stages, the rationale for applying the sustainability development principle is threefold. Firstly, the multilateral funds can provide positive incentives to motivate sustainable project design by putting sustainability requirements in the criteria for proposal selection. As a result, more projects will submit designs that comply with the sustainability requirements to get their proposals selected by the multilateral funds. To receive funding from the funds, a “race to the top” may be even generated among the project operators that demonstrate the best possible performance in assisting sustainable development.

Secondly, the funds can restrain the risks of unsustainable results by applying sustainability requirements to the monitoring system during project implementation and to the criteria for finance disbursement. The funds can apply environmental and social safeguards when reviewing the project or require the project to attain periodic sustainability certificates from a third party.

Thirdly, for financial disbursal, the funds can incorporate other environmental and social indicators rather than only emission reductions when measuring the results of the project. For instance, the payment for ecosystem services is a system which deals with a range of ecosystem services provided by forests to human society.<sup>904</sup>

### **6.5.3 The Economic Advantages of Multilateral Funds**

As discussed, multilateral funds were introduced into the financing process between the North and the South as an intermediary. Compared to a direct delivery of funding, investing through an intermediary is much costlier. However, both the investors and the recipients still choose to do so. Are the investors and recipients economically benefited by doing so and to what extent can multilateral funds reduce unsustainable risks? This section will try to answer that question.

This section stresses the economic advantages of multilateral funds from the following four perspectives. Section 6.5.3.1 discusses their advantages in mitigating risks. Furthermore, Sections 6.5.3.2 and 6.5.3.3 elaborate their advantages for reducing the transaction costs of the parties and the administrative costs of project operation. Finally, Section 6.5.3.4 analyses the advantages of multilateral funds from a principal-agent perspective.

#### **6.5.3.1 Information, Portfolio Investment and Risks**

The first economic advantage of multilateral funds has been widely applied by scholars to justify the existence of specialised intermediaries: risk mitigation.<sup>905</sup> For the investors of forest carbon projects, the risks they are facing in forest carbon projects in developing countries are twofold. The first risk is financial. It is about whether they can receive the expected returns on their investments. The second type of risk is ecological risk. It is about whether their investments can achieve their ecological goal. In the case here, the ecological goal of their investments is to achieve sustainable forest carbon projects in developing countries. As shown in previous sections, some investors have this additional goal when investing in forest carbon projects.

The latter type of risk is additional to traditional literature on specialised intermediaries. Previous discussions mainly focus on the function of financial intermediaries, such as insurance providers and

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<sup>904</sup> For more details about the payment for ecosystem services please see this chapter, Section 6.4.2.

<sup>905</sup> John W. Pratt, "Risk Aversion in the Small and in the Large," *Econometrica: Journal of the Econometric Society* (1964): 122. Göran Skogh, "Mandatory Insurance: Transaction Costs Analysis of Insurance," *Encyclopedia of Law and Economics* 2 (2000): 523.

banks, in mitigating financial risks.<sup>906</sup> Specialised intermediaries possess information on risks, hence they can pool the risks and mitigate them for both transacting parties.<sup>907</sup>

The multilateral funds fit into this realm and can contribute to mitigating the financial risks in forest carbon projects in developing countries. This is because as financial intermediaries between the North and the South, they possess the information of the financial environments of both worlds. Countries from the North, as donors, are directly involved in the governance of the multilateral funds. The local agencies of the funds in the South can report first-hand information on the projects and of the changing policies of multiple developing countries. Therefore, the multilateral funds are better informed about the financial risks that a forest carbon project may be exposed to.

Another way that the multilateral funds can pool the financial risks in forest carbon projects is to use the portfolio-investment approach. Portfolio investment refers to spreading investment in multiple forest carbon projects of different types in different developing countries with large-scale funding collected from various investors. Meanwhile, the funds themselves may even be a part of a portfolio investment, namely, it is part of a bigger fund with a broader goal and a larger scale.

By diversifying investments across projects, countries, and types of forest carbon projects, the investment of each investor is less exposed to a particular risk in a volatile market. Because each investor possesses a small share of multiple projects, if some projects fail the investors can still benefit from other successful projects based on their shares. On the contrary, when a single investor puts all investments into one project, the fate of the investor will depend on the achievement of one project and the investor would suffer a severe financial loss if that project fails. As explained above, in theory the portfolio-investment approach can reduce the financial risks of each investor. However, the strategy of constructing a portfolio varies among the funds and depends on the investors. In practice, some portfolios may perform better with more steady returns and others may perform worse. More detailed problems about portfolio selection, nonetheless, are not the focus of this research.

Additionally, multilateral funds may also contribute to mitigating the risk of unsustainable results. This is because the multilateral funds can control the following two variables with a relatively low cost: 1) the measurement of projects' results in carbon removal, and 2) the conservation leakage.

The first variable, measurement of the performance or results of the project, affects the sustainability of a project. An accurate measurement as such depends on at least two essential items: the baseline

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<sup>906</sup> Franklin Allen and Anthony M. Santomero, "What Do Financial Intermediaries Do?," *Journal of Banking & Finance* 25, no. 2 (2001): 272. Frank H Easterbrook and Daniel R Fischel, "Limited Liability and the Corporation," *The University of Chicago Law Review* 52, no. 1 (1985): 101-02.

<sup>907</sup> Skogh, "Mandatory Insurance: Transaction Costs Analysis of Insurance," 523.

and the methodology adopted in the project. A report from the UK Department of Energy and Climate Change (DECC) pointed out that if the baseline of a project is inaccurate, then the results of the project may be exaggerated.<sup>908</sup> Similarly, if an inappropriate methodology is applied to measure the performance of a project, or an appropriate methodology is wrongly applied, the results of a project will not be accurately reflected.

Multilateral funds have expertise from the international community which, compared to local farmers in developing countries, may be better informed of these two items. Expertise from the funds can contribute to developing the baselines of new projects and to properly applying complex methodologies in the local area. Additionally, the multilateral funds adopt a performance- and results-based payment system to strengthen their monitoring systems. This system requires as a pre-condition that the performance and results of the project are accurately measured and reported. Under this system, the project operator does not receive payment based on their input. Instead, the investors give payments based on the output of the projects, namely the performance and the results of the projects. To receive payment, the project operators need to deliver more sustainable results in forest carbon projects.

The second element affecting the sustainability of the project is the conservation leakage that may happen around the project. In some cases, by protecting the forest in the project area, the project is simply displacing unsustainable forest or agriculture activities to other, less protected areas. In that case, the overall deforestation rate will remain high and the purpose of the investment is diminished. To mitigate such a risk, some multilateral funds adopt a landscape approach, which can acquire information of the project from a broader perspective.

For instance, the BioCarbon Fund Initiative for Sustainable Forest Landscapes (ISFL) has adopted a jurisdictional landscape approach.<sup>909</sup> This approach enables the funds to provide consistent control over a broad landscape. Nonetheless, because this approach is implemented in a programme on a large scale, it requires strong institutional and financial capacities of the governing entity. Compared to a single investor, multilateral funds have a stronger capacity to carry out the landscape approach because they have collected the funding and expertise from international public and private sources.

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<sup>908</sup> UK Department of Energy and Climate Change, *An International Climate Fund Business Case for Decarbonisation Investment in the BioCarbon Fund and the Forest Carbon Partnership Facility – Carbon Fund*, 10.

<sup>909</sup> BioCarbon Fund ISFL, "Approach," accessed 2 March 2017, <http://www.biocarbonfund-isfl.org/approach>.

### 6.5.3.2 Reducing the Transaction Cost

Another economic advantage of financial intermediaries is saving on transaction costs in trade.<sup>910</sup> This theory applies to the multilateral funds as well because they can reduce the costs of information gathering in trade. First, the multilateral funds can provide a marketplace, where the investors and recipients with similar objectives can gather together and communicate under a particular channel built up by the multilateral funds.<sup>911</sup> In this way, the multilateral funds save the information costs of both parties for locating a potential partner.

Additionally, as a specialised entity, the funds can provide complex services by repetitively applying their previous experience and expertise of financing forest carbon projects in various developing countries. When investing through multilateral funds, the investors do not need to investigate the financial environment of every potential recipient from different developing countries. For recipients of the investment, they only need to be familiar with the governing rules of the fund instead of negotiating with various potential investors and adjusting their proposals as per the requirements of different investors. In this manner, the transaction cost is substantially reduced for both investors and recipients.

In addition, as Gong et al. (2010) claimed, it is very costly and time-consuming to develop tailored agreements for a forest project, especially when multiple partners are involved.<sup>912</sup> To reduce the transaction cost of contracting, some multilateral funds employ standardised agreements.<sup>913</sup> Certainly, the standardised agreement must comply with certain requirements to guarantee fairness, participation equity, transparency and accountability.

### 6.5.3.3 Reducing the Administrative Cost

Some multilateral funds are established based on a larger financial organisation that has existed for decades and has developed multiple local agencies in many developing countries. For instance, the BioCarbon Fund was established by the World Bank and the UN-REDD. These existing governing systems can substantially facilitate each stage of the operation of forest carbon projects including negotiation with the local parties, registration at international organisations and monitoring. The

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<sup>910</sup> Skogh, "Mandatory Insurance: Transaction Costs Analysis of Insurance," 526.

<sup>911</sup> Myron Scholes, George J. Benston, and Clifford W. Smith, "A Transactions Cost Approach to the Theory of Financial Intermediation," *The Journal of Finance* 31, no. 2 (1976): 216.

<sup>912</sup> Yazhen Gong, Gary Bull, and Kathy Baylis, "Participation in the World's First Clean Development Mechanism Forest Project: The Role of Property Rights, Social Capital and Contractual Rules," *Ecological Economics* 69, no. 6 (2010): 1301.

<sup>913</sup> Salinas and Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects*, 110.

associated network, personnel, and information from multiple local agencies of the multilateral funds can considerably reduce the administrative costs for both the investors from the North and the recipients from the South. Therefore, instead of creating a new bilateral investment agreement or a new governing entity, some investors choose to transact through an existing, well-managed multilateral fund.<sup>914</sup>

#### 6.5.3.4 Lessening Principal-Agent Problems

Following Banks & Sundaram (1998), this study considers that there is a principal-agent relationship in forest carbon projects, in which the UNFCCC legislative and governing entities constitute the long-lasting principal and the project operators in developing countries are short-lived agents.<sup>915</sup> The principal designs the international legal framework for forest carbon projects in developing countries. In the meantime, agents are only approved temporarily for a particular project.

Certainly, the principal-agent theory can also be applied differently to the multilateral funds. For instance, it could be that the donors from the North of a multilateral fund can be the principals and the fund manager is the agent that is supposed to carry out the optimal investment strategies to maximise the utilities of the donors.<sup>916</sup> However, because this chapter is focusing on the function of the multilateral funds as an intermediary in achieving sustainable forest carbon projects rather than in achieving the greatest return for the donors, this chapter adopts the previous principal-agent scenario. In fact, the newly established Green Climate Fund under the UNFCCC's legal regime is one of the most obvious examples of a financial intermediary between the principal, the UNFCCC governing body and the agents, the project operators.

In this principal-agent relationship, it is assumed that the principal, the UNFCCC legislative and governing entities, advocates public interest and has two goals to increase social welfare.<sup>917</sup> As

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<sup>914</sup> UK Department of Energy and Climate Change, *An International Climate Fund Business Case for Decade Investment in the BioCarbon Fund and the Forest Carbon Partnership Facility – Carbon Fund*, 46.

<sup>915</sup> Jeffrey S Banks and Rangarajan K Sundaram, "Optimal Retention in Agency Problems," *Journal of Economic Theory* 82, no. 2 (1998): 295. Banks & Sundaram (1998)'s model has a long-lasting principal which looks at the long term, and short-lived agents.

<sup>916</sup> Such a scenario is adopted in the paper of Tomasz P Bednarczyk and Dirk Eichler, "Theory of Mutual Funds: The Effect of Principal Agency Conflicts on Mutual Fund Size," *SSRN Electronic Journal*(2002), accessed Access Date, [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=905113](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=905113). 1.

<sup>917</sup> A similar assumption is presented in the principal-agent analysis of Robert Innes, Stephen Polasky, and John Tschirhart, "Takings, Compensation and Endangered Species Protection on Private Lands," *The Journal of Economic Perspectives* 12, no. 3 (1998): 45. Some economic analyses question whether the government always acts in the public interest. Even so, this study still sets public interests as the objective of the principal in this principal-agent scenario, because the main purpose of the discussion here is to explain the positive function of the multilateral funds. The objective of the principal is set as such to focus on the role the multilateral funds in facilitating the principal to achieve sustainable development in developing countries, and to pave the way for analysing a particular category of the principal-agent problems that would lead to unsustainable projects.

stipulated in the UNFCCC and its subsequent decisions, one of its objectives is to contribute to climate change mitigation and adaptation, and the other is to assist developing countries in sustainable development.<sup>918</sup> However, the agents may have different objectives. One of the undesired private objectives of the agents is to maximise their own utility at the cost of the sustainability of the project. Therefore, the principal needs to motivate the agents to comply with its goals and to monitor the agents.

To do so, the principal may face three economic problems in this principal-agent relationship. The first one is the information asymmetry between the principal and the agents. The second is the moral hazard problem of the agents. The third is the adverse selection problem of the principal. The rest of this section will analyse how multilateral funds can contribute to solving these three problems in forest carbon projects in developing countries.

The first problem that may exist in a principal-agent relationship is the information asymmetry problem. It refers to the situation where the agents possess some private information about the implementation costs and the principal is not aware of the actual effects of the projects.<sup>919</sup> Previous scholars have discussed that specialised intermediaries can contribute to solving the information asymmetry problem, because they are better informed than both parties.<sup>920</sup> In the principal-agent relationship of forest carbon projects, multilateral funds are specialised financial intermediaries.

Normally, financial intermediaries, such as insurers and banks, are not directly involved with the operation of a firm. In contrast, some multilateral funds directly participate in the decision-making process of the agents through financial negotiations. As discussed below, through financial negotiations some multilateral funds can influence the design of the project and hence affect the implementation of the projects. Additionally, some multilateral funds play a role in the implementation of the forest carbon projects by accrediting implementing entities of the projects, such as the Green Climate Fund.<sup>921</sup> Because the multilateral funds can participate in or even make decisions about the design and implementation of the project, they can acquire the information that is known by the agents

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<sup>918</sup> Art. 2, "United Nations Framework Convention on Climate Change," UN (1992).

<sup>919</sup> Lewis (1996) stated a model in which an environmental protection institution is not well informed of the costs and benefits of the polluting private cooperates. See more at Tracy R. Lewis, "Protecting the Environment When Costs and Benefits Are Privately Known," *The Rand Journal of Economics* 27, no. 4 (1996): 834.

<sup>920</sup> Richard Brealey, Hayne E. Leland, and David H. Pyle, "Informational Asymmetries, Financial Structure, and Financial Intermediation," *The Journal of Finance* 32, no. 2 (1977): 383.

<sup>921</sup> "Guiding Framework and Procedures for Accrediting National, Regional and International Implementing Entities and Intermediaries, Including the Fund's Fiduciary Principles and Standards and Environmental and Social Safeguards," GCF (2014), GCF/B.07/02, accessed 15 March 2017, [https://www.greenclimate.fund/documents/20182/24943/GCF\\_B.07\\_02\\_-\\_Guiding\\_Framework\\_for\\_Accreditation.pdf/a855fdf1-e89b-47fb-8a41-dfa2050d38b9](https://www.greenclimate.fund/documents/20182/24943/GCF_B.07_02_-_Guiding_Framework_for_Accreditation.pdf/a855fdf1-e89b-47fb-8a41-dfa2050d38b9). "Annex III: Interim Environmental and Social Safeguards of the Fund," (2014).



but is not known by the principal. Therefore, the involvement of multilateral funds can lessen the asymmetric information problem.

Additionally, in some cases, the agents may also be asymmetrically informed of the new orders from the principal (in this case, it refers to the new rules of the UNFCCC legislators). The multilateral funds, on the contrary, with specialised personnel in such an area would have more thorough and up-to-date information. Furthermore, multilateral funds that possess international experts may also have advantages in acquiring information about recently available technologies, compared with one agent from one developing country.

Deriving from monitoring incapability, a moral hazard problem may occur in a principal-agent relationship.<sup>922</sup> In the case of forest carbon projects, moral hazard refers to the fact that the agents find it more profitable to reduce expenses on sustainability measures in the forest carbon projects to gain the comparative advantage of a lower price in the marketplace. Currently, the UNFCCC administration is only assessing the impact of the projects on climate change and leaving the authority to assess sustainability issues to developing countries' governments.<sup>923</sup> Because the principal does not have the administration to monitor the performance of the agents on sustainability issues, the agents may implement unsustainable projects, which is the opposite to the principal's aims.

Furthermore, when the principal is not aware of the total cost of the agents with unsustainable forest activities, an adverse selection problem may appear in this principal-agent relationship.<sup>924</sup> As discussed above, the developing countries' governments may sacrifice the sustainability of the projects for short-term economic returns and give a "false approval" to the agents. Namely, forest carbon projects with few environmental and social benefits, or even adverse impact on sustainable development, may be approved by the developing countries' governments and thereby selected by the principal.

In a similar principal-agent relationship, considering both adverse selection and moral hazard problems, Heinkel and Stoughton (1994) proposed that a performance-based fee and the possibility of discontinuing the contract can motivate the agents to comply with the principal's desires.<sup>925</sup> Similarly,

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<sup>922</sup> This problem is also considered in a principal-agent relationship by Roger Guesnerie and Jean-Jacques Laffont, "A Complete Solution to a Class of Principal-Agent Problems with an Application to the Control of a Self-Managed Firm," *Journal of Public Economics* 25, no. 3 (1984): 329.

<sup>923</sup> Para. 1, "Annex 6: Clarification on Elements of a Written Approval," CDM-EB16 (2004).

<sup>924</sup> Guesnerie and Laffont, "A Complete Solution to a Class of Principal-Agent Problems with an Application to the Control of a Self-Managed Firm," 329. Adverse selection is also discussed as a problem in a principal-agent scenario in the paper of Peter C Smith et al., "Principal-Agent Problems in Health Care Systems: An International Perspective," *Health policy* 41, no. 1 (1997): 42.

<sup>925</sup> Their study is also about a long-lasting principal and short-lived agents. Please see more in the study of Robert Heinkel and Neal M. Stoughton, "The Dynamics of Portfolio Management Contracts," *Review of Financial Studies* 7, no. 2 (1994): 380.

in the case of forest carbon projects, the multilateral funds can contribute to solving the adverse selection and moral hazard problems by a performance- and results-based payment system. Within this payment system, the agents are paid based on the performance and results of the projects. Through this system, the results of the projects are monitored in the reimbursement process. A positive incentive is provided to the agents because bad agents will receive fewer payments and have a reduced opportunity to be granted another project. In this manner, the multilateral funds build up a stronger monitoring system, which is directly associated with the performance of the agents to counteract the moral hazard and adverse selection problems.

Apart from the multilateral funds, another entity may also have the capacity to monitor the projects: a forest certifying entity. A forest certifying entity can monitor the project by refusing to grant a sustainability certificate or suspending a sustainability certificate. However, this type of threat does not instantly lead to economic loss, therefore, may be less direct than an immediate loss of payment. Additionally, a certifying entity can only play a monitoring role when it is hired by the agent to assess a project. A bad agent may not hire a “strict” certifying entity and certifying entities may lower their assessing standards to obtain more clients.

Following Skogh (2000) this chapter claims that for the economic advantages of the multilateral funds above, parties would rather transact via costly multilateral funds than trading directly.<sup>926</sup> Overall, the existence of multilateral funds is justified and explained by their comparative advantages in risk mitigation, cost reduction and information gathering.

#### **6.5.4 A Comparison of the Multilateral Funds**

Answering the questions posed at the end of Chapter 5, this section assesses to what extent the funds are determined to deliver sustainable results in forests, supervise financial flows between governments, and involve third-party implementing entities. These multilateral funds, as financial intermediaries, are on an international scale and have the goal of delivering sustainable results in forest carbon projects in developing countries. Even with similar goals, we can see that the focus of the funds varies. For instance, the BioCarbon Fund Tranche One and Two focus on carbon sequestration and CDM A/R projects. The ISFL in the BioCarbon Fund focuses on a sustainable landscape. The FCPF, the UN-REDD, the FIP, the GCF, and the GEF support REDD+, but only the GCF and the GEF emphasise sustainable development in their goals. The Adaptation Fund is at greatest variance with the others in that it conducts forest planting activities for climate adaption and does not calculate any emission reductions. As discussed in Section 2.6, there is a risk of biodiversity loss and land deterioration when

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<sup>926</sup> Skogh, "Mandatory Insurance: Transaction Costs Analysis of Insurance," 523.

maximising carbon sequestration in forest carbon projects with industrial tree plantations. However, these funds are not clear about their priorities in the situation of conflicts between climate benefits and biodiversity.

In addition, the discussions on the financial structure of multilateral funds reveal that they receive and distribute funding between governments from the North to the South. Some funds, such as the World Bank, mediate between governments. Other funds contribute to supervising financial flows by publishing relevant data online, such as the UN-REDD Program.

Lastly, the governance systems of multilateral funds vary upon cooperation with third-party implementing entities, environmental and social safeguards, and public participation in decision-making. First, the FCPF, the GCF, the GEF and the Adaptation Fund are cooperating with third-party implementing entities. However, the endorsed implementing entities are not necessarily specialised in environmental protection such as the financial entities endorsed by the FCPF. In addition, the FCPF, the GCF and the Adaptation Fund also adopt environmental and social safeguards to guide and oversee the implementing entities that they endorsed. Finally, only the UN-REDD Programme and the GEF have clear mechanisms to ensure public participation in decision-making with measures that need to be improved.

## **6.6 Summary and Concluding Remarks**

This chapter discussed the financial streams of forest carbon projects in developing countries from the North to the South. Section 6.2 first elaborated on the basic financial instruments and special financial programmes for forest carbon projects in developing countries which are used to deliver funding directly. In addition, Section 6.3 and 6.4 discussed special financial instruments for collecting and reimbursing funding. These financial instruments are used when the funding is delivered indirectly through financial intermediaries.

Section 6.5 discussed seven multilateral funds that act as financial intermediaries. In exploring to what extent multilateral funds contribute to achieving sustainable results in foreign forest carbon projects in developing countries, this section finds that the rationale for multilateral funds to adopt institutional measures lies in their internal governing systems. Furthermore, this section finds that multilateral funds have some economic advantages in reducing financial and unsustainability risks. This section followed up with a critical comparison of the current institutional frameworks of relevant multilateral funds. Judging from the goals of the funds, their financial structure, and their governance, we can see that the governing systems of multilateral funds have the potential to be further reformed in order to deliver sustainable results in foreign forest carbon projects in developing countries. Their governing systems also have limitations and need to be improved.

Thus far, this study has reviewed the international institutional and financial framework on foreign forest carbon projects in developing countries. Nonetheless, the implementation of forest carbon projects in developing countries cannot disregard the national institutional framework in a particular host developing country. Therefore, before giving more specific recommendations on reforming the institutional framework of multilateral funds, this study intends to add more practical insights based on country-specific evidence. The next part conducts a case study taking China as an example. Afterwards, the institutional design in Chapter 9 will further elaborate on the advantages of multilateral funds in solving unsustainability problems in foreign forest carbon projects in developing countries and recommend specific institutional measures.



**PART III**

**A CASE STUDY: FORESTS AND CLIMATE CHANGE IN CHINA**

## INTRODUCTION TO PART III

Thus far, previous chapters in Parts I and II have explored the international institutional framework, the incentive schemes, and the financial streams of forest carbon projects in developing countries from a theoretical perspective. However, this is not enough to see the whole picture of foreign forest carbon projects in developing countries, because such projects are located in a developing country and need to comply with relevant national laws.

Part III provides a country-specific analysis based on a case study of China. This part reviews relevant national laws and practices in China to test empirically whether those problems identified in the international institutional and financial framework exist in China and whether there are problems that are not covered in previous literature. Ultimately, this part aims to provide insights for the institutional design from a practical perspective.

This case study focuses on foreign forest carbon projects in China that apply international carbon certification schemes or receive funding from foreign resources. Chapter 7 explores how relevant international rules are applied in the national institutional framework in China. This chapter reviews national political documents, laws, and regulations on foreign forest carbon projects in China to examine to what extent the sustainable development principle is incorporated. There are some Chinese scholars who recognise the biodiversity and socio-economic problems in forest carbon projects in China and provide suggestions on national regulatory reforms to address them respectively.<sup>927</sup> However, this study aims to address unsustainable environmental and social problems simultaneously and aims to provide an institutional design that combines international and national instruments and actors.

Chapter 8 reviews how foreign forest carbon projects are financed and whether the results of project practices are environmentally and socially sustainable based on information from examining projects' documents online, project-site visits, and interviews. This chapter reviews the online documents of seventeen foreign forest carbon projects in China that apply international carbon certification schemes including the CDM, the Verified Carbon Standard (VCS), and the Climate Community and

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<sup>927</sup> Mingde Cao, "Forest Carbon Sink and Biodiversity Conservation: From Legal Perspective," *Journal of Chongqing University (Social Science Edition)* 18, no. 3 (2012): 94-100. Shi Peng Yan, "Choices of Legal Protection System of Forest Carbon Sink under Climate Changes," *Journal of China University of Geosciences (Social Science Edition)* 11, no. 3 (2011): 42-48. Qun Wang and Junrong Fan, "Discussion of Biodiversity Protection Regulation Problems under the Forest Carbon Sequestration Mechanism," *Scientia Silvae Sinicae* 49, no. 9 (2013): 148-52. Chen Hua and Hu Yue, "森林碳汇视角下的生态补偿法律机制探讨 (Sen Lin Tan Hui Shi Jiao Xia De Sheng Tai Bu Chang Fa Lv Ji Zhi Tan Tao)," *Journal of Xingtai University* 29, no. 1 (2014): 90-91. Zhengchun Xu and Quan-dian Wang, "The Legal System of Ecological Public Welfare Forest Compensation and the Innovation of Its Enforcement Mechanism," *Journal of Beijing Forestry University (Social Sciences)* 3, no. 4 (2004): 41.

Biodiversity Standards (CCBS).<sup>928</sup> Two types of projects' documents are publicly available on the official websites of these carbon certification schemes.<sup>929</sup> One is the Project Design Documents (PDD) or Project Descriptions, which should provide all the basic and detailed information of a project including its estimated environmental and social impacts. The other is a validation report issued by the carbon certification entity, if the project has passed its validation.

Furthermore, I conducted project-site visits and interviews to fulfil the following information gaps. First, the online projects' documents lack information on how the project was negotiated, prepared and developed by the initiating parties. Second, it is unclear what the environmental and social status is after a project is terminated (with a 20- or 30-year crediting period, no forest carbon project is finished yet. However, some projects have ended before completing the project period). Lastly, it is possible that the local contacts provided by the project operators in the projects' documents online are biased. The project operators may select those people that would speak in favour of them. Project-site visits and interviews with practitioners can obtain first-hand information on the projects. They are not for quantitative data collections but for filling information gaps. Hence, rather than predicting or offering an overall evaluation of the projects, I aim to provide a relatively balanced and comprehensive discussion of the projects' characteristics with valuable insights from actual practitioners.

From 8 June to 29 July 2015, four projects sites were visited in four provinces: a CDM forest carbon project in Kangping County in Liaoning Province; a domestic forest carbon project in Fangshan District in Beijing; a multiple-benefits forest project in Huangshan City in Anhui Province; and a CCBS and VCS validated project in Yingjing City in Sichuan Province.

Several interviews were conducted in the same period and continued to June 2017 to keep track of new developments. Some additional interviews were conducted with policy makers during the 19<sup>th</sup> (2013) and 21<sup>st</sup> (2015) sessions of the Conference of the Parties to the UNFCCC at Warsaw and Paris respectively. I selected interviewees with different backgrounds to reduce bias including project operators, investors, national government officers, local government officers, local farmers, forest certifying agencies, forest science institutions, and environmental NGOs.

The interviews were conducted in a semi-structured manner. A set of questions was designed covering a range of topics including the basic information of the interviewees, and financial and sustainability

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<sup>928</sup> The selected sixteen projects include five registered CDM afforestation and reforestation (CDM A/R) projects; four projects at the validation stage in the CDM procedure; and six projects certified by the VCS and one certified by the CCBS. CDM A/R projects are designed for industrialised countries listed in Annex I to the UNFCCC to cooperate with developing countries in climate-related afforestation and reforestation activities. See Chapter 2, Section 2.5.2.

<sup>929</sup> See project database of each carbon certification schemes. CDM, "Project Search."; VCS, "Project Database." CCBA, "Project Database."



status of the projects. However, based on the professional background of the interviewees they can be expected to be familiar with different types of information. For legal issues, such as the national institutional structure and approval procedure of sustainability assessments, the national forest bureau officers and the project operators may possess most information. Technical information about the financial status is expected to be provided by project operators, investors, and government officers. Regarding the environmental and social impact of the projects, local farmers, forest science institutions, forest certificating agencies, and relevant environmental NGOs may provide valuable insights. A challenge was that on several occasions some national and local government officials refused the interview request, or did not want to be quoted to reveal their identities in the research.

All in all, this Part is structured as following. Chapter 7 reviews the national political and legal framework on sustainable forest carbon projects in China. It first considers the political context, because laws and regulations are supposed to reflect political goals and ambitions. Chapter 8 presents the empirical results from reviewing the original projects' documents and from the field study.



## 7 THE NATIONAL POLITICAL AND LEGAL FRAMEWORK FOR FOREST CARBON PROJECTS IN CHINA

### 7.1 Introduction

Forest carbon sequestration is regarded by Chinese scholars and practitioners as one of the most cost-effective ways to reduce greenhouse gases in the atmosphere.<sup>930</sup> China has pledged to considerably increase forest volume in order to combat climate change as a result of the Paris COP to the UNFCCC in 2015.<sup>931</sup> However, as discussed in the introductory chapter, the practice of forest carbon projects in other developing countries shows significant environmental and social sustainability problems.<sup>932</sup> Some literature has criticised the national legal framework on assessing the sustainability of CDM projects in developing countries.<sup>933</sup> Nonetheless, this part of international literature lacks a focus on forest carbon projects in China.<sup>934</sup>

As part of the case study, this chapter examines the national political and legal framework on forest carbon projects in China. Sustainable utilisation is a principle for the forest industry in China.<sup>935</sup> Hence, this chapter explores to what extent the national political and legal framework in China can ensure environmentally and socially sustainable results in foreign forest carbon projects. This chapter aims to provide insights to the institutional design based on country-specific evidence by reviewing the pitfalls in China's national institutional framework on ensuring sustainable results in foreign forest carbon projects.

The rest of this chapter is organised as follows: Section 7.2 examines forest- and sustainability-related political decisions forming part of China's national climate change policies. Next, Section 7.3 reviews laws and regulations related to forest carbon projects in China. The analysis reveals that there are no regulatory procedures or criteria on the sustainability assessment of foreign forest carbon projects in China. Therefore, Section 7.4 explores the institutional necessities to establish such an assessment

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<sup>930</sup> Zhou et al., "Development Status, Problems and Suggestions to Forestry Carbon Sequestration in Zhejiang Province (浙江省林业碳汇发展现状、存在问题及对策建议 Zhe Jiang Sheng Lin Ye Tan Hui Fa Zhan Xian Zhuang, Cun Zai Wen Ti Ji Dui Ce Jian Yi)," 980.

<sup>931</sup> See a briefing of China's commitment in 2015 at Sheppard, "China Announce Deepened Partnership on Climate."

<sup>932</sup> See Chapter 1, Section 1.1.2.

<sup>933</sup> For instance, Olsen and Fenhann, "Sustainable Development Benefits of Clean Development Mechanism Projects: A New Methodology for Sustainability Assessment Based on Text Analysis of the Project Design Documents Submitted for Validation," 2820. Winkler, Davidson, and Mwakasonda, "Developing Institutions for the Clean Development Mechanism (CDM): African Perspectives," 209. Morera, Cabeza, and Black-Arbeláez, "The State of Development of National Clean Development Mechanisms Offices in Central and South America," 30-39. See more at Chapter 1, Section 1.5 and 1.6.

<sup>934</sup> Forest carbon projects are sometimes excluded in studies because of forests' ecological features and the high uncertainty of relevant data. For instance, see Jung, "Host Country Attractiveness for CDM Non-Sink Projects," 2174.

<sup>935</sup> Art. 5, "Forestry Law of the People's Republic of China," China National People's Congress (1998).

based on a review of the existing regulatory Environmental Impact Assessment (EIA) and private forest certification schemes in China. Finally, Section 7.5 summarises and concludes this chapter.

## **7.2 Forest Related National Climate Change Policy**

Carr (1946) stated that 'law is a function of a given political order.'<sup>936</sup> Several national policies on climate change have been published in China since 2007. These policies determine the basic political stance, principles and objectives for China in addressing climate change. Sections 7.2.1 to 7.2.5 elaborate on three topics in each policy: previous achievement in the forest sector, targets for the forest sector in the future to combat climate change, and measures to achieve the targets. Subsequently, Section 7.2.6 summarises the environmental and social requirements on the sustainability of forest activities in climate change policies. Lastly, Section 7.2.7 analyses the development of the political targets.

### **7.2.1 National Programme for Addressing Climate Change 2007-2010**

The first political step that China undertook towards combating climate change was the National Programme for Addressing Climate Change in 2007 (hereafter *2007 Programme*).<sup>937</sup> It recognises that China had, by 2007, achieved the biggest artificial forest plantation area in the world: 540 million hectares.<sup>938</sup> It also recognises that China had increased forest coverage to 18.21 percent by 2005 and had stored 1.62 billion tCO<sub>2</sub> in forest plantations between 1980 and 2005.<sup>939</sup> The numbers in 2005 are used as a baseline for several policies that were published afterwards.

The 2007 Programme emphasises that climate change has already had a negative impact on forests and ecosystems in China.<sup>940</sup> Hence, it stipulates specific goals for the government to increase forest cover and forest carbon stock from 2007 to 2010 as shown in Table 7-1.<sup>941</sup> Additionally, as a way to enhance climate adaptive capacity, the programme sets to protect natural forest, nature reserves, and forests as the coastal shelterbelt.<sup>942</sup> It also recognises that it is a challenge for China to meet these goals because

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<sup>936</sup> Edward Hallett Carr, *The Twenty Years' Crisis, 1919-1939: An Introduction to the Study of International Relations* (London: Macmillan & Co.Ltd, 1946), 178.

<sup>937</sup> "2007 National Climate Change Programme," China NDRC (2007), accessed 2 March 2017, <http://www.china.org.cn/english/environment/213624.htm>. The NDRC stands for China's National Development and Reform Commission.

<sup>938</sup> *Ibid.*, 9.

<sup>939</sup> *Ibid.*, 10.

<sup>940</sup> *Ibid.*, 17.

<sup>941</sup> *Ibid.*, 2 and 26-27.

<sup>942</sup> *Ibid.*, 9 and 27.

most land suitable for plantation is in arid and rocky areas.<sup>943</sup> Also, there is increasing demand for wood from China's fast industrialisation and urbanisation process.<sup>944</sup>

To achieve the targets, the 2007 Programme sets mitigating and adaptive policy measures for forests. For mitigation, it establishes measures on law and enforcement, economic measures, and plantation programmes.<sup>945</sup> Primarily, concerning laws and regulations, it sets the goal to formulate laws and regulations on subjects including the conservation of natural forests, protection of wildlife, transfer of rights to forests, forest products, and forest land. Furthermore, it has the objective of improving implementation of relevant laws and regulations by enhancing administrative inspection and social supervision.<sup>946</sup> In addition, it strengthens the responsibility of the government for tree plantation and incentivising voluntary tree planting activities.<sup>947</sup> The government will continue with various plantation programmes associated with forest carbon projects operated in China.<sup>948</sup> Lastly, it states that technological development is necessary for controlling forest fires, insects and diseases, as well as tree species selection and breeding, and biodiversity conservation.<sup>949</sup>

## 7.2.2 Forestry Action Plan to Address Climate Change (2009-2050)

Based on the 2007 Programme, the State Forestry Administration (SFA) issued the Forestry Action Plan to Address Climate Change in 2009 (hereafter *2009 Action Plan*).<sup>950</sup> It serves and surpasses two political commitments made by President Hu in 2007 and 2009.<sup>951</sup> As demonstrated in Table 7-1, it divides the governing period from 2009 to 2050 into three phases and sets targets separately to increase forest coverage and forest volume.<sup>952</sup>

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<sup>943</sup> Ibid., 9.

<sup>944</sup> Ibid.

<sup>945</sup> Ibid., 42.

<sup>946</sup> Ibid.

<sup>947</sup> Ibid.

<sup>948</sup> Those programmes include the "Natural Forest Protection Programme", the "Conversion of Cropland to Forest Programme", the "Sand Control Programme for Areas in the Vicinity of Beijing & Tianjin", "Key Shelter belt Development Programme in Such Regions as the Three North & the Middle and Lower Reaches of the Yangtze River", and the "Wildlife Conservation & Nature Reserve Development Programme", ibid.

<sup>949</sup> Ibid., 57.

<sup>950</sup> "Forestry Action Plan on Addressing Climate Change," China State Forestry Administration (2009), 40.

<sup>951</sup> In 2007, president Hu Jintao stated that China aimed to increase forest cover rate to 20 % by 2010, at the opening ceremony of the business summit of the Fifteenth Leaders' Meeting of the Asia-Pacific Economic Cooperation (APEC) Forum. See Shutao Song, "Chinese President Expounds Views on Building Sustainable Future", Xinhua News, "People's Daily Online, 06 September 2007, accessed 17 March 2017, <http://en.people.cn/90001/90776/6256838.html>. In 2009, president Hu stated to increase forest carbon stock by 1.3 billion cubic meters and increase forest cover by 40 million hectares by 2020. See China Climate Change Info-Net, "Join Hands to Address Climate Challenge (Statement as the President of China)", 22 September 2009, accessed 17 April 2017, <http://en.ccchina.gov.cn/Detail.aspx?newsId=38537&TId=98>.

<sup>952</sup> "Forestry Action Plan on Addressing Climate Change," China State Forestry Administration (2009), 24-25.

Additionally, the 2009 Action Plan aims to build an ecological civilization which can contribute to the environmental sustainability of forests.<sup>953</sup> Ecological civilization requires the country to efficiently use geographical space, to conserve natural resources, to protect the ecosystem and environment, and to enhance corresponding regulatory systems.<sup>954</sup> The 2009 Action Plan aims to contribute by improving forest and wetland ecosystems, maintaining biodiversity, and providing ecological products.<sup>955</sup>

With regard to addressing climate change, the 2009 Action Plan sets up five basic principles and twenty-two major forest-related actions.<sup>956</sup> Among them, one principle contributes to a forest's environmental sustainability by combining increasing forest coverage with improving the quality of forests. Another principle would contribute to public participation by combining government-led forest activities with social involvement. Within the forest actions, fifteen of them address mitigating climate change and seven relate to adapting to climate change. These measures are set maybe from a too broad perspective because restoring wetlands, and sustainable animal husbandry and fishery are even included.

### 7.2.3 Twelfth Five-Year Forestry Action Points to Address Climate Change (2011-2015)

Two years after the 2009 Action Plan, the SFA issued the Twelfth Five-Year Forestry Action Points to Address Climate Change (hereafter *Twelfth Five-Year Action Points*).<sup>957</sup> This policy was developed based on the Twelfth Five-Year Plan for National Economic and Social Development (hereafter *Twelfth Five-Year Plan*) and the Twelfth Five-Year Work Plan for Controlling Greenhouse Gas

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<sup>953</sup> Section Purposes, *ibid.*

<sup>954</sup> This is a summary of the author. The notion of "ecological civilization" was initially mentioned by President Hu at the 17<sup>th</sup> CPC Congress in 2007, further elaborated by him at the 18<sup>th</sup> CPC Congress, and emphasized by President Xi at the 19<sup>th</sup> CPC Congress. For more details of the political background of this notion, see Dong Yu, "News of the Communist Party of China," *People*, 16 October 2007, accessed 18 April 2017, <http://cpc.people.com.cn/GB/104019/105389/6384602.html>. Part 4, Jintao Hu, "Hu Jintao's Report at 17th Party Congress," *Xinhua News*, 24 October 2007, accessed 15 March 2017, [http://news.xinhuanet.com/english/2007-10/24/content\\_6938749.htm](http://news.xinhuanet.com/english/2007-10/24/content_6938749.htm). Part 8, Jintao Hu, "Full Text of Hu's Report at 18th Party Congress," *ibid.*, 19 November 2012, [http://language.chinadaily.com.cn/news/2012-11/19/content\\_15941774.htm](http://language.chinadaily.com.cn/news/2012-11/19/content_15941774.htm). Part I, Jinping Xi, "Secure a Decisive Victory in Building a Moderately Prosperous Society in All Respects and Strive for the Great Success of Socialism with Chinese Characteristics for a New Era - Delivered at the 19th National Congress of the Communist Party of China (October 18, 2017)," *ibid.*, 6 November 2017, accessed 5 December 2017, [http://language.chinadaily.com.cn/19thcpcnationalcongress/2017-11/06/content\\_34188086.htm](http://language.chinadaily.com.cn/19thcpcnationalcongress/2017-11/06/content_34188086.htm); Part 8, Jintao Hu, "Full Text of Hu's Report at 18th Party Congress," *ibid.*, 19 November 2012, [http://language.chinadaily.com.cn/news/2012-11/19/content\\_15941774.htm](http://language.chinadaily.com.cn/news/2012-11/19/content_15941774.htm); "Recommendation on Accelerating the Construction of an Ecological Civilization," China CPC Central Committee and State Council (25 April 2015), accessed 17 March 2017, [http://paper.people.com.cn/rmrb/html/2015-05/06/nw.D110000renmrb\\_20150506\\_3-01.htm](http://paper.people.com.cn/rmrb/html/2015-05/06/nw.D110000renmrb_20150506_3-01.htm) (Chinese). "The Master Plan of Ecological Civilization System Reform," (2015), accessed 15 March 2017, [http://www.gov.cn/guowuyuan/2015-09/21/content\\_2936327.htm](http://www.gov.cn/guowuyuan/2015-09/21/content_2936327.htm) (Chinese).

<sup>955</sup> Section Purposes, "Forestry Action Plan on Addressing Climate Change," China State Forestry Administration (2009).

<sup>956</sup> *Ibid.*, 22.

<sup>957</sup> "Twelfth Five-Year Forestry Action Points on Addressing Climate Change," (2011), accessed 17 March 2017, [http://www.forestry.gov.cn/portal/main/govfile/13/govfile\\_1885.htm](http://www.forestry.gov.cn/portal/main/govfile/13/govfile_1885.htm) (Chinese).

Emissions (hereafter *Twelfth Five-Year Work Plan*).<sup>958</sup> The latter two policies were issued by the National People's Congress (NPC) and by the State Council, which are the highest-level legislatures in China. These three policies share the same targets to increase forest coverage and forest volume against the baseline year 2010.<sup>959</sup>

The Twelfth Five-Year Action Points incorporated the twenty-two forest actions in the 2009 Action Plan and add some specific approaches for implementation. First, tree plantation is to comply with the National Afforestation Plan (2011-2020).<sup>960</sup> Second, it stipulates specific measures for capacity building including supporting scientific research, promoting international cooperation, and providing guidance to the public.<sup>961</sup>

## 7.2.4 National Programme on Addressing Climate Change (2014-2020)

The 2014-2020 National Programme on Addressing Climate Change (hereafter *2014 Programme*) was issued by the National Development and Reform Committee (NDRC).<sup>962</sup> It recognises that forest cover in China increased from 18.21 percent in 2005 to 21.6 percent in 2013.<sup>963</sup> For climate activities from 2014 to 2020, it determines to increase forests in a sustainable manner that is suitable for economic development in China.<sup>964</sup> Specifically, it shares the same targets of the 2009 Action Plan to increase forest cover and forest volume by 2020 as shown in Table 7-1. Additionally, it establishes the goal to enhance the stability of forest ecosystems and to contain the pest-disaster rate to below 0.4 percent.<sup>965</sup>

The REDD+ was not initiated in China until 2013.<sup>966</sup> The 2014 Programme incorporates the measures listed in the 2007 Programme and sets out other measures including reducing deforestation and

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<sup>958</sup> "Twelfth Five-Year Plan (2011-2015) for National Economic and Social Development of the People's Republic of China," China National People's Congress (2011), accessed 17 March 2017, [http://www.gov.cn/2011lh/content\\_1825838\\_3.htm](http://www.gov.cn/2011lh/content_1825838_3.htm). "Twelfth Five-Year Work Plan for Controlling Greenhouse Gas Emissions," China State Council (2011), accessed 17 March 2017, [http://www.gov.cn/zwqk/2012-01/13/content\\_2043645.htm](http://www.gov.cn/zwqk/2012-01/13/content_2043645.htm). The Thirteenth Five-Year Plan (2016-2020) did not set quantified goals for the forest sector. See Part V, Section 6, "Thirteenth Five-Year Plan (2016-2020) for National Economic and Social Development of the People's Republic of China," China National People's Congress (2015), accessed 17 March 2017, [http://news.xinhuanet.com/fortune/2015-11/03/c\\_1117027676\\_5.htm](http://news.xinhuanet.com/fortune/2015-11/03/c_1117027676_5.htm).

<sup>959</sup> Chapter 1 Section 3 and Chapter 21 Section 1, "Twelfth Five-Year Plan (2011-2015) for National Economic and Social Development of the People's Republic of China," (2011). Part II, Para. 6, "Twelfth Five-Year Work Plan for Controlling Greenhouse Gas Emissions," China State Council (2011).

<sup>960</sup> Part IV, Section 1, Para. 1, "Twelfth Five-Year Forestry Action Points on Addressing Climate Change," China State Forestry Administration (2011). "National Afforestation Plan (2011-2020)," (2011), accessed 18 April 2017, [http://www.forestry.gov.cn/portal/main/govfile/13/govfile\\_1837.htm](http://www.forestry.gov.cn/portal/main/govfile/13/govfile_1837.htm).

<sup>961</sup> Part IV, Section 3, Para. 13-15, "Twelfth Five-Year Forestry Action Points on Addressing Climate Change," (2011).

<sup>962</sup> "2014 National Programme on Addressing Climate Change," China NDRC (2014), accessed 2 March 2017, <http://www.ccchina.gov.cn/nDetail.aspx?newsId=49211&TId=60>.

<sup>963</sup> *Ibid.*, 3.

<sup>964</sup> *Ibid.*, 4.

<sup>965</sup> *Ibid.*, 5-6.

<sup>966</sup> "Policies and Actions on Climate Change (2014)," (2014), accessed 18 April 2017,

<http://en.ccchina.gov.cn/archiver/ccchinaen/UpFile/Files/Default/20141126133727751798.pdf>: 23. The REDD+ stands

increasing reforestation in cities, so-called city greening.<sup>967</sup> However, it also supports forestry-paper integration, which can provide incentives to the paper industry to plant fast-growing industrial trees.<sup>968</sup>

### 7.2.5 China's Intended Nationally Determined Contributions 2015

For the 21<sup>st</sup> session of COP 21 to the UNFCCC in Paris in 2015, China issued its Intended Nationally Determined Contributions (INDC).<sup>969</sup> It declares China's climate ambitions and voluntary emission reduction commitments to the world. The INDC recognises that, compared with 2005, China had increased forest cover by 21.6 million hectares and forest volume to 21.88 billion cubic meters by 2014.<sup>970</sup> By 2030, China intends to increase forest volume by 45 billion cubic meters compared with 2005 and introduce effective predicting, warning and preventive systems against climate risks in forestry.<sup>971</sup> Although reinforcing the specific measures in the 2014 Programme, the INDC is more concise and less repetitive.<sup>972</sup>

### 7.2.6 Sustainability Requirements for Forest Activities in Climate Change Policies

China's climate change policies, as discussed above, recognize sustainable development as a pivotal principle.<sup>973</sup> They also put forth some environmental and social requirements, in addition to 'sustainable forest management', that can contribute to delivering sustainable results in forest-carbon activities. The 2007 Programme states that the government was to protect natural forests, nature reserves, forests acting as coastal shelterbelts, and mangroves to enhance China's adaptive capacity to climate change. The 2009 Action Plan aims to promote ecological progress, which requires the country to improve forest ecosystems and to maintain biodiversity. Moreover, it requires all forest carbon activities to combine increasing forest coverage with improving the quality of forests. Lastly, the 2014 Programme requires the government to enhance the stability of forest ecosystems and to control pests.

On the social aspect, the 2007 Programme and the 2014 Programme seek to increase forest carbon storage in a sustainable manner that supports economic and social development. The 2009 Action Plan

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for Reducing Emissions from Deforestation and forest Degradation Plus the conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries. See Chapter 2, Section 2.5.3.

<sup>967</sup> "2014 National Programme on Addressing Climate Change," (2014), 9-10. "2007 National Climate Change Programme," (2007), 10-16.

<sup>968</sup> "2014 National Programme on Addressing Climate Change," (2014), 12. See Zhang Zhiguang, "Symbiosis Mechanism of Forestry-Paper Integration from the Perspective of Green Supply Chain," *Scientia Silvae Sinicae* 47, no. 2 (2011): 2. Part III, Section 4 and Part IV, Section 3, "2014 National Programme on Addressing Climate Change," China NDRC (2014), 18 and 27.

<sup>969</sup> "Intended Nationally Determined Contributions," (2015), accessed 17 April 2017, <http://www4.unfccc.int/submissions/INDC/Submission%20Pages/submissions.aspx>: 4.

<sup>970</sup> *Ibid.*, 2.

<sup>971</sup> *Ibid.*, 3.

<sup>972</sup> *Ibid.*, 4-5.

<sup>973</sup> For instance, "2007 National Climate Change Programme," (2007), 2.



requires the government to incorporate social involvement in carbon activities. Finally, the legislative process for the Law Addressing Climate Change took into account the views of relevant industries, NGOs, lawyers, and the general public.<sup>974</sup>

### 7.2.7 An Analysis of the Development of Political Targets

Chinese national policies set a variety of targets for the forest sector with the objective to mitigate or to adapt to climate change. The political targets are summarised in Table 7-1. The table shows two baselines and the policies that refer to them. Subsequent to the table is a comparison of the political targets in different documents and a critical analysis of the ways in which they are dealt with, whereupon the inconsistencies among them become clear.

**Table 7-1: Political Targets to Increase Forest in National Climate Change Policies**

National Policy	Issuing Body	Governing Term	Target			
			Forest Coverage (rate)	Forest Coverage (million hectares)	Forest Carbon Stock (billion tCO <sub>2</sub> )	Forest Volume (billion cubic meters)
<b>Baseline year 2005<sup>975</sup></b>		<b>2005 &gt;</b>	<b>18.21%</b>	<b>175</b>	---	<b>12.7</b>
<b>2007 Programme</b>	NDRC	2007-2010	20.00%	---	Δ 0.5	---
<b>2009 Action Plan</b>	SFA	2009-2010	20.00%	Δ >4 per year	---	13.2 (Δ 0.5)
		2011-2020	23.00%	Δ 40 total Δ >5 per year	---	14.0 (Δ 1.3)
		2021-2050	>26.00%	Δ 47 compared to 2020	---	---
<b>2014 Programme</b>	NDRC	2014-2020	---	Δ 40 total	---	14.0 (Δ 1.3)
<b>China's INDC</b>	NDRC	2015-2030	---	---	---	17.2 (Δ 4.5)
<b>Baseline year 2010<sup>976</sup></b>		<b>2010 &gt;</b>	<b>20.36%</b>	---	---	<b>13.7</b>
<b>12th Five-Year Plan</b>	NPC	2011-2015	21.66%	Δ 12.5 total	---	14.3 (Δ 0.6)
<b>12th Five-Year Work Plan</b>	State Council					
<b>12th Five-Year Action Points</b>	SFA	2011-2015	21.66%	Δ 30 of trees plantation Δ 35 of forest management	8.4	14.3 (Δ 0.6)

<sup>974</sup> Wei Zhang, "NDRC: Seek Opinions on Drafting the Law to Address Climate Change," *Weather China*, 21 March 2011, accessed 18 April 2017, <http://www1.weather.com.cn/climate/qhbhyw/03/1291237.shtml>.

<sup>975</sup> The numbers of baseline year 2005 are deduced from the climate change policies discussed above issued by the NDRC and SAF.

<sup>976</sup> The numbers of baseline year 2010 are deduced from the 12th Five-Year Plan policies.

The 2009 Forestry Action Plan sets targets separately for the period from 2011 to 2020 to increase forest coverage rate to twenty-three percent and increase forest coverage by 40 million hectares compared with 2005.<sup>977</sup> Oddly, the targets in percentage terms and total hectares do not correspond: to reach a forest coverage rate of twenty-three percent, China needs to increase by 46 million hectares of forests compared with 2005. This number is considerably higher than the 40 million that is mentioned in the document. Additionally, this policy adopted 2020 as another baseline year to set targets. The problem here is that the actual baseline numbers of 2020 were unsettled when this policy was issued. It is also difficult to make such a projection because the Action Plan uses both a total target (forty million hectares) and a yearly incremental target (five million hectares per year), which (if achieved) would result in different outcomes.<sup>978</sup>

Two years after the 2009 Forestry Action Plan, the SFA issued the Twelfth Five-Year Action Points based on the Twelfth Five-Year Plan and the Twelfth Five-Year Work Plan. These three Twelfth Five-Year policies share the same targets to increase forest coverage and forest volume. However, they set their targets against a 2010 baseline.<sup>979</sup> In addition, although their end-date was 2015, their forest-volume-increase target was 0.3 billion cubic meters higher than that set in the 2009 Action Plan for 2020. Lastly, the Twelfth Five-Year Action Points is the only national climate change policy that sets a specific target for all four items: forest coverage rate, forest coverage, forest carbon stock, and forest volume. The targets in other policies are not completely set out.

The 2014 Programme issued by the NDRC aligns its targets with the 2009 Action Plan rather than the Twelfth Five-Year political decisions issued by the higher authorities.<sup>980</sup> The NDRC is a committee under the State Council, and thus of lower rank than the State Council or the NPC. Another problem is that there is a four-year gap between this programme and the previous 2007 Programme (2007-2010) issued by the same authority. One positive point is that policies issued by the NDRC set all their targets against the 2005 baseline, as does the INDC.<sup>981</sup>

### **7.3 Laws and Regulations Related to Implementing Forest Carbon Projects in China**

Policies set principles, future targets, and basic measures for the forest sector, however, they can hardly satisfy the practical needs of implementing forest carbon projects in practice. Laws and regulations,

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<sup>977</sup> "Forestry Action Plan on Addressing Climate Change," China State Forestry Administration (2009), 24-25.

<sup>978</sup> If the government achieves to increase forest coverage by five million hectares per year from 2011 to 2020, it will result in fifty million hectares more than 2005 (assuming that there is no forest planted between 2005 to 2010).

<sup>979</sup> Chapter 1, Section 3 and Chapter 21, Section 1, "Twelfth Five-Year Plan (2011-2015) for National Economic and Social Development of the People's Republic of China," China National People's Congress (2011). Part 2, para. 6, "Twelfth Five-Year Work Plan for Controlling Greenhouse Gas Emissions," China State Council (2011).

<sup>980</sup> Art. 71 and 88, "Legislation Law of the People's Republic of China," China National People's Congress (2000).

<sup>981</sup> "Intended Nationally Determined Contributions," China NDRC (2015), 3-4.

instead, provide more detailed requirements to foreign and domestic practitioners. This section explores to what extent current laws and regulations can contribute to promoting sustainable project results. To this end, Section 7.3.1 examines laws and regulations on forest and forest land. Section 7.3.2 elaborates on the implementation rules for CDM projects in China. The discussion parses the provisions in these laws and regulations that can contribute to conserving forest resources, or protecting the interests of local people. Section 7.3.3 sums up the main points of this section.

### 7.3.1 Laws and Regulations on Forest and Forest Land

Although no provision in current Chinese laws and regulations on land use and forest is particularly about forest carbon projects, it is important to consider the extent to which current laws and regulations can contribute to promoting such projects' sustainability. To this end, this section examines laws and regulations, covering the following subjects: property rights to forest and land; the transfer of rights to land use; tax on land for forestry; and insurance for forestry projects.<sup>982</sup> This section considers the measures in these laws and regulations that may influence the sustainability of project results.

Land in China belongs to the state, except the land belonging to farmers' collectives.<sup>983</sup> State-owned lands can be used by farmers' collectives. Land use is strictly controlled by the state in China and is divided into three categories: land for agriculture, land for construction, and unused land (barren land).<sup>984</sup> Forest land is under the category of 'land for agriculture' and 'shall not be converted to non-forest land'.<sup>985</sup> The state forbids converting forest land to non-forest land or 'destroying forest and grassland' for reclamation.<sup>986</sup> In contrast, the general plan of the state is to gradually recover forests, pasture fields or lakes from cultivated lands.<sup>987</sup>

Forest carbon projects can be implemented on transferrable state-owned and collectively owned barren land, and, of course, on existing forest land.<sup>988</sup> However, not all forest land is suitable for foreign forest carbon projects. In China, forests and forest lands are categorised into five groups based on their purpose: shelter forests, timber stands, economic forests, fuel forests, and special-purpose forests.<sup>989</sup>

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<sup>982</sup> Currently, there is no substantial provision about forest carbon projects in the law on air pollution control. See "Atmospheric Pollution Prevention and Control Law of the People's Republic of China," China National People's Congress (2015), accessed 27 June 2017, <http://en.pkulaw.cn/display.aspx?cgid=256292&lib=law>.

<sup>983</sup> Art. 48 and 58, "Property Law of the People's Republic of China," China National People's Congress (2007).

<sup>984</sup> Art. 4, "Land Administration Law of the People's Republic of China," (1986).

<sup>985</sup> Art. 4, *ibid.* Art. 15, "Forestry Law of the People's Republic of China," (1998).

<sup>986</sup> Art. 4, "Land Administration Law of the People's Republic of China," (1986).

<sup>987</sup> Art. 39, *ibid.*

<sup>988</sup> Art. 14 and 15, *ibid.* Art. 125, "Property Law of the People's Republic of China," (2007).

<sup>989</sup> "Shelter forests" refer to forests that are planted to protect certain areas and resources including forests to prevent soil erosion and forests to conserve water. "Timber stands" are planted mainly for producing timber and bamboo. "Economic forests" are planted for harvesting fruits, drinks, industrial raw materials, and medicinal materials. "Fuel forests" are planted to produce fuel. Lastly, "special-purpose forests" refer to forests used for environmental protection, national

Of these, only use-rights to timber stands, economic forests, and fuel forests are transferrable in the market.<sup>990</sup> Therefore, forest carbon projects with transactions between foreign and domestic private parties are limited to barren land and forest land in one of the three aforementioned transferrable categories. This limitation is to protect shelter forests and special-purpose forests that possess essential environmental or social functions.

The use-rights to state-owned and collectively owned forest land and barren land may be transferred through a contract for forest carbon projects to individuals or private entities.<sup>991</sup> The duration of a contract for forest land and barren land is to be reflected in the contract and such a contract is under the scrutiny of Chinese governments.<sup>992</sup> For the use of state-owned lands, a contract or an adjustment in a contract needs governmental approval at or above county level.<sup>993</sup> In addition, for lands owned by farmer collectives, a contract or an adjustment in a contract needs the agreement of at least two-thirds of the representatives of villagers and a governmental approval from the township to validate.<sup>994</sup> The county-level government has the power to register the rights and issue to the holder certificates of the right to the contracted land and the right to the forest.<sup>995</sup> The holder of the contracted land can ‘possess, use, and seek proceeds’ from the land.<sup>996</sup>

Since the use of the land will be constrained by the contract for dozens of years in a forest carbon project, many scholars have asserted that such contracts may infringe the environmental and social rights of the local people.<sup>997</sup> In China, the duration of a contract for forest land is normally between 30

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defence, scientific experiments, scenic beauty and historic interests; See the definitions of forest, forest wood, and forest land at Art. 2, "Regulation on the Implementation of the Forestry Law of the People's Republic of China," China State Council (2000). See the categorisation of forests at Art. 4, "Forestry Law of the People's Republic of China," China National People's Congress (1998). English Translations of the same term published by the Chinese government may be different in different Chinese laws. For instance, “林地 (lin di)” is translated as “forest lands” in the Forest Law, but as “wood land” in the Property Law. See Art. 2, *ibid.* Art. 124, "Property Law of the People's Republic of China," (2007). In such situations, I adopt the translations in the Forest Law, because forest carbon project is the centre of this study.

<sup>990</sup> Art. 15, "Forestry Law of the People's Republic of China," (1998).

<sup>991</sup> Art. 133, "Property Law of the People's Republic of China," (2007). Art. 15, "Land Administration Law of the People's Republic of China," (1986). Art. 14 and 15, *ibid.*

<sup>992</sup> Art. 126 and 128, "Property Law of the People's Republic of China," (2007). Art. 40, "Land Administration Law of the People's Republic of China," (1986). Art. 17 (2) (3), "Regulation on the Implementation of the Land Administration Law of the Peoples Republic of China," China State Council (1998), accessed 17 March 2017, <http://www.lawinfochina.com/display.aspx?id=18560&lib=law>. Item 8, "The Decision of the State Council on Amending Some Administrative Regulations," (2014), accessed 17 March 2017, [http://www.npc.gov.cn/englishnpc/Law/2007-12/14/content\\_1384220.htm](http://www.npc.gov.cn/englishnpc/Law/2007-12/14/content_1384220.htm).

<sup>993</sup> Art. 11, "Land Administration Law of the People's Republic of China," China National People's Congress (1986).

<sup>994</sup> Art. 14 and 15, *ibid.*

<sup>995</sup> Art. 127, "Property Law of the People's Republic of China," (2007).

<sup>996</sup> Art. 133, *ibid.*

<sup>997</sup> Eraker, "Co2lonialism - Norwegian Tree Plantations, Carbon Credits and Land Conflicts in Uganda." Centre for Science and Environment, "Cheap Fix: The Rush to Make Profits out of Carbon-Fixing Engenders Another Kind of Colonialism." World Rainforest Movement, "Carbon Dumps in the South." Agarwal and Narain, *Global Warming in an Unequal World: A Case of Environmental Colonialism*, 16-17.

and 70 years.<sup>998</sup> Collectively owned land should be contracted to members of the collective economic organisations under a term of 30 years.<sup>999</sup> For special forest land, the duration may be extended upon approval from the SAF.<sup>1000</sup> The government may grant long-term use to barren land.<sup>1001</sup> Previously, the duration was a maximum 50 years for barren land and project developers seeking more than 600 hectares of barren land must apply for an approval from the State Council.<sup>1002</sup> A 2014 decision by the State Council lifted the restriction of 50 years, but all project promoters must apply for an approval from the local government regardless of the project's area.<sup>1003</sup> The duration of a contract should not exceed the remaining time of the original holder's right of the land.<sup>1004</sup>

Furthermore, it should be noted that China has adopted a range of incentive-based measures to protect forests. Some of them are applicable in forest carbon projects. First, land directly used for forestry is exempted from the farmland occupation tax.<sup>1005</sup> Second, the government gives financial support and national banks give long-term loans for forest plantations and cultivation in forest carbon projects.<sup>1006</sup> Finally, loss in forest carbon projects is insurable.<sup>1007</sup>

### 7.3.2 Implementation rules for Forest Carbon Projects in China

The national laws in developing countries may directly introduce relevant international rules or transform them into the national legal system with adjustments.<sup>1008</sup> China uses the latter way to customise CDM rules to the Chinese context. The NDRC issued the Measures for the Operation and Management of Clean Development Mechanism Projects (hereafter *Measures*) to facilitate implementation of CDM projects in China.<sup>1009</sup> The Measures apply to all CDM projects in China, including afforestation and reforestation (A/R) projects. They spell out the procedure to establish,

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<sup>998</sup> Art. 126, "Property Law of the People's Republic of China," China National People's Congress (2007).

<sup>999</sup> Art. 14, "Land Administration Law of the People's Republic of China," (1986).

<sup>1000</sup> Art. 126, "Property Law of the People's Republic of China," (2007).

Art. 40, "Land Administration Law of the People's Republic of China," (1986).

<sup>1002</sup> Art. 17 (2) (3), "Regulation on the Implementation of the Land Administration Law of the Peoples Republic of China," China State Council (1998).

<sup>1003</sup> Item 8, "The Decision of the State Council on Amending Some Administrative Regulations," (2014).

<sup>1004</sup> Art. 128, "Property Law of the People's Republic of China," China National People's Congress (2007).

<sup>1005</sup> Art. 6 (5), "Interim Regulations of the People's Republic of China on Urban and Town Land Use Tax (2013 Revision)," China State Council (1988). Art. 41, "Measures for the Implementation of the Regulation on Land Reclamation," China Ministry of Land and Resources (2012), accessed 17 April 2017, <http://www.lawinfochina.com/display.aspx?id=12972&lib=law>.

<sup>1006</sup> Art. 8, "Forestry Law of the People's Republic of China," China National People's Congress (1998).

<sup>1007</sup> Art. 2, "Regulation on Agriculture Insurance," China State Council (2012).

<sup>1008</sup> Louis Henkin, *International Law: Politics and Values*, vol. 18, Developments in International Law (Kluwer Academic Publishers, 1995), 66.

<sup>1009</sup> Measures for the Operation and Management of Clean Development Mechanism Projects, 12 October 2005, [amended](http://www.ndrc.gov.cn/flfg/2011-09/22/content_1954044.htm) on 3 August 2011. See "Measures for the Operation and Management of Clean Development Mechanism Projects," China NDRC et al. (2005), accessed 17 April 2017, [http://www.gov.cn/flfg/2011-09/22/content\\_1954044.htm](http://www.gov.cn/flfg/2011-09/22/content_1954044.htm). "Measures for the Operation and Management of Clean Development Mechanism Projects," (2011), accessed 6 January 2018, [http://www.gov.cn/flfg/2011-09/22/content\\_1954044.htm](http://www.gov.cn/flfg/2011-09/22/content_1954044.htm).

review and terminate a CDM project in China.<sup>1010</sup> This section focuses on the provisions that are particularly relevant to the sustainability of forest carbon projects in China.

The Measures require a project owner to be a Chinese-funded or Chinese-controlled enterprise.<sup>1011</sup> This requirement excludes foreign enterprises and some joint ventures, which may be particularly disadvantageous for sectors suffering from financial barriers.<sup>1012</sup> The forest sector is one of these sectors where investors face a long revenue cycle and many financial risks.<sup>1013</sup> Sustainable forest carbon projects are deemed to have even higher costs and more financial barriers than unsustainable ones and therefore are less attractive to investors.<sup>1014</sup>

In addition, the Measures stipulate that an ‘expert review’ organized by the NDRC and the Chinese CDM Project Review Board (hereafter *Review Board*) are to provide the basis on which China’s Designated National Authority (DNA) is to make a decision on whether to issue a letter of approval (LoA).<sup>1015</sup> The LoA should indicate that a project contributes to sustainable development in China.<sup>1016</sup> Regarding the expert review, the Measures do not specify any detail on what the experts examine or who are invited as experts. Regarding the Review Board, more details are given. The Review Board has the authority to examine the project’s ‘anticipated effect in enhancing sustainable development’ and to consider the local government’s responses to the environmental impact assessment report of the project.<sup>1017</sup> The members of the Review Board are constituted by representatives of relevant ministries.<sup>1018</sup> The Review Board can even offer advice about amending the implementation rules of CDM projects.<sup>1019</sup>

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<sup>1010</sup> "Measures for the Operation and Management of Clean Development Mechanism Projects," (2011).

<sup>1011</sup> Art. 10, *ibid*. Measures allow a project owner to cooperate with foreign entities, nevertheless, the qualification of the enterprise to implement the project “shall be automatically forfeited” if the project owner becomes a foreign-owned enterprise; See Art. 30, "Measures for the Operation and Management of Clean Development Mechanism Projects," (2005).

<sup>1012</sup> Xianli Zhu and Jiahua Pan, "China's CDM Policies and Their Development Implications: Major Concerns for CDM Implementation," *Chinese Journal of Population Resources & Environment* 4, no. 2 (2006): 21.

<sup>1013</sup> Höhne et al., "The Rules for Land Use, Land Use Change and Forestry under the Kyoto Protocol - Lessons Learned for the Future Climate Negotiations," 353-69.’

<sup>1014</sup> Subak, "Forest Certification Eligibility as a Screen for CDM Sinks Projects," 337. Sebastian Thomas et al., "Why Are There So Few Afforestation and Reforestation Clean Development Mechanism Projects?," *Land Use Policy* 27, no. 3 (2010): 881. Even so, I doubt that China would modify this rule, particularly not for forest carbon projects, because China has strict rules to ensure that forest land and forest products are owned by the country or collectively owned by local farmers. Allowing the project owner to be a foreign-owned enterprise is allowing a foreign-owned enterprise to be a user of forest land for dozens of years and the first owner of carbon credits produced by the forest. This contradicts with the prudent attitude of the government towards the ownership of lands.

<sup>1015</sup> China’s DNA is the National Leading Committee on Climate Change. If a project passes the expert review, the NDRC will submit the application to the Review Board. See Art. 11 (1) and 19, "Measures for the Operation and Management of Clean Development Mechanism Projects," China NDRC et al. (2011).

<sup>1016</sup> Para. 1, "Annex 6: Clarification on Elements of a Written Approval," CDM-EB16 (2004).

<sup>1017</sup> Art. 15 and 10, "Measures for the Operation and Management of Clean Development Mechanism Projects," China NDRC et al. (2011).

<sup>1018</sup> Art. 8, *ibid*.

<sup>1019</sup> Art. 12 (4), *ibid*.

To reiterate, the Measures do not specify how the sustainability of a project is to be assessed. There are no published procedures or criteria on this question. Hence the sustainability assessment conducted by the expert review and the Review Board lacks transparency. In addition, the complexity of the rules is another problem hindering the development of CDM forest carbon projects in China. In an interview, a practitioner in Chongqing confirmed this. He said that it was difficult for his team to figure out how to comply with the current CDM procedure and relevant national implementation rules.<sup>1020</sup> At the time of the interview, they were looking for upfront investment to hire consultants to help them with implementing a forest carbon project that could produce internationally or nationally tradable carbon offsets.

Lastly, the Measures evidence governmental support for forest carbon projects by imposing a lower levy on their sales of Certified Emission Reductions (CERs).<sup>1021</sup> The income from transactions of the CERs belongs to the State and the project owner.<sup>1022</sup> The state collects two percent of the CER sales of CDM A/R projects, while collecting a levy of 30-to-65 percent on other types of CDM project.<sup>1023</sup> The money is to be collected by the China CDM Fund Management Center and used for climate change-related activities.<sup>1024</sup>

### 7.3.3 Summing Up

The analysis above shows that current Chinese laws and regulations on forest and forest land are not equipped with special clauses to deal with climate change issues. The environmental and social risks of forest carbon projects are left unaddressed. On the plus side, the Chinese CDM implementation rules provide a favourable levy rate for forest carbon projects to encourage practitioners. This is in line with Chinese political ambitions. However, procedures and criteria in the implementation rules lack transparency regarding how to assess projects' sustainability. The next section will explore more on sustainability assessments on foreign forest carbon projects in China by drawing insights from the regulatory EIA and private forest certification schemes.

## 7.4 Sustainability Assessments on Forest Carbon Projects in China

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<sup>1020</sup> Interview 16, "A Researcher of Chongqing Forestry Science Research Institute, Chongqing Province, China (Face-to-Face Interview, 18 July 2015)." An interviewee in Chongqing was selected because this city recently announced to initiate forest carbon projects. The interview is to investigate the early obstacles that a project may encounter.

<sup>1021</sup> This point of view is also reflected in Jonas Fejes and Philip Thörn, *The Eu-China CDM Facilitation Project Final Report* (Policy Research Center for Environment and Economy of the Ministry of Environmental Protection, 2010), accessed 16 July 2017, <http://www.ivl.se/english/startpage/pages/publications/publication.html?id=4920>: 19.

<sup>1022</sup> Art. 36, "Measures for the Operation and Management of Clean Development Mechanism Projects," China NDRC et al. (2011).

<sup>1023</sup> Ibid.

<sup>1024</sup> Ibid.

What legal measures can be adopted to assess the sustainability of forest carbon projects in China? As illustrated in the introductory chapter, this study focuses on environmental and social sustainability. Therefore, Section 7.4.1 first investigates existing Chinese laws and regulations on EIAs that contribute to ensuring the environmental sustainability of forest carbon projects in China. In addition, private forest certification schemes are adopted in some CDM A/R projects in developing countries to demonstrate their environmental and social benefits to the local area. Hence, Section 7.4.2 further examines the development of forest certification schemes in China. The regulatory EIA is applied by government agencies according to Chinese laws and regulations. Alternatively, the forest certification schemes are usually conducted by self-regulating entities. Section 7.4.3 reviews these two mechanisms and aims to explore the institutional necessities to take advantage of both to establish a sustainability assessment for foreign forest carbon projects in China.

#### **7.4.1 The Regulatory Environmental Impact Assessment in China**

The owners of CDM projects are required to conduct an environmental impact assessment (EIA) before applying for a LoA from the government.<sup>1025</sup> The NDRC and the CDM Review Board are to review the reply of a competent governmental agency on the EIA.<sup>1026</sup> This section explores the Chinese regulations on the EIA and reviews its institutional features that may contribute to ensuring sustainable environmental results in forest carbon projects in China.

Chinese laws categorise EIAs with three levels of rigour, based on the significance of the projects' environmental impacts and the environmental sensitivity of the project areas.<sup>1027</sup> A forest carbon project, which plants forests with an objective to receive raw materials (such as timber), is to apply for the highest level, a EIA report.<sup>1028</sup> Other economic forest, forest logging and anti-desertification projects are required to use an EIA report form, which is more rigorous than an EIA registration form.<sup>1029</sup>

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<sup>1025</sup> Art. 15 and 20, *ibid.*

<sup>1026</sup> Art. 11 (1), *ibid.*

<sup>1027</sup> Art. 16, "Law of the People's Republic of China on Appraising of Environment Impacts," China National People's Congress (2002). Art. 2-4, "Classified Administration Catalogue of Environmental Impact Assessments for Construction Projects," China Ministry of Environmental Protection (2015), accessed 17 March 2017, [http://www.mep.gov.cn/gkml/hbb/bl/201504/t20150420\\_299283.htm](http://www.mep.gov.cn/gkml/hbb/bl/201504/t20150420_299283.htm).

<sup>1028</sup> Item 11, "Classified Administration Catalogue of Environmental Impact Assessments for Construction Projects," (2015).

<sup>1029</sup> Many CDM afforestation and reforestation projects have the objective to harvest timber. For instance, CDM, 'Project 3561: Reforestation on Degraded Lands in Northwest Guangxi', (2010), 55 and 76. See Items 11-13, *ibid.* Because the official registrations of CDM A/R projects in China commenced in 2006, both 1989 Environmental Protection Law and its revised version matter. According to both old and revised environmental laws, forest carbon projects need to apply an EIA. See Art. 13, 26, and 36, "Environmental Protection Law of the People's Republic of China (1989)," China National People's Congress (1989). Art. 19, "Environmental Protection Law of the People's Republic of China (2014)," (2014). Art. 16, "Law of the People's Republic of China on Appraising of Environment Impacts," (2002). This law is revised in



In addition, the law stipulates governmental supervision on the EIAs. Government environmental authorities at and above the county level are the competent to supervise projects on lands under their jurisdiction.<sup>1030</sup> A competent government authority can monitor the project based on the EIA by ordering a suspension to or giving a fine on projects for violating environmental protection rules.<sup>1031</sup> The revised Environmental Protection Law added that the authority can order to restore the environment, or transfer the case to the public security organs at the same administrative level; these organs may order a 5-to-15 days detention of the persons responsible for non-compliance.<sup>1032</sup> The authorities are not allowed to charge any fee for the review of the EIA reports.<sup>1033</sup>

Furthermore, the regulatory EIA in China is to be conducted by a third party upon entrustment.<sup>1034</sup> The third party is to be a private technical entity certified by the Ministry of Environmental Protection.<sup>1035</sup> If the EIA is inconsistent with the facts of a project due to fraud or negligence, the third party may be downgraded or lose its certificate with a fine and bear joint liability for environmental damage.<sup>1036</sup> Criminal liabilities are also applicable in severe circumstances.<sup>1037</sup>

Lastly, public participation is deemed to be an essential procedural element to protect the holders of forest rights.<sup>1038</sup> The regulatory EIA in China requires the project's developers to disclose truthful environmental information for public review.<sup>1039</sup> It also encourages experts, relevant entities, and the

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2016. Both 2002 and 2016 versions may apply because the official registrations of CDM A/R projects in China commenced in 2006. The author will specify when there is a difference between the 2002 and 2016 versions.

<sup>1030</sup> Art. 9 and 14, "Environmental Protection Law of the People's Republic of China (1989)," (1989). Art. 10 and 20, "Environmental Protection Law of the People's Republic of China (2014)," (2014). Projects across regions are subject to the governance of the environmental administration one-level higher than both regions; See Art. 23, "Law of the People's Republic of China on Appraising of Environment Impacts," (2002).

<sup>1031</sup> Art. 36, "Environmental Protection Law of the People's Republic of China (1989)," (1989).

<sup>1032</sup> Art. 61 and 63 (1), "Environmental Protection Law of the People's Republic of China (2014)," (2014). Art. 12, 14, and 16, "Interim Measures for the Transfer by Administrative Departments of Cases of Environmental Violations for Which the Penalty of Administrative Detention May Be Applied," China Ministry of Public Security, Ministry of Industry and Information Technology, and Ministry of Environmental Protection (2015), accessed 22 July 2017, <http://en.pkulaw.cn/display.aspx?cgid=240704&lib=law>.

<sup>1033</sup> Art. 34, "Law of the People's Republic of China on Appraising of Environment Impacts," China National People's Congress (2002).

<sup>1034</sup> Art. 33, *ibid*.

<sup>1035</sup> Art. 12, "Measures on the Management of Qualification Certificates for Construction Project Environmental Impact Assessments," China Ministry of Environmental Protection (2015), accessed 17 April 2017, [http://www.mep.gov.cn/gkml/hbb/bl/201510/t20151008\\_310733.htm](http://www.mep.gov.cn/gkml/hbb/bl/201510/t20151008_310733.htm).

<sup>1036</sup> Art. 65, "Environmental Protection Law of the People's Republic of China (2014)," China National People's Congress (2014).

<sup>1037</sup> Art. 46, "Measures on the Management of Qualification Certificates for Construction Project Environmental Impact Assessments," Protection (2015).

<sup>1038</sup> Hua Chen and Yue Hu, "An Investigation of the Legal Mechanisms of Ecological Compensation in the Perspective of Forest Carbon (森林碳汇视角下的生态补偿法律机制探讨 Sen Lin Tan Hui Shi Jiao Xia De Sheng Tai Bu Chang Fa Lv Ji Zhi Tan Tao)," *Journal of Xingtai University* 29, no. 1 (2014): 91.

<sup>1039</sup> Art. 62, "Environmental Protection Law of the People's Republic of China (2014)," China National People's Congress (2014). Another relevant regulation is "Information Disclosure Mechanism for Environmental Impact Assessment of Construction Projects," China Ministry of Environmental Protection (2015), accessed 17 April 2017, [http://www.zhb.gov.cn/gkml/hbb/bwj/201512/t20151229\\_320627.htm](http://www.zhb.gov.cn/gkml/hbb/bwj/201512/t20151229_320627.htm).

general public to participate in the EIA through meetings, hearings, or other means of participation.<sup>1040</sup> The EIA report must explain why an opinion is adopted or not in project's decision-making.<sup>1041</sup>

#### 7.4.2 Private Forest Certification Schemes in China

The sustainability of forest carbon projects in China can be assessed by private forest certification schemes. In contrast to regulatory EIAs, these schemes are known for its non-state characteristics.<sup>1042</sup> First, their source of authority over a client comes from a contract with the client. Second, they are governed by self-regulation and accredit their own implementing entities to inspect forestry projects or enterprises.

Private forest certification activities in China need to comply with Chinese laws and regulations. Currently, there are three international forest certification schemes operating in China: the Climate, Community and Biodiversity Standards (CCBS), the Programme for the Endorsement of Forest Certification (PEFC), and the Forest Stewardship Council (FSC). This section briefly discusses their development in China and summarises their institutional advantages compared to the regulatory EIA for delivering sustainable forest results.

Among the three schemes, only the CCBS is applied to foreign forest carbon projects in China. From 2007 to 2017, there have been nine projects involved in CCBS certification as shown in Table 7-2, including four CDM A/R projects and one VCS forest carbon project.<sup>1043</sup> To guarantee the sustainability of forest projects, the CCBS assesses land-based projects based on three elements: global climate change mitigation, local communities' socio-economic benefits, and biodiversity conservation.<sup>1044</sup> In the assessment procedure, the CCBS requires practitioners to explain the risks and benefits of the projects to the local stakeholders and invites them to participate in projects' decision-making and implementation.<sup>1045</sup>

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<sup>1040</sup> Art. 56, "Environmental Protection Law of the People's Republic of China (2014)," China National People's Congress (2014). Art. 5, 11, and 21, "Law of the People's Republic of China on Appraising of Environment Impacts," (2002).

<sup>1041</sup> Art. 21, "Law of the People's Republic of China on Appraising of Environment Impacts," (2002).

<sup>1042</sup> Benjamin Cashore, Graeme Auld, and Deanna Newsom, "The United States' Race to Certify Sustainable Forestry: Non-State Environmental Governance and the Competition for Policy-Making Authority," *Business and Politics* 5, no. 3 (2003): 219-59. Zhi-hua Cong and Zhi-fang Wan, "Review of the Study on Foreign Forest Certification," *Issues of Forestry Economics* 33, no. 1 (2013): 87. Ling Yu, Shuai Yan, and Jialu Xie, "The Connotations and Basic Characteristics of Forest Certification System," *Journal of Beijing Forestry University* 3, no. 4 (2004): 48-52.

<sup>1043</sup> CCBA, "Project Database."

<sup>1044</sup> "Climate, Community, and Biodiversity Standards," 1. "Restoration of Giant Panda Habitat in Southwest Sichuan, China," (2014): 10. See more discussions about the CCBS at Chapter 4, Section 4.3.3.

<sup>1045</sup> "Restoration of Giant Panda Habitat in Southwest Sichuan, China," 11.

In February 2014, the PEFC approved the China Forest Certification Scheme (CFCS) and Chinese national implementing entities based on its standards.<sup>1046</sup> Although the CFCS can certify carbon forests in China, no project has been certified to date.<sup>1047</sup> Internationally, there has been only one registered CDM A/R project said to be operated by a company certified by the PEFC.<sup>1048</sup> Additionally, the PEFC requires that projects certified by the CFCS must be audited by PEFC authorised auditors based on PEFC's Sustainability Benchmarks.<sup>1049</sup> Currently, the PEFC is at the stage of assessing the feasibility of implements certificates for forest carbon projects in China and developing relevant tools.<sup>1050</sup>

The FSC China Working Group was established in 2007.<sup>1051</sup> Although some CDM forest carbon projects have sought FSC certificates to demonstrate their positive impacts on environment and society, the FSC does not have any special certificate for forest carbon projects.<sup>1052</sup> To date, the FSC has not been applied to any forest carbon project in China. This is perhaps because the FSC China Working Group does not consider itself as an entity specialized at assessing the sustainability of forest carbon projects.<sup>1053</sup> Therefore, project developers have not sought certification from the FSC. FSC certification applications in other activity areas, by contrast, have rapidly increased in China, from covering one million hectares by July 2009 to covering nearly 3.4 million hectares by June 2014.<sup>1054</sup> Considering this rapid popularization of the scheme, it is possible that the FSC will develop tools for assessing the sustainability of forest carbon projects which will be applied to such projects in China.

The highest decision-making body of the FSC is the General Assembly, through which all FSC members can participate in and vote on formulating FSC standards.<sup>1055</sup> Any environmental NGOs, business and social organisations, companies, and individuals may apply for the membership of the FSC.<sup>1056</sup> The votes of the members are equally designated to three groups: environmental, social, and

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<sup>1046</sup> PEFC, "China Forest Certification Council," accessed 17 March 2017, <http://pefc.org/about-pefc/membership/national-members/45-China>.

<sup>1047</sup> PEFC and CFCC, "CFCS Brochure," accessed 2 March 2017, <http://www.cfcs.org.cn/english/zh/defined-view/36.action?menuid=536:9-12>.

<sup>1048</sup> CDM, "Project 4957: Securitization and Carbon Sinks Project, Chile," Project Design Document, 13.

<sup>1049</sup> PEFC, "China Adopts New Forest Certification Regulation."

<sup>1050</sup> Interview 19, "A PEFC Management Member (Email, 16 June 2017)."

<sup>1051</sup> The FSC already entered into the Chinese market with its Chain of Custody (CoC) certification in 1999, see FCS China, "FSC in China: History and Achievement," accessed 15 April 2017, <https://cn.fsc.org/cn-cn/25105202042615935841/fsc223122001322269>.

<sup>1052</sup> For instance, CDM, "Project 3233: Argos Co2 Offset Project, through Reforestation Activities for Commercial Use, Colombia," Project Design Document, 67.

<sup>1053</sup> Interview 18, "An FSC China Management Member (Email, June-July 2017)." The interviewee mentioned that a few forest industries with FSC have participated in forest carbon projects in China and applied for CCBS certificates. However, the interviewee did not want to indicate which industries and projects. No CCBS certified projects have mentioned any participants with FSC certificates either in their project documents online.

<sup>1054</sup> The data of 2009 is from Jingzhu Zhao et al., "Current Status and Problems in Certification of Sustainable Forest Management in China," *Environmental Management* 48, no. 6 (2011): 1086. The data of 2014 is from FSC, *Global FSC Certificates: Type and Distribution* (FSC, 2014): 2.

<sup>1055</sup> "Governance."

<sup>1056</sup> Title Two, "Statues," accessed 2 June 2017, <https://ic.fsc.org/en/choosing-fsc/fsc-membership>.

economic.<sup>1057</sup> This distribution was designed to ensure ‘environmentally appropriate, socially beneficial, and economically viable’ forest management.<sup>1058</sup>

**Table 7-2: Forest Carbon Projects in China with International Carbon Certifications**

No.	Project Name	CCBS Status	Other carbon certifications
1	Afforestation and Reforestation on Degraded Lands in Northwest Sichuan	Validation Expired 2010	CDM Registered 2009
2	Reforestation on Degraded Lands in Northwest Guangxi China (CDM Northwest Guangxi Project)	Validation Expired 2010	CDM Registered 2010
3	Multiple-purpose Reforestation on Degraded Lands in Longyang	Validation withdrawn 2010	CDM Validation
4	Multiple Reforestation on Degraded Lands in Maanshan Nature Reserve, Sichuan	Validation withdrawn 2011	-
5	Small-scale Reforestation for Landscape Reforestation, Tengchong, Yunnan	Validation Expired 2012	CDM Validation (withdrawn)
6	Afforestation/Reforestation on Degraded Lands in Southwest Sichuan	Validation approved in 2013	CDM Registered 2013
7	Afforestation of Degraded Shengle Ecological Zone in Helinge'er, Inner Mongolia, Project	Validation approved in 2013	CDM Registered 2013
8	Reforestation Project in Yingjing County, Sichuan Province (Yingjing Project)	Validation Approved in 2013	VCS Validated 2014
9	Restoration of Giant Panda Habitat in Southwest Sichuan	Validation Approved in 2014	-
10	Facilitating Reforestation for Guangxi Watershed Management in the Pearl River Basin (CDM Pearl River Project)	-	CDM Registered 2006
11	Small-scale Afforestation for combating Desertification at Kangping County, Liaoning Province, China	-	CDM Validation (withdrawn)
12	PetroChina Xinjiang Oilfield Emission Reduction and Afforestation Project	-	CDM Validation
13	Jiangxi Province Le'an County Forest Farm Carbon Sink Project	-	VCS Validated 2014
14	Reforestation Project in Qinghai Province 2012, China	-	VCS Validated 2015

<sup>1057</sup> See more discussions about the FSC at Chapter 4, Section 4.3.2.

<sup>1058</sup> FSC, "Our Vision and Mission."

15	Fujian Yong'an Improved Forest Management Project	-	VCS Validated 2016
16	Yunnan Kunming Liangqu Improved Forest Management Project	-	VCS Validated 2016
17	Inner Mongolia Chao'er Improved Forest Management Project	-	VCS Validated 2016

### 7.4.3 Analyses and Suggestions on Sustainability Assessments in China

Regarding the regulatory EIA, rather than looking at it from a technological perspective, this study focuses on its institutional features.<sup>1059</sup> Government supervision, third-party implementation, and public participation are mechanisms which can contribute to delivering more sustainable environmental results. However, the current implementation rules of forest carbon projects in China are limited to assessing environmental impacts and incorporate no systematic regulation on social impact assessment (SIA).<sup>1060</sup> This study argues that regulations should be established in the SIA which incorporate the institutional features of the EIA. Both an EIA and an SIA should be compulsory for forest carbon projects to ensure environmentally and socially sustainable results. With this suggestion, a problem remains concerning the bureaucratic procedure to establish national laws and regulations in SIAs. Therefore, it may be more feasible if the final institutional design of this study can incorporate mechanisms with mature SIA criteria, or at least the expertise to establish and implement an SIA on foreign forest carbon projects across different developing countries.

Private forest certification schemes, nonetheless, can be easily adopted through a contract with a project owner or project operating entity. However, their effectiveness sometimes disappears after the certificates have been issued.<sup>1061</sup> In addition, the variety of forest-certification schemes is itself problematic. Multiple certification schemes exist in the world and do not have commonly recognised standards, which increases the complexity of forest certification schemes for potential clients and

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<sup>1059</sup> Jingpeng Pang, "The Prospects of Environmental Impact Assessment in China," *Natural Science Journal of Harbin Normal University* 19, no. 6 (2003): 96-99. Donglan Liu, Xiaoxian Zheng, and Jinlian Li, "Discussion on Environmental Impact Assessment of Forest Management," *Journal of Beijing Forestry University* 26, no. 2 (2004): 16-20. Yueping Lei, "Primary Study on Environmental Impact Assessment of Feasibility Study in Forestry Project," *Central South Forest Inventory & Planning* 27, no. 3 (2008): 1-3. Shou Lian Dai, "Assessment on the Environmental Impact of Integrated Forestry Development Project in Zhejiang Province," *Journal of Anhui Agricultural Sciences* 39, no. 6 (2011): 3411-15.

<sup>1060</sup> Susanna Price, "Social Impact Assessment in China and Its Overseas Investments: Some Recent Developments," in *Assessing the Social Impact of Development Projects* (Springer, 2016), 129-51; Bo-sin Tang, Siu-wai Wong, and Milton Chi-hong Lau, "Social Impact Assessment and Public Participation in China: A Case Study of Land Requisition in Guangzhou," *Environmental Impact Assessment Review* 28, no. 1 (2008): 57-72.

<sup>1061</sup> Jianmin Xiao, "Impacts of Forest Certification on Sustainable Forest Management and Certification Practices in China," *World Forestry Research* 25, no. 5 (2012): 20.

wood-product consumers.<sup>1062</sup> This may be one of the reasons that there is low demand for forest certification schemes in the Chinese market.<sup>1063</sup>

Conflicts may exist between the self-regulating rules of private forest certification schemes in China and Chinese national laws. In such situations, some scholars suggest the highest standard should always be applied to avoid noncompliance.<sup>1064</sup> Though this method may solve legal conflicts, it may lead to increased requirements for (sustainable) management and higher operational costs for a project.<sup>1065</sup> Higher operational costs and a high certification fee may demotivate Chinese project developers from seeking forest certification.<sup>1066</sup>

Overall, is there a method to avoid the bureaucratic procedure to establish a SIA mechanism, to eliminate conflicts between national standards and private forest certification schemes, to create demand for the application of private forest certification schemes in forest carbon projects in China, and to provide *ex-post* monitoring on assessed projects? If there is an institutional design that can meet these four necessities, it also needs to address the following issues based on the analysis above: the practitioners' incentives for applying a sustainability assessment, the additional cost of sustainable activities, and the difficulty for practitioners in choosing which to use among various private forest carbon schemes.

## 7.5 Summary and Concluding Remarks

This chapter set out to assess the national political and legal framework concerning the sustainability of forest carbon projects in China. The task is fulfilled as below. In China, the political environment regarding forest carbon projects is generally favourable. The government has set ambitious goals to

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<sup>1062</sup> Yaming Wang, Yujun Sun, and Lei Zhang, "Discussion on Forest Certification in China," *Forestry Economy* 4 (2005): 26. Juan Chen, John L. Innes, and Robert A. Kozak, "An Exploratory Assessment of the Attitudes of Chinese Wood Products Manufacturers Towards Forest Certification," *Journal of Environmental Management* 92, no. 11 (2011): 2985.

<sup>1063</sup> "An Exploratory Assessment of the Attitudes of Chinese Wood Products Manufacturers Towards Forest Certification," 2989. Zhen Zhu, Yueqin Shen, and Xiaoyan Zhang, "Positive Analysis on Public Purchasing Aspiration of Certificated Forest Products," *Journal of Zhejiang Forestry Science & Technology* 27, no. 5 (2007): 32.

<sup>1064</sup> Xiao, "Impacts of Forest Certification on Sustainable Forest Management and Certification Practices in China," 19-23.

<sup>1065</sup> Fehse et al., "Forest Carbon and Other Ecosystem Services: Synergies between the Rio Conventions," 60. The certification fee of one certifying period (normally 5 years) for a large state-owned forest company in the north of China is between 1.2-1.8 million RMB. The company can expect an annual profit of 0.45-0.75 million RMB and can accumulate to 2.25-3.75 million RMB in five years. See Xiao, "Impacts of Forest Certification on Sustainable Forest Management and Certification Practices in China," 21.

<sup>1066</sup> For more relevant discussion, see Xu, "From Host to Investor: Enhancing the Sustainability of CDM Forest Carbon Projects," 57-77. Kirsten Carlsen, Christian Pilegaard Hansen, and Jens Friis Lund, "Factors Affecting Certification Uptake—Perspectives from the Timber Industry in Ghana," *Forest Policy and Economics* 25 (2012): 83-92. Ewald Rametsteiner and Markku Simula, "Forest Certification—an Instrument to Promote Sustainable Forest Management?," *Journal of Environmental Management* 67, no. 1 (2003): 87-98. Yulin Zeng and M. A. Jingce, "On the Development Status, Issues and Countermeasures of China's Forest Certification," *Journal of Central South University of Forestry & Technology (Social Sciences)* 4, no. 1 (2010): 100.

enlarge forest area, forest volume, and to improve forest quality from 2007 to 2050. Additionally, Chinese climate change policies have recognised sustainable development as a pivotal principle for the forest sector. The policies have proposed environmental and social requirements that can contribute to delivering sustainable results in forest carbon activities.

Nonetheless, two key issues become evident in the discussion regarding forest-related climate change policies. First, the policies are inconsistent in defining their targets. Not all policies cover the full spectrum of political targets (forest coverage, forest carbon stock and forest volume) and some policies define conflicting targets. Second, the baselines are deduced from the national climate policies and the policies themselves do not adhere to a common quantified baseline. A common baseline set independently by national forest authorities would be preferable.<sup>1067</sup>

In contrast with a favourable political environment, relevant laws and regulations in China are not comprehensively developed in accordance with climate policies. Relevant laws and regulations fail to sufficiently promote sustainable results, because no specific legal measure is adopted to address climate-related issues in forest activities and no clear procedure or criteria are published to assess the sustainability of forest carbon projects.

When zooming in on the legal instruments that may be further developed to assess projects' sustainability, we can observe several limitations and shortcomings. Although the regulatory EIA is established with mechanisms including government supervision, third-party implementation, and public participation, it is limited to environmental impacts. Like other developing countries discussed in Chapter 4, China also lacks regulatory sustainability assessments.<sup>1068</sup> Alternatively, private forest certification schemes in China, including the FSC, the PEFC, and the CCBS, consider both environmental and social impacts. However, only the CCBS is applied to a few forest carbon projects in China. To develop sustainability assessment upon the current regulatory and private mechanisms, four institutionally necessities need to be met with consideration of the incentives and difficulties of the practitioners as discussed in Section 7.4.3.

Judging from the analysis in this chapter, the national political and legal framework of China with respect to forest carbon projects has both advantages and significant shortcomings in being able to uphold sustainable results. These shortcomings may exist in the national institutional framework of other relevant developing countries. The institutional design should consider these shortcomings and provide alternative solutions with cross-border effectiveness. The following chapter will continue to

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<sup>1067</sup> One possible baseline can be China SFA, "The National Forest Inventories (全国森林资源清查 *Quan Guo Sen Lin Zi Yuan Qing Cha*)," accessed 12 May 2017, <http://www.forestry.gov.cn/main/304/content-661220.html>.

<sup>1068</sup> See Chapter 4, Section 4.4.1.

examine to what extent this national institutional framework can ensure environmentally and socially sustainable results in practice.





## 8 THE SUSTAINABILITY PERFORMANCE OF FOREIGN FOREST CARBON PROJECTS IN CHINA

### 8.1 Introduction

This chapter completes the case study by examining projects' practices on the ground in China and provides insights for the institutional design from a practical perspective. This chapter reviews projects' practices on the ground based on results from reviewing projects' documents online, project-site visits, and interviews with practitioners.<sup>1069</sup>

The remaining of this chapter starts with discussing project participants' motivations and projects' financial status in Section 8.2. Furthermore, Section 8.3 presents three implementation problems that may lead to the termination or withdrawal of a project. Section 8.4 reviews the online self-descriptions of validated forest carbon projects regarding their environmental and social impacts.<sup>1070</sup> Section 8.5 investigates the sustainability problems in the practices of foreign forest carbon projects in China. Finally, Section 8.6 summarises and concludes this chapter.

### 8.2 Motivations and Financial Status

The Project Design Documents (PDD) and Project Descriptions show that the incentives of the local project owners and stakeholders vary from economic revenues to environmental benefits. Some of them were engaged for the payment of CERs from foreign investors and for job opportunities.<sup>1071</sup> Others were engaged to support forest conversion activities and biodiversity benefits.<sup>1072</sup> The information is, however, provided by the PDD written by the project developers themselves and its credibility on sustainability issues is rarely validated by any independent third-party.

The reason for local project owners and stakeholders introducing foreign investment through the carbon market is because these foreign forest carbon projects originally suffered from similar financial barriers. First, the local people were too poor to afford the cost of establishing plantations.<sup>1073</sup> Second, commercial loans and governmental funding were not available due to the high ecological risks of

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<sup>1069</sup> For more details about the methodological issues of the field study, please see the Introduction to Part III.

<sup>1070</sup> These projects are validated by the CDM, the VCS, and the CCB.

<sup>1071</sup> VCS, "Project 1332: Reforestation Project in Yingjing County, Sichuan Province," (2014), Project Description, accessed 18 April 2017, [https://s3.amazonaws.com/CCBA/Projects/Reforestation\\_project\\_in\\_Yingjing\\_County\\_Sichuan\\_Province/CCB\\_PDD\\_yingjing-20120621\\_doc.pdf](https://s3.amazonaws.com/CCBA/Projects/Reforestation_project_in_Yingjing_County_Sichuan_Province/CCB_PDD_yingjing-20120621_doc.pdf): 40-41. CDM, "Small-Scale Afforestation for Combating Desertification at Kangping County, Liaoning Province, China," Project Design Document, 102.

<sup>1072</sup> VCS, "Project 1162: Jiangxi Province, Le'an County Forest Farm Carbon Sink Project," Validation Report, 90-91. "Project 1332: Reforestation Project in Yingjing County, Sichuan Province," Project Description, 40-41.

<sup>1073</sup> CDM, "Small-Scale Reforestation for Landscape Restoration at the South of the Gaoligongshan Nature Reserve," Project Design Document, 48. "Small-Scale Afforestation for Combating Desertification at Kangping County, Liaoning Province, China," Project Design Document, 24. "Multiple-Purposes Reforestation on Degraded Lands in Longyang, Yunnan, P.R. China," Project Design Document, 39.

planting trees in degraded lands, the high economic risks of long-term plantations, and the high transportation cost in remote locations. In addition, practitioners suffered high transaction costs because of the complexity of international and national implementation rules.

The projects' PDDs argue that being registered with a certification scheme could contribute to overcoming financial barriers. This is because registered CDM forest carbon projects with promising carbon revenues are more likely to acquire commercial loans from local banks.<sup>1074</sup> Although, all projects applying the CDM rules declared that they received neither Official Development Aid (ODA) nor funding as part of financial obligations under the UNFCCC, carbon credits still attract funding from multiple foreign financial sources.<sup>1075</sup>

Six of the sixteen international forest carbon projects received funding from foreign sources to differing extents. Within the five registered CDM forest carbon projects, two of them received funding from foreign governments through the BioCarbon Fund of the World Bank.<sup>1076</sup> One project received funding from a foreign private entity.<sup>1077</sup> Another received funding from a combination of foreign and Chinese foundations.<sup>1078</sup> Of the four CDM forest carbon projects at the validation stage, one terminated small-scale restoration project in Kangping county, Liaoning province, received funding from a foreign investor.<sup>1079</sup> One VCS project received limited philanthropic funding from a foreign NGO to cover the certification fee.<sup>1080</sup>

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<sup>1074</sup> "Project 0547: Facilitating Reforestation for Guangxi Watershed Management in the Pearl River Basin," (2006), Project Design Document, accessed: 38. "Multiple-Purposes Reforestation on Degraded Lands in Longyang, Yunnan, P.R. China," Project Design Document, 39. "Small-Scale Reforestation for Landscape Restoration at the South of the Gaoligongshan Nature Reserve," Project Design Document, 32.

<sup>1075</sup> "Project 9563: Afforestation/Reforestation on Degraded Lands in Southwest Sichuan, China," (2013), Project Design Document, accessed 17 March 2017, <https://cdm.unfccc.int/Projects/DB/TUEV-SUED1359627770.53/view>: 24. "Project 3561: Reforestation on Degraded Lands in Northwest Guangxi," (2010), Project Design Document, accessed: 37. "Small-Scale Reforestation for Landscape Restoration at the South of the Gaoligongshan Nature Reserve," Project Design Document, 30. "Multiple-Purposes Reforestation on Degraded Lands in Longyang, Yunnan, P.R. China," Project Design Document, 29. "Small-Scale Afforestation for Combating Desertification at Kangping County, Liaoning Province, China," Project Design Document, 52. "Petrochina Xinjiang Oilfield Emission Reduction and Afforestation Project," Project Design Document, 21. The ODA is the development aid from developed countries for global poverty alleviation. It is not allowed under the UNFCCC legal regime that developed countries invest in forest carbon projects as part of their Official Development Assistance (ODA) to developing countries. See more details at Chapter 5, Section 5.2.2.2 and Tomaselli, *Brief Study on Funding and Finance for Forestry and Forest-Based Sector*, 6.

<sup>1076</sup> CDM, "Project 0547: Facilitating Reforestation for Guangxi Watershed Management in the Pearl River Basin," Project Design Document, 4; "Project 3561: Reforestation on Degraded Lands in Northwest Guangxi," Project Design Document, 3.

<sup>1077</sup> "Project 9563: Afforestation/Reforestation on Degraded Lands in Southwest Sichuan, China," Project Design Document, 24.

<sup>1078</sup> "Project 9525: Afforestation of Degraded Shengle Ecological Zone in Heling'er of Inner Mongolia, China," Project Design Document, 2 and 16.

<sup>1079</sup> Interview 9, "Employee A of the Zhang Jia Yao Forest Farm, Former Operator of the CDM Kangping Project, Kangping County, Shenyang City, Liaoning Province, China (Face-to-Face Interview, 30 June 2015)."

<sup>1080</sup> VCS, "Project 1332: Reforestation Project in Yingjing County, Sichuan Province," Project Description, 41.

From another perspective, private financial sources support most foreign forest carbon projects in China. Among the six privately funded projects, three received funding from domestic private entities which were either government-related national forest farms or state-owned enterprises.<sup>1081</sup> Three of them received funding from foreign private entities including a medicine company, a university, and an entertainment company.<sup>1082</sup> This is different from international forest carbon projects in other developing countries, which mainly receive funding from transnational large forestry and timber companies. These companies are heavily criticised for causing unsustainable environmental and social results in foreign forest carbon projects in developing countries.<sup>1083</sup>

Finally, three CDM projects received domestic public funding from local governmental institution.<sup>1084</sup> One project certified by the VCS scheme mainly received funding from domestic project developers, local governments, and farmers.<sup>1085</sup> In addition, three VCS validated projects claim to overcome their financial barriers by returns from timber harvest.<sup>1086</sup> An overview of the financial sources is provided in Table 8-1.

**Table 8-1: Financial Sources of Foreign Forest Carbon Projects in China**

Projects	Foreign Government & NGO	Foreign Private Company	Domestic Government	Domestic Private Company	Conservation Funds	Returns from Timber Harvest	Total
CDM registered	2 (Multilateral funds)	1	1	0	1	0	5
CDM validation	0	1	1	1	0	0	4

<sup>1081</sup> CDM, "Multiple-Purposes Reforestation on Degraded Lands in Longyang, Yunnan, P.R. China," Project Design Document, 3; VCS, "Project 1361: Reforestation Project in Qinghai Province," Project Description, 15; CDM, "Petrochina Xinjiang Oilfield Emission Reduction and Afforestation Project," Project Design Document, 14.

<sup>1082</sup> "Project 9563: Afforestation/Reforestation on Degraded Lands in Southwest Sichuan, China," Project Design Document, 24; CCBA, "Restoration of Giant Panda Habitat in Southwest Sichuan, China," 32; Interview 9, "Employee A of the Zhang Jia Yao Forest Farm, Former Operator of the CDM Kangping Project, Kangping County, Shenyang City, Liaoning Province, China (Face-to-Face Interview, 30 June 2015)."

<sup>1083</sup> Centre for Science and Environment, "Cheap Fix: The Rush to Make Profits out of Carbon-Fixing Engenders Another Kind of Colonialism." Grainger and Geary, "The New Forests Company and Its Uganda Plantations: 'I Lost My Land. It's Like I'm Not a Human Being'."

<sup>1084</sup> VCS, "Project 1162: Jiangxi Province Le'an County Forest Farm Carbon Sink Project," Validation Report, 14; CDM, "Small-Scale Reforestation for Landscape Restoration Tengchong County of Yunnan Province " (2006), Project Design Document, accessed: 32; "Project 2700: Afforestation and Reforestation on Degraded Lands in Northwest Sichuan, China," Project Design Document, 98.

<sup>1085</sup> VCS, "Project 1332: Reforestation Project in Yingjing County, Sichuan Province," Project Description, 41.

<sup>1086</sup> "Project 1529: Inner Mongolia Chao'er Improved Forest Management Project, China," (2016), Validation Report, accessed: 13; "Project 1542: Yunnan Kunming Liangqu Improved Forest Management Project, China," (2016), Validation Report, accessed: 17; "Project 1577: Fujian Yong'an Improved Forest Management Project, China," (2016), Validation Report, accessed: 17.

VCS	1	0	1	2	0	3	6
CCB	0	1	0	0	0	0	1
Total	3	3	2	3	1	3	16 <sup>1087</sup>

### 8.3 Implementation Problems in Practice

As per the CDM Project Cycle, the full implementation of a project comprises eight stages from establishing the project to transacting the CERs.<sup>1088</sup> Based on interviews with practitioners, the following problems are identified that may hinder the project from completing the project cycle. First, government officials from the SFA state that the complexity of the implementation rules is one essential reason hindering the development of current and potential projects in China.<sup>1089</sup> Following the CDM international procedure, the domestic procedure for CDM projects also has high complexity. It was mentioned in an interview with a local governmental official that the main difficulty for them to start a project is handling the complex procedure at both international and national levels.<sup>1090</sup> At the time of the interview, they were trying to find a facilitating entity and upfront investment to comply with international and domestic procedures.

Moreover, the interviews reveal events which can lead to a shortage of funds and cause the termination or withdrawal of a project. First, a World Bank project manager stated that the Chinese government disapproved a transaction of forest-based carbon credits between foreign countries and Chinese developers because the price per unit is too low.<sup>1091</sup> Chinese government can control the price because CERs generated after 2012 can only be transferred with the approval from the NDRC.<sup>1092</sup>

Additionally, in the CDM Kangping project a deteriorating political relationship between China and Japan eventually impeded financial support from a Japanese university and led to the termination of the project in 2011.<sup>1093</sup> Both the Chinese project developer and Japanese investor feared that it could

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<sup>1087</sup> One project, 'Multiple Reforestation on Degraded Lands in Maanshan Nature Reserve, Sichuan, P.R. China', was withdrawn before the CCBA validation and its financial status is not accessible. Therefore, the table only contains sixteen projects.

<sup>1088</sup> For more details about the project cycle, see Chapter 3, Section 3.2.

<sup>1089</sup> Interview 7, "An Governmental Official from the State Administration of Forest, Beijing, China (Face-to-Face Interview, 9 June 2015)."

<sup>1090</sup> Interview 16, "A Researcher of Chongqing Forestry Science Research Institute, Chongqing Province, China (Face-to-Face Interview, 18 July 2015)."

<sup>1091</sup> The government of China interfered to avoid a low CER price. See relevant discussion at Zhu and Pan, "China's CDM Policies and Their Development Implications: Major Concerns for CDM Implementation," 10.

<sup>1092</sup> Art. 37, "Measures for the Operation and Management of Clean Development Mechanism Projects," China NDRC et al. (2005).

<sup>1093</sup> CDM, "Small-Scale Afforestation for Combating Desertification at Kangping County, Liaoning Province, China," Project Design Document; Interview 12, "An Engineer from the Forest Bureau of Shenyang City, Liaoning Province, China (Face-to-Face Interview, 9 July 2015)."

be dangerous to continue their cooperation considering the passionate and irritable public in China towards Japan at that time.<sup>1094</sup>

Lastly, the CDM Tengchong project was withdrawn from the CDM because it received its certification from the CCBA and sold its carbon credits to a voluntary buyer.<sup>1095</sup> However, as per the CCB standards, the CCB validation and verification can assess whether a project delivers positive climate benefits but cannot deliver quantified emission reductions for carbon trading.<sup>1096</sup> The interviewee did not want to elaborate more on this issue. One thing which can be concluded from this case is that the purchase is on a voluntary basis and the carbon credits (or climate benefits) are not meant to be resold in the market.

#### 8.4 Self-Description in the PDDs

The CDM Project Design Document (PDD) template requires projects to demonstrate their environmental and social impacts.<sup>1097</sup> The PDDs of registered CDM projects are validated by designated operational entities (DOE) and published by the CDM EB on its official website. These validated projects claim to have many environmental and social benefits in the project area in their environmental and social impact analysis.

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<sup>1094</sup> The 2010 Diaoyu Islands (Senkaku) boat collision incident lead to a crisis in the relationship between two countries. See The World Bank, "The Senkaku/Diaoyu Islands Territorial Dispute between Japan and China: Between the Materialization of the "China Threat" and Japan" Reversing the Outcome of World War II?," *UNISCI (Research Unit on International Security and Cooperation) Discussion Papers*, no. 32 (2013): 30-33.

<sup>1095</sup> Interview 20, "A Former Management Member of the Nature Conservancy (Email, May 2016)." CDM, "Small-Scale Reforestation for Landscape Restoration Tengchong County of Yunnan Province " Project Design Document; Interview 20, "A Former Management Member of the Nature Conservancy (Email, May 2016)." Because eventually the PDD of the project is not validated, the PDD is not available on the CDM official website. However, its PDD is available on website of its validating entity, the TÜV SÜD. See the CDM website <https://cdm.unfccc.int/Projects/Validation/DB/XRBP7BQVJEKWNVD0RB8ISRZVO6MCM/view.html>, accessed 20 December 2017. The PDD of its first submission is at the TÜV SÜD website, accessed 20 December 2017, [http://www.netinform.net/KE/Wegweiser/Guide2.aspx?ID=2334&Ebene1\\_ID=26&Ebene2\\_ID=694&mode=0](http://www.netinform.net/KE/Wegweiser/Guide2.aspx?ID=2334&Ebene1_ID=26&Ebene2_ID=694&mode=0). The second submission is accessed 20 December 2017, [http://www.netinform.net/KE/Wegweiser/Guide2.aspx?ID=2635&Ebene1\\_ID=26&Ebene2\\_ID=786&mode=0](http://www.netinform.net/KE/Wegweiser/Guide2.aspx?ID=2635&Ebene1_ID=26&Ebene2_ID=786&mode=0); and the third submission is accessed 20 December 2017, [http://www.netinform.net/KE/Wegweiser/Guide2\\_3.aspx?ID=5354&Ebene1\\_ID=26&Ebene2\\_ID=1649&mode=0](http://www.netinform.net/KE/Wegweiser/Guide2_3.aspx?ID=5354&Ebene1_ID=26&Ebene2_ID=1649&mode=0). This study uses its materials of the third submission.

<sup>1096</sup> CCBA, "Climate, Community, and Biodiversity Standards."

<sup>1097</sup> Section D and E, CDM, "CDM-AR-PDD-FORM Version 08.0."

The CDM rules stipulate that the legitimate lands to develop A/R projects are those that have been barren since 1990.<sup>1098</sup> In the PDDs, registered CDM A/R projects claim the following environmental benefits to the barren land in the project area in China:<sup>1099</sup>

- Enhanced biodiversity and ecosystem integrity<sup>1100</sup>
- Better control of soil erosion
- Improved environmental services such as nutrient re-cycling within the soil<sup>1101</sup>
- Incentivising people towards sustainable land use.

The projects claim the following socio-economic benefits in poor villages near the project area:<sup>1102</sup>

- Generating income for local farmers, employment, sale of wood and other forest products, payment of CERS<sup>1103</sup>
- Creating temporary or long-term work during the crediting period, with temporary employment mainly being labour for planting, weeding, thinning and forest protection
- Providing sustainable wood fuel supply and bio-gas
- Strengthening social cohesion
- Providing technical training and access to high-quality seeds

Registered CDM projects also mention various environmental risks such as fire, pest, disturbing existing vegetation, herbicide and pesticide application, fertilisation, and the monoculture *Eucalyptus*

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<sup>1098</sup> Para. 14, "Decision 16/CMP.1: Land Use, Land-Use Change and Forestry," UNFCCC (2006). "For the first commitment period, the total of additions to a Party's assigned amount resulting from eligible land use, land-use change and forestry project activities under Article 12 shall not exceed one percent of base year emissions of that Party, times five." The Article 12 of the Kyoto Protocol stipulates about the CDM, and the eligible activities are afforestation and reforestation. See Chapter 2, Section 2.5.3. 'Base year emissions, under the Kyoto Protocol, are defined as the aggregate anthropogenic carbon dioxide equivalent emissions of the GHGs listed in a historical base year. For most Annex I Parties, the historical base year is 1990. For Annex I Parties undergoing the process of transition to a market economy may choose a year or period other than 1990, in accordance with Article 3, paragraph 5 under the Kyoto Protocol.', cited from "Kyoto Protocol Base Year Data."

<sup>1099</sup> CDM, "Project 0547: Facilitating Reforestation for Guangxi Watershed Management in the Pearl River Basin," Project Design Document, 72-73. "Project 2700: Afforestation and Reforestation on Degraded Lands in Northwest Sichuan, China," Project Design Document, 82-83. "Project 9525: Afforestation of Degraded Shengle Ecological Zone in Helinge'er of Inner Mongolia, China," Project Design Document, 44-45. "Project 9563: Afforestation/Reforestation on Degraded Lands in Southwest Sichuan, China," Project Design Document, 56-57. "Project 3561: Reforestation on Degraded Lands in Northwest Guangxi," Project Design Document, 89.

<sup>1100</sup> "Project 0547: Facilitating Reforestation for Guangxi Watershed Management in the Pearl River Basin," Project Design Document, 72-75.

<sup>1101</sup> This point is not mentioned in other registered CDM forest carbon projects only in the PDD of "Project 9563: Afforestation/Reforestation on Degraded Lands in Southwest Sichuan, China," Project Design Document, 57.

<sup>1102</sup> "Project 0547: Facilitating Reforestation for Guangxi Watershed Management in the Pearl River Basin," Project Design Document, 75-79. "Project 2700: Afforestation and Reforestation on Degraded Lands in Northwest Sichuan, China," Project Design Document, 85. "Project 9525: Afforestation of Degraded Shengle Ecological Zone in Helinge'er of Inner Mongolia, China," Project Design Document, 44-45. "Project 9563: Afforestation/Reforestation on Degraded Lands in Southwest Sichuan, China," Project Design Document, 59-62. "Project 3561: Reforestation on Degraded Lands in Northwest Guangxi," Project Design Document, 92-103.

<sup>1103</sup> This benefit is only claimed by "Project 0547: Facilitating Reforestation for Guangxi Watershed Management in the Pearl River Basin," Project Design Document, 75.

plantation.<sup>1104</sup> Some projects mention possible negative socio-economic impacts on culture, ethnic minority groups, and the local economy.<sup>1105</sup> In spite of these risks, project developers eventually claim that enough preventive measures have been taken and there is no significant negative impact.<sup>1106</sup> Such environmental and social impact analyses are submitted by the project developers themselves.

However, two of the preventive measures were not adopted in the planting plans of two registered CDM projects in Guangxi province.<sup>1107</sup> *Eucalyptus*, a type of popular tree for monoculture plantation, was planted in these two projects. The negative impacts of this plantation have been widely discussed in China, such as severely deteriorating the drought situation of many areas in Guangxi, damaging land conditions by fertilisation, and threatening local biodiversity.<sup>1108</sup> Measures were designed in the PDDs of both projects to counteract these risks including limiting the plantation area and mosaic mixing with local species.<sup>1109</sup>

However, *Eucalyptus* was not planted in a mosaic manner for over a thousand hectares in the CDM Pearl River Project, an area which accounted for twenty-five percent of the total project site. In the CDM Northwest Guangxi project, the monoculture *Eucalyptus* plantation area accounted for sixteen

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<sup>1104</sup> For instance, see *ibid.*, 73-74. "Project 2700: Afforestation and Reforestation on Degraded Lands in Northwest Sichuan, China," Project Design Document, 83-84. "Project 9525: Afforestation of Degraded Shengle Ecological Zone in Helinge'er of Inner Mongolia, China," Project Design Document, 45. "Project 9563: Afforestation/Reforestation on Degraded Lands in Southwest Sichuan, China," Project Design Document, 57. "Project 3561: Reforestation on Degraded Lands in Northwest Guangxi," Project Design Document, 90. "Project 0547: Facilitating Reforestation for Guangxi Watershed Management in the Pearl River Basin," Project Design Document, 73. "Project 3561: Reforestation on Degraded Lands in Northwest Guangxi," Project Design Document, 90.

<sup>1105</sup> "Project 0547: Facilitating Reforestation for Guangxi Watershed Management in the Pearl River Basin," Project Design Document, 80. "Project 2700: Afforestation and Reforestation on Degraded Lands in Northwest Sichuan, China," Project Design Document, 86. "Project 9563: Afforestation/Reforestation on Degraded Lands in Southwest Sichuan, China," Project Design Document, 57. "Project 3561: Reforestation on Degraded Lands in Northwest Guangxi," Project Design Document, 90.

<sup>1106</sup> "Project 9525: Afforestation of Degraded Shengle Ecological Zone in Helinge'er of Inner Mongolia, China," Project Design Document, 45. The following projects claimed to ensure ethnic minority groups' equal rights to access development opportunities. See "Project 0547: Facilitating Reforestation for Guangxi Watershed Management in the Pearl River Basin," Project Design Document, 104. "Project 2700: Afforestation and Reforestation on Degraded Lands in Northwest Sichuan, China," Project Design Document, 86. "Project 9563: Afforestation/Reforestation on Degraded Lands in Southwest Sichuan, China," Project Design Document, 62-63.

<sup>1107</sup> "Project 0547: Facilitating Reforestation for Guangxi Watershed Management in the Pearl River Basin," Project Design Document, 73. "Project 3561: Reforestation on Degraded Lands in Northwest Guangxi," Project Design Document, 90.

<sup>1108</sup> Lan Yi, "What Accelerate the Drought in Guangxi? – the Secret of the Fast-Growing Eucalyptus Forest (是什么给广西旱灾火上浇油? - 按树林的“速生”秘密 Shi Shen Me Gei Guang Xi Han Zai Huo Shang Jiao You - An Shu Lin De Su Sheng Mi Mi)," *Greenpeace*, 20 April 2010, accessed 17 March 2017, <http://www.greenpeace.org/china/zh/news/stories/forests/2010/04/gx-plantation-story/>; Tao Wang et al., "Guangxi Wipe Eucalyptus: A Misunderstanding (广西清剿按树: 一场误会 Guang Xi Qing Jiao An Shu: Yi Chang Wu Hui)," *People's Digest*, 5 September 2014, accessed 15 March 2017, <http://www.paper.com.cn/news/daynews/2014/140905075334567567.htm>.

<sup>1109</sup> CDM, "Project 0547: Facilitating Reforestation for Guangxi Watershed Management in the Pearl River Basin," Project Design Document, 90.



percent of the total plantation area, which translated to 1403.5 hectares.<sup>1110</sup> Both projects claimed that *Eucalyptus* was chosen by the farmers because it could rapidly generate a considerable amount of CERs.<sup>1111</sup>

The VCS and CCB projects also have their Project Descriptions and Validation Report published online, including descriptions on environmental and social impacts. Similarly, self-praising claims have been made in the Project Description of projects validated by the VCS and CCB.<sup>1112</sup> The VCS and the CCB assess on environmental and social impacts and confirm that they have no negative environmental impact.<sup>1113</sup>

Institutionally, a monitoring system should be established on whether the preventive measures stated in the analysis can effectively prevent the risks and whether the measures have been implemented on the ground. As per the international CDM rules, the PDDs are to be reviewed by the designated national authority (DNA) of the host country, which can request an EIA or SIA on the project if there is a significant negative environmental or social risk.<sup>1114</sup> However, China has not exercised this authority very often. Among the five registered CDM A/R projects, only the CDM Shengle Mongolia Project conducted an EIA, but no significant negative impact was concluded.<sup>1115</sup> No SIA was requested on the projects.

## 8.5 Problems Associated with the Sustainability of the Projects

Based on project sites visited, interviews and a literature review, this section uncovers five environmental and social problems in the practice of forest carbon projects in China as discussed below. Section 8.5.1 argues that some projects select improper tree species for the local land conditions.

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<sup>1110</sup> "Project 3561: Reforestation on Degraded Lands in Northwest Guangxi," Project Design Document, 24. Zhijun Zhang et al., "Costs of Carbon Sequestration for Afforestation/Reforestation Projects under Clean Development Mechanism: A Case Study of Pearl River Basin in Guangxi, China," *Advances in Climate Change Research* 5, no. 6 (2009): 348-56. Carbondtree, "The Carbon Sink Forest around the River in Guangxi (广西环江碳汇林 Guang Xi Huan Jiang Tan Hui Lin)," 15 December 2014, accessed 2 March 2017, <http://www.carbondtree.com.cn/NewsShow.asp?Bid=9416>. CDM, "Project 3561: Reforestation on Degraded Lands in Northwest Guangxi," Project Design Document, 27.

<sup>1111</sup> "Project 0547: Facilitating Reforestation for Guangxi Watershed Management in the Pearl River Basin," Project Design Document, 13. "Project 3561: Reforestation on Degraded Lands in Northwest Guangxi," Project Design Document, 24.

<sup>1112</sup> VCS, "Project 1162: Jiangxi Province Le'an County Forest Farm Carbon Sink Project," Validation Report, 90. "Project 1361: Reforestation Project in Qinghai Province," Project Description, 43. "Project 1332: Reforestation Project in Yingjing County, Sichuan Province," Project Description, 38-39.

<sup>1113</sup> "Project 1162: Jiangxi Province Le'an County Forest Farm Carbon Sink Project," Validation Report, 37.

<sup>1114</sup> Para. 132, "Annex 1: Clean Development Mechanism Validation and Verification Manual (Version 01.2)," CDM-EB55 (2010), 26.

<sup>1115</sup> There are two projects that utilised an existing EIA and SIA for another project, because that project covered the current projects' areas. See CDM, "Project 0547: Facilitating Reforestation for Guangxi Watershed Management in the Pearl River Basin," Project Design Document, 74 and 81. "Project 3561: Reforestation on Degraded Lands in Northwest Guangxi," Project Design Document, 91 and 104.

Section 8.5.2 states that projects may conduct agriculture activities which are prohibited by the investors and can sabotage carbon sequestration. Section 8.5.3 elaborates on forest disasters that may happen to forest carbon projects in China. Sections 8.5.4 and 8.5.5 discusses two socially unsustainable results in forest carbon projects in China regarding benefit-sharing and decision-making.

### 8.5.1 Improper Species for the Local Land Conditions

Problems with species' selection became evident during the interviews with relevant staff of the CDM Kangping Project. This project had been withdrawn from the CDM and was located on the Zhangjiayao national forest farm, where the ownership of the land belongs to the county. Employee A of the Zhangjiayao national forest farm, mentioned that Keio University in Japan specified requirements about what kinds of tree to plant and how to plant them.<sup>1116</sup> *Populus* for example was required for its broadleaf and strong capacity of carbon sequestration. However, *Populus* did not grow well because it requires a lot of water and water is not abundant in the dry lands of Kanpging.<sup>1117</sup> After the termination of the project, no more management or monitoring on the plantation was continued. Eventually many of the planted seeds died on the project site. An engineer from the Forest Bureau of Shenyang City, who is also the project coordinator, stated that the investors and the farm have silently reached an agreement on the death of the plantation by not claiming any damage or providing a remedy.<sup>1118</sup>

If tree species with drought resistance had been selected in the CDM Kangping Project, the survival rate would have been higher in the first few years of plantation work. However, *Populus* is popular for monoculture plantation in China and other parts of the world because it grows fast, has a high timber yield, and is easy to be genetically transformed.<sup>1119</sup>

Employee B of the forest farm also pointed out that the farm had planted *Pinus sylvestris* and *Acer mono* on the dry land. *Pinus sylvestris* has many drought-resistant characteristics, has a high survival rate on dry land and can contribute greatly to sand fixation.<sup>1120</sup> However, Employee B revealed that

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<sup>1116</sup> Interview 9, "Employee A of the Zhang Jia Yao Forest Farm, Former Operator of the CDM Kangping Project, Kangping County, Shenyang City, Liaoning Province, China (Face-to-Face Interview, 30 June 2015)."

<sup>1117</sup> Jianwei Yang et al., "Water Use Efficiency and Water Consumption Characteristics of Poplar under Soil Drought Conditions," *Acta Phytocologica Sinica* 28, no. 5 (2004): 636. Timothy J Tschaplinski et al., "Drought Resistance of Two Hybrid *Populus* Clones Grown in a Large-Scale Plantation," *Tree Physiology* 18, no. 10 (1998): 656.

<sup>1118</sup> Interview 12, "An Engineer from the Forest Bureau of Shenyang City, Liaoning Province, China (Face-to-Face Interview, 9 July 2015)."

<sup>1119</sup> Shengzuo Fang, "Silviculture of Poplar Plantation in China: A Review," *Chinese Journal of Applied Ecology* 19, no. 10 (2008): 2308. GAIL Taylor, "Populus: Arabidopsis for Forestry. Do We Need a Model Tree?," *Annals of Botany* 90, no. 6 (2002): 681.

<sup>1120</sup> Institute of Applied Ecology of Chinese Academy of Sciences, "The Opening Ceremony of the Natural Sand *Pinus Sylvestris* Research Base in the Shenyang Institute of Applied Ecology, Chinese Academy of Science (中国科学院沈阳应用生态研究所天然沙地樟子松科研基地揭牌仪式 Zhong Guo Ke Xue Yuan Shen Yang Ying Yong Sheng Tai Yan Jiu Suo Tian Ran Sha Di Zhang Zi Song Ke Yan Ji Di Jie Pai Yi Shi)," accessed 2 March 2017, [http://www.iae.cas.cn/ydzh/hzdt/201208/t20120828\\_3634977.html](http://www.iae.cas.cn/ydzh/hzdt/201208/t20120828_3634977.html).

these two types of trees have a life span of respectively ten and twenty years; they die naturally afterwards.<sup>1121</sup>

With incomplete knowledge, this study cannot determine what would have been the optimal species to plant at this area. However, economic interests may have had an influence on planting these short-life trees. On the one hand, a high survival rate paves the way to meet plantation targets from the government and to receive funding. On the other hand, after the planted trees die, it is convenient to sell them as timber to increase the income of the farm workers and there will be space for more plantations and more associated investments.

### **8.5.2 Agriculture Production Sabotage Carbon Sequestration**

In the CDM Kangping project, the investor requested to place no agriculture plantation between trees in the project area because agriculture activities can sabotage the carbon sequestration of the planted trees.<sup>1122</sup> However, there were agriculture plantations between the planted trees on the project site, specifically peanut farms, when I visited the project site after the project was withdrawn.<sup>1123</sup> This case reflects that the *ex-post* climate benefit of this project is doubtful.

In fact, many parts of the farm are currently contracted by farm employees to plant peanuts to increase the income of the employees.<sup>1124</sup> This phenomenon may be a result of the farm's financial difficulties. Although this national forest farm is still an institution associated with the government, it is currently managed as a self-financing business enterprise. Employee B mentioned that before the new Chief took over, the employees had had no income for two years.<sup>1125</sup>

While operational, the investors of the CDM Kangping Project came to check the project site every year.<sup>1126</sup> However, if the frequency of the review is once every five years (as stipulated by the DOE), the reviewers or investors can hardly discover the agriculture activities conducted by the project

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<sup>1121</sup> Interview 8, "Employee B of the Zhang Jia Yao Forest Farm, Former Operator of the CDM Kangping Project, Kangping County, Shenyang City, Liaoning Province, China (Face-to-Face Interview, 30 June 2015)."; Jiaojun Zhu, Hongzhang Kang, and Meiling Xu, "Natural Regeneration Barriers of *Pinus Sylvestris* Var. *Mongolica* Plantations in Southern Keerqin Sandy Land, China," *Acta Ecologica Sinica* 27, no. 10 (2007): 4086-95.

<sup>1122</sup> Interview 9, "Employee A of the Zhang Jia Yao Forest Farm, Former Operator of the CDM Kangping Project, Kangping County, Shenyang City, Liaoning Province, China (Face-to-Face Interview, 30 June 2015)."

<sup>1123</sup> Interview 8, "Employee B of the Zhang Jia Yao Forest Farm, Former Operator of the CDM Kangping Project, Kangping County, Shenyang City, Liaoning Province, China (Face-to-Face Interview, 30 June 2015)."

<sup>1124</sup> Ibid.

<sup>1125</sup> Ibid.

<sup>1126</sup> Interview 9, "Employee A of the Zhang Jia Yao Forest Farm, Former Operator of the CDM Kangping Project, Kangping County, Shenyang City, Liaoning Province, China (Face-to-Face Interview, 30 June 2015)."

developer in between the reviews.<sup>1127</sup> This case presents the necessity to enhance reviews during the project period and *ex-post* monitoring on forest carbon projects in China.

### 8.5.3 Forest Disasters

A forest certificating expert states that some forest carbon projects have had forest disasters such as anthropogenic, biological, and meteorological.<sup>1128</sup> For example, small-scale, but frequent forest fires happened in a forest carbon project in the south of China, because local people have a tradition to burn paper products to worship their ancestors.<sup>1129</sup> Additionally, biological disasters, such as pest, also frequently happen in China on a large scale and cause severe damage.<sup>1130</sup> Lastly, a CDM forest carbon project in Guangxi has suffered from meteorological disasters such as frost and drought, which affected plantation activities.<sup>1131</sup>

### 8.5.4 Unequal Benefit Sharing among the Local Farmers

Appointing people by favouritism also happened in the CDM Kangping Project. While operational, the investment for the project was transferred to the farm and not the local farmers.<sup>1132</sup> The local farmers were involved in the project and they got paid by providing labour for seeding and tending to the tree plantation. However, the extra income for labour was very low. Farm workers earned around one yuan for tending each tree.<sup>1133</sup> Even for this low income, it was still a sought-after job for the local farmers. Most farm workers who are hired were families and acquaintances of the farm employees.<sup>1134</sup>

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<sup>1127</sup> Para. 63, Annex, "Decision 3/CMP.1: Modalities and Procedures for a Clean Development Mechanism as Defined in Article 12 of the Kyoto Protocol (Former COP Decision 17/CP.7)," UNFCCC (2005).

<sup>1128</sup> Interview 5, "A Forest Scientist of the Research Institute of Forestry Science and Technology Information in Chinese Academy of Forestry, Beijing, China (Face-to-Face Interview, 16 June 2015)." This institute can certify carbon flux in forest carbon projects in China. See Carbontree, "CCER Carbon Credits Validation and Verification Entity: The Research Institute of Forestry Science and Technology Information in Chinese Academy of Forestry (CCER 碳汇审定与核证机构: 中国林业科学研究院林业科技信息研究所 CCER Tan Hui Shen Ding Yu He Zheng Ji Gou: Zhong Guo Lin Ye Ke Xue Yan Jiu Yuan Lin Ye Ke Ji Xin Xi Yan Jiu Suo)," accessed 2 March 2017, <http://www.carbontree.com.cn/NewsShow.asp?Bid=9707>.

<sup>1129</sup> Interview 5, "A Forest Scientist of the Research Institute of Forestry Science and Technology Information in Chinese Academy of Forestry, Beijing, China (Face-to-Face Interview, 16 June 2015)."

<sup>1130</sup> Shujing Wei et al., "The Impact of Climate Change on Forest Fire and the Preventive Measures (气候变化对森林灾害的影响及防控策略 Qi Hou Bian Hua Dui Sen Lin Zai Hai De Ying Xiang Ji Fang Kong Ce Lue)," *Journal of Catastrophology* 28, no. 1 (2013): 37.

<sup>1131</sup> Zhuping Mo et al., "Monitoring of Carbon Storage Based on CDM Reforestation Project of Zhu River Basin in Guangxi," *Journal of Nanjing Forestry University (Natural Sciences Edition)* 39, no. 3 (2015): 160.

<sup>1132</sup> Interview 9, "Employee A of the Zhang Jia Yao Forest Farm, Former Operator of the CDM Kangping Project, Kangping County, Shenyang City, Liaoning Province, China (Face-to-Face Interview, 30 June 2015)."

<sup>1133</sup> Interview 8, "Employee B of the Zhang Jia Yao Forest Farm, Former Operator of the CDM Kangping Project, Kangping County, Shenyang City, Liaoning Province, China (Face-to-Face Interview, 30 June 2015)."

<sup>1134</sup> Interview 4, "A Farm Worker Outside Zhang Jia Yao Forest Farm, Kangping County, Shenyang City, Liaoning Province, China (Face-to-Face Interview, 30 June 2015)." The worker lives in the orderly built bungalows right outside the farm. He admitted that he and other workers of the farm are families and acquaintances of the employees of the farm. Interview 13, "An Old Lady from a Village near Zhang Jia Yao Forest Farm, Kangping County, Shenyang City, Liaoning

The project owner of the CDM Kangping project is not alone in abusing its power of appointment. This problem also happened in one of the earliest domestically financed forest carbon projects. The project area belongs to the community of Koutou Village in Qinglong Lake Town of the Fangshan District in Beijing (hereafter *Fangshan Project*). The land is collectively-owned by the community and is managed by the production brigade, namely the village's members of the Communist Party of China (CPC) and the villagers' committee. However, the employment of forest guards is limited to a particular family that is close to the members of the villagers' committee. In addition, local villagers confirmed that most of them were not involved in the plantation work.<sup>1135</sup> Workers who did the plantation work were from other villages and even other provinces. Some villagers said it would be easier for members of the villagers' committee to be corrupt by hiring workers from other places, because the expenses of the project would remain unknown to the local villagers, hence there would be less complaints.<sup>1136</sup> It would also be more difficult to investigate the actual financial status of the project afterwards: when the workers from other areas are gone, investigators cannot interview them to determine their actual salaries for the plantation work.

### 8.5.5 Local Farmers Excluded from Decision-Making

Forest carbon projects located in national farms in China cannot always guarantee that local people participate sufficiently in the project. The Yingjing Project, for instance, is located in a national forest farm nearby Longcanggou Township and is managed by the state-owned forest farm.<sup>1137</sup> In this case, the forest farm does not need to consult the local people for the use of the land. Financially, the farm was independent. The farm hired people from outside to do the plantation work, therefore no income from the forest carbon project accrued to the village.<sup>1138</sup> Regarding decision-making, neither the local farmers nor the administration of the village were involved.<sup>1139</sup> Project activities were subject to the governance of the forest administration of Sichuan province. Additionally, the CDM Kangping Project was also located in a state-owned forest farm. The local farmers were also not involved in the decision-making of the project.

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Province, China (Face-to-Face Interview, 30 June 2015)." The old lady lives in a village nearby the farm, however, said that no farmers in her village are involved in any work of the farm.

<sup>1135</sup> Interview 17, "Villagers of Koutou Village in Fangshan District, Beijing, China (Face-to-Face Interview, 15 June 2015)."

<sup>1136</sup> Ibid.

<sup>1137</sup> CCBA, "Reforestation Project in Yingjing County, Sichuan Province," (2013), Validation Report, accessed 6 January 2018, <http://www.climate-standards.org/2012/08/27/reforestation-project-in-yingjing-county-sichuan-province/>: 44. This project was also validated by the VCS. See VCS, "Project 1332: Reforestation Project in Yingjing County, Sichuan Province," Project Description.

<sup>1138</sup> Interview 11, "A Government Official from Long Cang Gou Township, Rongjing County, Ya'an City, Sichuan Province, China (Face-to-Face Interview, 21 July 2015)."

<sup>1139</sup> Ibid.

Contrary to the previous cases, farmers are more involved in project activities in a project in Huangshan City, whose land belongs to the local communities.<sup>1140</sup> This is a multi-benefits forest project. The farmers' rights to use the lands were contracted to a few contractors. The contractors are directly involved in the forest work of the project. Regarding decision-making, a Participatory Rural Appraisal was adopted to consult the local farmers, as required by the funding provider, the World Bank. This project is not a typical forest carbon project for its carbon sequestration was not measured against widely-recognised carbon certification schemes.<sup>1141</sup> The carbon sequestrations were not planned to be traded.<sup>1142</sup> Regardless of the nature of this project, I observe that the project practitioners respect the investor's request to undertake measures to ensure public participation. Hence, to connect funding with sustainable measures is an incentive for project practitioners to conduct such measures to ensure sustainable results.

## 8.6 Summary and Concluding Remarks

Based on the analysis above, this chapter draws the following conclusions about the sustainability performance of the selected foreign forest carbon projects in China. The subsequent findings echo the theoretical conclusions in Parts I and II, as marked in the footnotes. First, contrary to the self-descriptions, projects do not always contribute to improving the environment and lead to unsustainable environmental results. There is lack of supervision from the Chinese government on the projects' environmental and social impact analysis and projects may underperform compared to their designed plantation plans.

In addition, foreign forest carbon projects in China have similar financial barriers, including lack of initial investment to establish plantations. Such barriers are overcome by funding from various sources. Funding for forest-based carbon offsets is the major incentive for local project developers to participate in such projects. Foreign investors place requirements on what tree species to plant and how to plant them.<sup>1143</sup> In contrast with other developing countries, there is no funding from transnational forestry or timber companies.<sup>1144</sup> Multilateral funds are only involved in two of the sixteen projects studied.<sup>1145</sup>

Furthermore, two problems are discovered in the project practices in China which are not covered by the theoretical discussion regarding the international institutional framework and the incentive schemes. First, the Chinese government can disapprove a transaction of forest-based carbon credits

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<sup>1140</sup> Interview 10, "A Government Official from Tanjiaqiao County, Huangshan City, Anhui Province, China (Face-to-Face Interview, 15 July 2015)."

<sup>1141</sup> Ibid.

<sup>1142</sup> Ibid.

<sup>1143</sup> See Chapter 5, Section 5.2.2.

<sup>1144</sup> See Chapter 5, Section 5.3.2.

<sup>1145</sup> See Chapter 6, Section 6.5.

between foreign countries and Chinese developers because the price per unit is too low. Second, political conflicts may impede the interaction between foreign investors and local project owners. In addition, a project developer withdrew a project from the CDM after it obtained other certificates and sold its carbon credits. These findings show that funding plays an essential role in determining whether a project will be continued and where the project is certified. This discovery is considered as an essential element for designing a workable and enforceable institutional design.

Moreover, local stakeholders may participate in foreign forest carbon projects for various reasons including increasing incomes and protecting the environment. However, local practitioners found it difficult to apply the complex CDM rules and national implementation rules for forest carbon projects. This finding echoes the theoretical conclusions in Chapter 2 and 3 regarding the legal complexity and uncertainty in international policies, laws and implementation rules.<sup>1146</sup>

Finally, five sustainability problems are identified in practice. First, local people and foreign private investors prefer industrial trees for the short-term and rapid economic returns rather than conserving trees with sustainable results.<sup>1147</sup> Second, a project conducted undesired agriculture activities after the project was terminated and sabotaged carbon plantations. Third, forest disasters remain unaddressed in practice. The fourth and fifth problems are unequal benefit sharing and exclusion from decision-making, which happened to local people near the project sites. However, the World Bank played a positive role in enhancing social sustainability as the finance provider in a multiple-benefits forest project.

Thus far, this study has completed the preparations for the institutional design for sustainable foreign forest carbon projects in developing countries. The next chapter proposes an institutional design, which will address the problems identified in this chapter and previous chapters concerning the international institutional framework, the incentive schemes, and the national legal framework and practices in China.

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<sup>1146</sup> See Chapter 2, Section 2.7.1; Chapter 3, Section 3.4.1 and Section 3.4.2.

<sup>1147</sup> See Chapter 2, Section 2.7.2 and Section 2.7.3; Chapter 5, Section 5.3.2 and Section 5.3.3





## **CONCLUSION AND RECOMMENDATION**

## 9 CONCLUDING REMARKS AND RECOMMENDATIONS

Forest carbon projects in developing countries were originally assessed only based on their impact on climate change. This study examines their results in sustainable development and finds that their long-term environmental and social impacts in developing countries are still problematic.<sup>1148</sup> Environmentally, many projects plant monocultural industrial trees leading to biodiversity loss and the deterioration of land conditions.<sup>1149</sup> Socially, many projects injure indigenous peoples' rights and even cause casualties in the case of severe conflicts with local people.<sup>1150</sup> In addressing sustainability issues, this study sets out to answer the central research question: *how to design institutional reforms for sustainable foreign forest carbon projects in developing countries*. To this end, this study put forward three sub-questions regarding respectively the international institutional framework, incentives and financial streams, and country-specific practices. As the culmination of Parts I to III, which address the three sub-questions, this chapter will propose ten measures to reform the existing governing systems of multilateral funds to enhance sustainable results.

Part I answers *how the international institutional framework addresses sustainable forest carbon projects in developing countries*. It finds that the international legal framework focuses on addressing climate risks, but fails to address risks in sustainable development. Part II answers *how foreign forest carbon projects in developing countries are incentivised and financed*. It finds that the incentive schemes are affected by short-term economic returns and thus some projects neglect long-term environmental and social benefits. In the financial streams from the North to the South, multilateral funds as financial intermediaries possess the institutional rationale and economic advantages to promote sustainable results in forest carbon projects in developing countries. Part III answers *how foreign forest carbon projects are assessed on sustainability issues and financed in China*. It finds that the national institutional framework in China fails to adequately prevent unsustainable risks in practice. Moreover, the discussions in Part I to III identify problems in the international institutional framework, in the incentive schemes, and in the national practices that may lead to unsustainable results.

To address the identified problems, this study recommends institutional reforms for the existing governing systems of multilateral funds because they demonstrate institutional and economic features that surpass international, national, and private governing entities as financial intermediaries.<sup>1151</sup> To avoid the bureaucratic procedure in international policy-making and the impingement on sovereignty

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<sup>1148</sup> See Chapter 1, Section 1.1.2.

<sup>1149</sup> Ibid.

<sup>1150</sup> Ibid.

<sup>1151</sup> See Chapter 6, Sections 6.5.2 and 6.5.3.

rights of developing countries, this study does not favour institutional reform of international law.<sup>1152</sup> Additionally, considering the weaknesses of national sustainability assessments in developing countries, this study seeks an entity with stronger institutional and financial capacities which can implement sustainability criteria across borders.<sup>1153</sup>

When looking at self-regulating third parties, this study finds that multilateral funds have a better position than forest certification entities to act as surrogate regulators, because multilateral funds can both promote private forest certification schemes and provide incentive-based measures.<sup>1154</sup> For instance, the BioCarbon Fund requires all of its invested projects to apply a private sustainability certification scheme.<sup>1155</sup> The analysis in previous parts also reveals that multilateral funds have already adopted other measures to ensure sustainable results. The FCPF, the GCF, and the Adaptation Fund have adopted environmental and social safeguards.<sup>1156</sup> Four out of seven funds already accredit third-party entities with expertise in environmental protection to work on the ground with local stakeholders.<sup>1157</sup> The World Bank also requests measures to ensure public participation, for example in a multiple-benefits forest project in China.<sup>1158</sup> Hence, by embedding measures in the existing governing systems of multilateral funds, the institutional design can take advantage of multiple instruments and actors.

The rest of this chapter is structured as follows. Section 9.1 concludes the institutional characteristics of foreign forest carbon projects in developing countries. Section 9.2 discusses the institutional advantages of multilateral funds to address these institutional characteristics and to promote sustainable results. Section 9.3 lays out the institutional design starting from reinstating the identified problems in Part I, II, and III. Then, it pinpoints specific measures that the multilateral funds can undertake to deal with these problems based on a review of the pros and cons of solutions proposed in previous literature. Section 9.4 proposes reforms to the current institutional framework of the multilateral funds to fully implement these measures. Eventually, Section 9.5 proposes ideas for further studies on this topic in the future.

## **9.1 Institutional Characteristics of Foreign Forest Carbon Projects in Developing Countries**

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<sup>1152</sup> See Chapter 2, Sections 2.4.2 and 2.8.

<sup>1153</sup> See Chapter 4, Section 4.4.1 and Chapter 7, Section 7.3.3.

<sup>1154</sup> Gunningham and Grabosky (1999) assert to “empower participants” in “the best position to act as surrogate regulators”. See Gunningham, Grabosky, and Sinclair, *Smart Regulation: Designing Environmental Policy*, 408-12.

<sup>1155</sup> See Chapter 4, Section 4.3.3.

<sup>1156</sup> See Chapter 6, Section 6.5.1.

<sup>1157</sup> See Chapter 6, Section 6.5.4.

<sup>1158</sup> See Chapter 8, Section 8.5.5.

This study concludes that the following elements should be considered when making an institutional design for forest carbon projects in developing countries. First, it is a type of project that involves multi-level norms. Forest carbon projects were originally recognised and established by international law, more specifically the UNFCCC, the CDM, and later the COP decisions regarding REDD+. When being implemented in developing countries, the projects need to comply with relevant national policies and laws. Additionally, to obtain access to the voluntary carbon market or to acquire a sustainability certificate, projects can apply flexible rules designed by an independent third party.<sup>1159</sup>

Second, this type of project has a variety of actors in a range of roles including investors, project developers, stakeholders, and inspectors. The investors can be foreign or domestic and can be an individual or a public or private entity. The project developer is usually a domestic private or public entity and the stakeholders are largely the local farmers or indigenous peoples. The inspectors are international public or private third parties.

Moreover, analysis of the actors' incentives shows that the projects may have multiple purposes. To meet the goals of various project actors, some projects may focus more on commercial purposes such as producing more emission reductions or timber in the short term. Coase (1960) pointed out that even when externalities exist, a protected property rights system would be still efficient if it is well-defined.<sup>1160</sup> Nonetheless, the externalities of producing emission reductions on the environment and society are not considered when defining the property rights of forest-based carbon offsets. For most traders, the main goal is merely to produce as many credits as they can with as little cost as possible. Therefore, it is essential for the institutional design to connect economic benefits with upgrading the forests and sustainable results in forest carbon projects.

Furthermore, we should also consider the dynamics of time and location when designing institutional reforms for forest carbon projects in developing countries. This is because forest carbon projects normally have a long duration of dozens of years, in which the local and global socio-economic and environmental context may change. In addition, a forest carbon project may be located in areas in developing countries with various socio-economic and environmental circumstances. Therefore, the institutions should be flexible enough to deal with relevant scientific and technical changes in time and be site-specific to address socio-economic and environmental differences in a range of locations.

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<sup>1159</sup> Neil Gunningham, Martin Phillipson, and Peter Grabosky, "Harnessing Third Parties as Surrogate Regulators: Achieving Environmental Outcomes by Alternative Means," *Business Strategy and the Environment* 8, no. 4 (1999): 212.

<sup>1160</sup> Coase, "The Problem of Social Cost," 87-137. Coase argued that legal liability would not be necessary to address externalities when there is a well-designed property rights system and the transaction cost is zero. However, in the case of forest carbon projects, the transaction cost is never zero and current international law cannot sufficiently address projects' impacts on environmental and social sustainability.

Lastly, specific measures should be undertaken to guarantee the transparency of the governance system and the fairness and equity when sharing benefits with local stakeholders.<sup>1161</sup> Particularly, indigenous peoples and local farmers are considered to have an inferior position in negotiations. Information about the governance of the funding and the projects should be easily accessible and understandable to local stakeholders. The opinions of the locals should be listened to in the decision-making procedure and be respected in the final decision.

## **9.2 The Institutional Advantages of Multilateral Funds**

Multilateral funds have the following institutional advantages to satisfy some of the necessities for the institutional design. First, they are transnational entities, which incorporate international rules into internal governing rules for projects across different jurisdictional boundaries. In addition, multilateral funds accredit third-party implementing entities, which are international, independent and self-regulating.<sup>1162</sup> Therefore, their governing systems can address the multi-norm characteristic identified above.

Second, as an international financial intermediary they interact with various actors. They collect and distribute funding between governments and private parties. In this process, they can provide a platform for international dialogue between the North and the South that can enable multilateral policy makers to interact. In addition, the funds need to balance the interests of public and private parties to achieve a successful agreement on a project. Therefore, their operating systems can address the various-actor characteristic.

Third, multilateral funds as entities specialised in financing can facilitate successful delivery of sustainable results through incentive-based measures. Good control of the financial process is pivotal when considering that there is no internationally binding regulation monitoring sustainability in forest carbon projects in developing countries at the moment. Multilateral funds' incentive-based measures can redirect actors with multiple purposes to conduct more sustainable activities in forest carbon projects.

Lastly, multilateral funds have an associated network consisting of personnel and information from local agencies, expertise from the international community, and financial support from public and private sources. This network can provide information to consider the changing socio-economic and

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<sup>1161</sup> Salinas and Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects*, 110.

<sup>1162</sup> See Chapter 6, Section 6.5.

environmental circumstances in the projects flexibly and facilitate local stakeholders participating in decision making by providing technical, educational and financial support.

### 9.3 Institutional Measures of the Multilateral Funds Addressing Problems in the International Institutional Framework and Risks in the Incentive Schemes

This section discusses ten measures in Table 9-1 which multilateral funds can adopt to address the problems identified in the international institutional framework and incentive schemes.<sup>1163</sup> The rest of this section first briefly restates an identified problem and then discusses what measures the multilateral funds can undertake to address that problem.

**Table 9-1: Proposed Measures for the Multilateral Funds to Address Identified Institutional and Incentive Problems**

Measure	Description
Measure One	Multilateral funds design a detailed <i>code of conduct for working with local stakeholders</i> with relevant technical, educational and financial support to achieve three goals: to facilitate local stakeholders to comply with international policies, laws, and implementation rules; to enhance local participation in decision-making; and to exercise a fair and equal benefit-sharing plan.
Measure Two	Multilateral funds can develop and <i>implement high-standard environmental and social safeguards to assess projects across countries</i> . The funds can implement environmental and social safeguards in foreign forest carbon projects in different developing countries and opt out of projects with monocultural industrial tree plantations or other adverse impacts.
Measure Three	Multilateral fund can <i>mediate between the buyers and the sellers</i> about the price and try to direct both sides to agree on a reasonable price.
Measure Four	Multilateral funds can <i>employ performance- or results-based payment approach to avoid corruption and provide ex-post monitoring</i> . This approach can avoid host government's corruption because the payment is based on output, namely actual emission reductions, produced by the project. This approach can provide <i>ex-post</i> monitoring on forest carbon projects, because multilateral funds can establish suspension-and-appeal systems. For instance,

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<sup>1163</sup> See Chapter 2, Section 2.7; Chapter 3, Section 3.4; Chapter4, Section, 4.4; and Chapter 5, Section 5.3.

	they can suspend a project and stop financing a project if unsustainable performance is detected.
Measure Five	By deciding whether to <i>hire or accredit a third party</i> , the multilateral funds can supervise these self-regulating entities. The involvement of a third-party implementing entity can monitor and counteract unsustainable activities in practice. The expertise and experience of third-party entities can improve the institutional capacity of host countries' governments to effectively and efficiently achieve sustainable forest carbon projects.
Measure Six	Multilateral funds can extend <i>payment for other ecosystem services</i> that can be provided by a sustainable forest carbon project.
Measure Seven	Multilateral funds can enhance <i>data accessibility online</i> , which contributes to transparency and detect the double counting of funding from the North under different financial streams.
Measure Eight	Multilateral funds should give more effort to <i>cooperation with other funds</i> and employ the public funding for biodiversity conservation to forest carbon projects.
Measure Nine	Multilateral funds can <i>review project proposals</i> to prioritise projects with more sustainable plans and the financial additionality that is different from a business-as-usual scenario for industrial tree plantation. The review can enable opting out of projects with a long-term negative impact.
Measure Ten	Multilateral funds should <i>ensure the involvement of indigenous peoples and civil society</i> in their decision-making process.

First, Chapters 2 and 3 find that the UNFCCC decision-making bodies update decisions frequently and massively, which increases legal complexity and uncertainty.<sup>1164</sup> This problem is particularly important to local stakeholders with little knowledge and experience of international laws.<sup>1165</sup> Certainly, any design for multilateral funds will not be able to change international policies, laws, and implementation rules on forest-based carbon credits. However, multilateral funds can facilitate the local stakeholders to comply with international policies, laws and implementation rules by providing relevant technical and financial support (*Measure One*).

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<sup>1164</sup> See Chapter 2, Section 2.7.1 and Chapter 3, Section 3.4.1.

<sup>1165</sup> See Chapter 2, Section 2.7.1; and Chapter 3, Section 3.4.1 and 3.4.2.

In addition, as Chapter 2 points out, the current international climate policies and laws allow industrial tree plantations in forest carbon projects in developing countries.<sup>1166</sup> Multilateral funds have their own governing rules and can implement environmental and social safeguards to opt out of projects with monocultural industrial tree plantations (*Measure Two*).<sup>1167</sup>

Furthermore, legal constraints are set on forest-based carbon credits to address climate risks, which put forest-based carbon credits at an inferior position compared with other types of carbon credits in the carbon market.<sup>1168</sup> To solve this problem, multilateral funds can increase the price of a unit of forest-based carbon offsets to counteract the legal constraints, by mediating between investors and recipients to allocate funding to more sustainable forest carbon projects (*Measure Three*). The current carbon trading schemes have not provided enough incentives for forest conservation, because the revenue from the sale of sustainable forest-based carbon credits is less than other kinds of carbon credits.<sup>1169</sup> The reason is threefold. First, the return for forest carbon projects is still low even after adding the revenues from commercial plantations.<sup>1170</sup> Wood products with a sustainability certification do not have a clear price premium.<sup>1171</sup> Additionally, the cost of CDM forest projects is higher than other types of CDM projects. Because trees take years to grow, forest carbon projects expect returns in the distant future. Consequently, project developers may face high insurance fees and higher requirements for finance.<sup>1172</sup> Considering the attributes above, many investors choose other types of CDM projects with a shorter project period.<sup>1173</sup> Thirdly, forests planted in an environmentally sustainable manner have less carbon storage in a project period than industrial-tree monoculture plantations.<sup>1174</sup> The amount of carbon storage is closely related to the trees' growth rate, plantation density, and rotation frequency. Sustainable forest plantations turn out to have slower growth and a longer rotation period than industrial tree plantations. Whether a healthier plantation would make up for the shortfall in carbon sequestration is still uncertain. Considering this conflict between carbon storage and other ecosystem services in forests, if only recognising measurable emission reductions as

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<sup>1166</sup> See Chapter 2, Section 2.7.2 and 2.7.3.

<sup>1167</sup> See Chapter 6, Section 6.6.

<sup>1168</sup> See Chapter 2, Section 2.7.4.

<sup>1169</sup> Olsen and Fenhann, "Sustainable Development Benefits of Clean Development Mechanism Projects: A New Methodology for Sustainability Assessment Based on Text Analysis of the Project Design Documents Submitted for Validation," 2822.

<sup>1170</sup> Van Kooten, Nelson, and Vertinsky, "Certification of Sustainable Forest Management Practices: A Global Perspective on Why Countries Certify," 60.

<sup>1171</sup> *Ibid.*, 860.

<sup>1172</sup> Subak, "Forest Certification Eligibility as a Screen for CDM Sinks Projects," 337.

<sup>1173</sup> Thomas et al., "Why Are There So Few Afforestation and Reforestation Clean Development Mechanism Projects?," 881.

<sup>1174</sup> Subak, "Forest Certification Eligibility as a Screen for CDM Sinks Projects," 339.



profitable project products, project participants would be highly motivated to choose the monoculture plantation of industrial trees rather than sustainable plantations.<sup>1175</sup>

To restructure the project participants' incentives and promote sustainable forest activities, offset mechanisms with better design and implementation should be provided to deliver optimal incentives for sustainable forest carbon projects. One way to do so would be to accumulate finance from international beneficiaries. Tacconi (2007) asserted that the costs of forests conservation are borne by the local community, while the benefits are enjoyed by the international community.<sup>1176</sup> The local or international beneficiaries of sustainable forests have not fully realised the significance of forestry conservation and the risks of harmful plantation and deforestation.<sup>1177</sup> Multilateral funds can mediate between investors from developed countries and recipients from developing countries to reach a reasonable price for forest-based carbon offsets from sustainable foreign forest carbon projects in developing countries considering their multiple benefits on the ecosystem and the society (*Measure Six*).

In addition, the multilateral funds can adopt measures to overcome the problems identified about the current regulatory and private assessments on the sustainability of forest carbon projects in developing countries. These measures are discussed below with consideration to combine the strengths and avoid the weakness of solutions proposed in previous literature as summarised in Tables 9-2 and 9-3.

**Table 9-2: Institutional Advantages of the Multilateral Funds Over Regulatory Sustainability Assessments**<sup>1178</sup>

<b>Problems of regulatory SA</b> <sup>1179</sup>	<b>Proposals in previous literature and their problems</b>	<b>Advantages of measures to be adopted by multilateral funds</b>
Broad criteria and poor enforcement	International resolutions: sovereignty infringement	<i>Measure Two:</i> Self-regulating assessing rules. Avoiding sovereignty infringement and the barriers of negotiating international unified sustainability assessment criteria (but still have trans-boundary effects as an international public-private entity)
Lack of <i>ex-post</i> monitoring	Suspension & appeal: difficult to implement	<i>Measure Four:</i> Use suspension and appeal

<sup>1175</sup> See more about the conflict between forest ecosystem conservation and industrial tree plantation at Sandrine Rousseaux, "Carbon Sinks in the Kyoto Protocol's Clean Development Mechanism: An Obstacle to the Implementation of the Convention on Biological Diversity," *Envtl. L. Rev.* 7 (2005): 1.

<sup>1176</sup> Tacconi, "Decentralization, Forests and Livelihoods: Theory and Narrative," 344.

<sup>1177</sup> Olsen and Fenhann, "Sustainable Development Benefits of Clean Development Mechanism Projects: A New Methodology for Sustainability Assessment Based on Text Analysis of the Project Design Documents Submitted for Validation," 2820.

<sup>1178</sup> See relevant discussions in Chapter 4, Section 4.4.

<sup>1179</sup> "SA" stands for Sustainability Assessments.

Lack of transparency	Hire third-party independent entity	<i>Measure Five:</i> Hire third-party independent entity <i>Measure Seven:</i> Publish information online
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**Table 9-3: Institutional Advantages of the Multilateral Funds Over Private Sustainability Assessments**<sup>1180</sup>

Problems of private SA	Proposals in previous literature and their problems	Advantages of measures to be adopted by multilateral funds
Lack of supervision or sanction on private assessing entities	Enhance national supervision on projects: may have broad criteria and poor enforcement	<i>Measure Five:</i> Provide supervision by accrediting entities to implement or assess the projects. <i>Measure Seven:</i> Publish information online
Lack of local participation	Design details for local participation	<i>Measure One:</i> Code of conduct for public participation

To solve the problem that host developing countries may have broad criteria and poor enforcement for the sustainability assessment of CDM A/R projects, the multilateral funds can develop a high-standard of assessing rules and implement them across countries (*Measure Two*). Previously, some scholars have proposed using international regulatory measures to enhance CDM projects' sustainability. For instance, Schneider (2007) suggests revising the international additionality assessment to exclude projects with few benefits for sustainable development.<sup>1181</sup> Muller (2007), and Olsen and Fenhann (2008) recommended incorporating rent extraction and text analysis into the international legal framework.<sup>1182</sup> Ma et al. (2013) suggested the integration of ecological restoration standard into the CDM procedure.<sup>1183</sup> However, developing countries refuted international intervention on sustainability issues arguing that applying international standards on this issue would impinge on their sovereignty.<sup>1184</sup> In 2014 revision of the CDM validation and verification standards, power is still left with the host party which eventually considers the significance of the impacts and which can request the project participants conduct environmental and social impact assessments.

<sup>1180</sup> See Chapter 4, Section 4.4.

<sup>1181</sup> Schneider, "Is the CDM Fulfilling Its Environmental and Sustainable Development Objectives? An Evaluation of the CDM and Options for Improvement," 12-13.

<sup>1182</sup> Olsen and Fenhann, "Sustainable Development Benefits of Clean Development Mechanism Projects: A New Methodology for Sustainability Assessment Based on Text Analysis of the Project Design Documents Submitted for Validation," 2819. Adrian Muller, "How to Make the Clean Development Mechanism Sustainable—the Potential of Rent Extraction," *ibid.* 35, no. 6 (2007): 3203.

<sup>1183</sup> Ma et al., "Integrating Ecological Restoration into CDM Forestry Projects," 145-47.

<sup>1184</sup> Figueres, "Sectoral CDM: Opening the CDM to the yet Unrealized Goal of Sustainable Development," 11.

The Marrakech Accord states that there is no “one-size-fits-all” formula. Capacity building, including sustainable development, must be country-driven, considering ‘the specific needs and conditions of developing countries, reflecting their national sustainable development strategies, and primarily to be undertaken by and in developing countries in accordance with the provisions of the Convention.’<sup>1185</sup> There have also been scholars who seek national solutions from developing countries’ perspective. For instance, Zhang et al. (2011) argued for the use of ecological criteria to assess CDM projects in China.<sup>1186</sup> However, many developing countries are currently not equipped with transparent information, adequate institutional and financial capacities, or advanced science and technology to effectively implement environmental regulation with low transaction costs.<sup>1187</sup>

On the contrary to a simple international or national approach, the multilateral funds can develop assessing rules to be implemented across countries project by project, but avoid sovereignty infringement. Because their decision-making process is an internal process, which can avoid the barriers of negotiating via internationally unified criteria among countries. Moreover, their criteria are developed by experts with abundant experience, advanced science and technologies, transparency, and implemented by professional third parties to facilitate an effective implementation of environmental protection measures.

Furthermore, to provide *ex-post* monitoring of forest carbon projects, multilateral funds can suspend a project and stop financing a project if unsustainable performance is detected (*Measure Four*), rather than waiting for the international or national authorities to withdraw their approvals. Previously, Subak (2002) has proposed that although *ex-post* punishment can prevent poor sustainability performance by suspending issued verification or discounting generated carbon credits, such regulations are difficult and expensive for public authorities to implement because they could jeopardise project returns and increase insurance costs.<sup>1188</sup> The private certification schemes are more advanced than host countries’ regulatory assessments on this issue, because they give temporary certificates, require periodic surveillance, and establish suspension-and-appeal systems on their certificates. For instance, the FSC provides certificates that are valid for only five years, then afterwards requires annual surveillance audits, and builds up a system to appeal against suspension decisions.<sup>1189</sup> However, the suspension of

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<sup>1185</sup> Para. 5, Annex, "Decision 2/CP.7: Capacity Building in Developing Countries (Non-Annex I Parties)," UNFCCC (2001), FCCC/CP/2001/13/Add.1, accessed 17 March 2017, <http://unfccc.int/resource/docs/cop7/13a01.pdf>.

<sup>1186</sup> Yuqian Zhang et al., "Using Ecological Criteria to Develop CDM Projects in Zhifanggou Valley, Loess Plateau, China," *Agriculture, Ecosystems & Environment* 141, no. 3 (2011): 410.

<sup>1187</sup> Strand, *Environmental Kuznets Curves: Empirical Relationships between Environmental Quality and Economic Development*, 5-10. Faure and Smits, *Does Law Matter? On Law and Economic Growth*, 386-88. Fehse et al., "Forest Carbon and Other Ecosystem Services: Synergies between the Rio Conventions," 62.

<sup>1188</sup> Subak, "Forest Certification Eligibility as a Screen for CDM Sinks Projects," 346.

<sup>1189</sup> Francois Dufresne, "Resolute Forest Products' FSC Forest Management Certificates to Be Suspended," *FSC Newsroom*, 18 December 2013, accessed 17 March 2017, <https://ca.fsc.org/en-ca/newsroom/id/219>. Wood and Panel,

private certification schemes cannot directly affect the validity of forest-based carbon offsets certified by the CDM.

Multilateral funds, on the contrary, can directly decide on the payments for forest-based carbon offsets and create the incentives for protecting forests ecosystem services. Some may argue that detailed regulation is not applicable, because the benefits of sustainable development are not quantitatively measurable. However, Olsen and Fenhann (2008) proposed that some sustainable development benefits are qualitatively measurable.<sup>1190</sup> Thus, this study recommends suspending funding, if unsustainable performance is detected in forest carbon projects. In this way, the multilateral funds can offer a monitoring mechanism on the veracity of the claimed sustainable benefits through a financial measure, which is more effective than voluntary measures.<sup>1191</sup>

In addition, multilateral funds secure transparency in the sustainability assessment by the following two measures. First, they can accredit third-party implementing entities to work with local entities and local people (*Measure Five*). Second, they can publish relevant information online including assessing rules and the identities of the third-party implementing entities (*Measure Seven*).

Multilateral funds can involve private certification schemes to assess the environmental and social impact of the projects.<sup>1192</sup> By deciding whether to accredit or hire a third party, the multilateral funds can supervise these self-regulating entities (*Measure Five*). Additionally, they can also facilitate public supervision by revealing the identities of the assessing entities (*Measure Seven*).

Lastly, multilateral funds can design a detailed code of conduct to enhance local participation (*Measure One*). Multiple scholars and authorities have stated a point of view of increasing local participation and enhancing “power decentralisation” for forest and environment conservation.<sup>1193</sup> However, Oates and Schwab (1988) raised a concern that local decision-making may lack incentives to restore long-term environmental benefits for future generations because of the mobility of the descendants.<sup>1194</sup> Oates and Schwab offered two solutions to solve this problem: one is to better represent future generations; and another is to capitalise local properties (forest-based carbon offsets and planted trees

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"Swedwood Gets FSC Relief," 14 March 2014, accessed 17 March 2017, <http://www.woodandpanel.com/news/article/swedwood-gets-fsc-relief/>.

<sup>1190</sup> Olsen and Fenhann, "Sustainable Development Benefits of Clean Development Mechanism Projects: A New Methodology for Sustainability Assessment Based on Text Analysis of the Project Design Documents Submitted for Validation," 2830.

<sup>1191</sup> Fehse et al., "Forest Carbon and Other Ecosystem Services: Synergies between the Rio Conventions," 62.

<sup>1192</sup> See Chapter 4, Section 4.3.

<sup>1193</sup> Ostrom and Nagendra, "Insights on Linking Forests, Trees, and People from the Air, on the Ground, and in the Laboratory," 19224. Melo, Turnhout, and Arts, "Integrating Multiple Benefits in Market-Based Climate Mitigation Schemes: The Case of the Climate, Community and Biodiversity Certification Scheme," 54.

<sup>1194</sup> Oates and Schwab, "Economic Competition among Jurisdictions: Efficiency Enhancing or Distortion Inducing?," 351.

in this study) in a way that the value of the environment in the future will be reflected in the current price. In addition, Tacconi (2007) pointed out that potential negative environmental impacts associated with local participation and decentralising power are not necessarily avoided, unless the following issues are clearly regulated: assignment of authority and responsibility between the various levels of governance, participatory planning, monitoring objectives, financial support, and sanctions linked with environmental criteria.<sup>1195</sup> Therefore, these items should be designed in a detailed code of conduct for local participation with a fair benefit-sharing plan considering the long-term and global environmental benefits in the future.

Furthermore, the rest of this section discusses what measures can be taken by multilateral funds to contribute to mitigating the unsustainable risks in the incentive schemes.<sup>1196</sup> The risks and measures are summarised in Table 9-4. Except for the seven measures mentioned above, three more measures are tailor-made for the multilateral funds to tackle the risks that exist in the incentive schemes of foreign forest carbon projects in developing countries.

**Table 9-4: Proposed Measures for the Multilateral Funds to Mitigate Unsustainable Risks**

<b>Project Players</b>	<b>Risks</b>	<b>Measures of the Funds</b>
<b>Foreign public finance providers</b>	a. Willing to pay minimum price	<i>Measure Three:</i> Mediate as an impartial third party <i>Measure Six:</i> Payment for ecosystem services
	b. Double-counting the investments	<i>Measure Seven:</i> Publish data online
	c. Insufficiently employing other public funding	<i>Measure Eight:</i> Cooperation between funds
<b>Private finance providers</b>	d. Underperformance	<i>Measure Five:</i> Third-party implementing entities
	e. Minimal efforts	<i>Measure Nine:</i> Fund review on project design <i>Measure Four:</i> Results-based payment <i>Measure Five:</i> Third-party implementing entities
	f. Not additional, but subsidised investments	<i>Measure Nine:</i> Fund review on project design
<b>Stakeholders</b>	g. Excluded from decision-making	<i>Measure Ten:</i> Invite stakeholders to join decision-making by the funds
	h. Insufficiently compensated	<i>Measure One:</i> Codes of conduct for benefit sharing
	i. Prioritise economic benefits	<i>Measure One:</i> Educational activities <i>Measure Nine:</i> Fund review on project design
<b>Host countries' governments</b>	j. National plans neglect the long-term negative impact	<i>Measure Nine:</i> Fund review on project design
	k. Sub-national policies prioritise economic benefits	<i>Measure Nine:</i> Fund review on project design <i>Measure Five:</i> Third-party implementing entities
	l. Governmental corruption	<i>Measure Five:</i> Third-party implementing entities <i>Measure Four:</i> Results-based payment
	m. Institutional incompetence	<i>Measure Five:</i> Third-party implementing entities

<sup>1195</sup> Tacconi, "Decentralization, Forests and Livelihoods: Theory and Narrative," 346.

<sup>1196</sup> See Chapter 5, Section 5.3

As shown in Table 9-4, Risk (a) states that governments from the North may have the incentive to pay a minimal price for the emission reductions. This study proposes two measures to be adopted by the funds that can contribute to mitigating Risk (a). To begin with, the funds act as a financial intermediary between the public investors from the North and the sellers from the South. As an impartial third party, a multilateral fund is operated to achieve its own objectives which, in general, are to efficiently deliver funding and achieve sustainable forest carbon projects. Therefore, a multilateral fund can mediate between the buyers and the sellers about the price and try to direct both sides to agree on a reasonable price (*Measure Three*). The second measure, ‘payment for ecosystem services’ (*Measure Six*) has been considered by the BioCarbon Fund ISFL.<sup>1197</sup> The multilateral funds can capitalise planted trees against the value of other ecosystems’ services and consider payments for other ecosystem services provided by the planted trees to motivate activities contributing to biodiversity conservation.<sup>1198</sup> This measure can promote payment for quantifiable additional environmental and social benefits. As a result, emission reductions will not be the only indicator to calculate the value of forest carbon projects and additional funding will be given to projects that apply sustainable measures.

In addition, better transparency and greater data accessibility online (*Measure Seven*) would help reduce Risk (b), the double counting of funding from the North under different themes. For instance, the online platform, Multi-Partner Trust Fund Gateway, adopted by the UN-REDD programme is clearly showing the financial flows between the funds and the donors, and between the funds and the projects.<sup>1199</sup>

Concerning Risk (c) about insufficiently employing other public funding, more effort should be given to cooperating with other funds and employing the public funding for biodiversity conservation to forest carbon projects (*Measure Eight*). Some multilateral funds and relevant international organisations have realised their synergies in forest carbon projects by starting to cooperate. For instance, the secretaries of the three Rio Conventions have established a Joint Liaison Group to promote their cooperation on climate change, biodiversity and land degradation in forest carbon projects.<sup>1200</sup> The UN-REDD programme, the World Bank’s Forest Carbon Partnership Facility (FCPF), and the Forest Investment Programme (FIP) are collaborating for a harmonised approach among relevant initiatives for national level REDD+ activities.<sup>1201</sup> The cooperation should promote

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<sup>1197</sup> The World Bank, *BioCarbon Fund Next Generation – Draft for Consultation* (the World Bank, 2012): 1-2.

<sup>1198</sup> For discussion on payments for ecosystems services, see Chapter 6, Section 6.4.2.

<sup>1199</sup> The Multi-Partner Trust Fund Office, "Gateway for the UN-REDD Programme Fund."

<sup>1200</sup> Joint Liaison Group of the Rio Conventions, "Forest: Climate Change, Biodiversity and Land Degradation."

<sup>1201</sup> Climate Investment Funds, UN-REDD Programme, and FCPF, "Working Together for REDD+," accessed 26 June 2017, file:///C:/Users/yixin/Downloads/Joint%20Pamphlet\_en%20(1).pdf.

sustainable plantation plans to be considered by more forest carbon projects with high biodiversity values.

Regarding the three risks that exist in the incentives of private finance providers, one can look at some measures adopted by the funds to enhance the monitoring system. Primarily, some multilateral funds hire a third party as the implementing entities to lead or cooperate with the local entity in project implementation (*Measure Five*) to prevent underperformance (Risk d). For instance, the Green Climate Fund has multiple implementing bodies and accredits them against its own standards.<sup>1202</sup> Additionally, the multilateral funds can review the proposed projects at the selection stage (*Measure Nine*) and prioritise those with more sustainable plans to counteract private parties' incentive to make a minimal effort at securing sustainability (Risk e). The project's design will be the guidance for project implementation and be reviewed accordingly by the funds. Thirdly, the multilateral funds can require projects' proposals to reflect the additionality of private funding. Namely, a proposal should prove its private funding is not from a business-as-usual scenario for industrial tree plantation (Risk f). As a result, the funds can review the additionality of private funding at the proposal selection stage (*Measure Nine*).

Furthermore, the three risks from the stakeholders' perspective can be addressed through the policy-making and implementation procedure of the funds (*Measure Ten*). For instance, the UN-REDD Programme has clearly laid out the involvement of indigenous peoples and civil society in its decision-making process to avoid them being excluded in practice (Risk g).<sup>1203</sup> Additionally, there are a few financing programmes carried out on the ground by the UN-REDD and other multilateral funds to facilitate the engagement of stakeholders in the decision-making of forest carbon projects.<sup>1204</sup>

To avoid local stakeholders being insufficiently compensated (Risk h) a fair and equal benefit-sharing plan should be implemented to ensure sufficient compensation to the indigenous peoples (*Measure One*). The benefit-sharing plan should work together with environmental safeguards to make sure no economic benefit is gained at the cost of long-term environmental harm (Risk i). In fact, Risk (i) is tackled by the World Bank's environmental and social safeguards, which are applied by Tranche Three

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<sup>1202</sup> "Guiding Framework and Procedures for Accrediting National, Regional and International Implementing Entities and Intermediaries, Including the Fund's Fiduciary Principles and Standards and Environmental and Social Safeguards," GCF (2014).

<sup>1203</sup> UN-REDD, "Policy Board," accessed 2 March 2017, [http://www.unredd.net/index.php?option=com\\_content&view=article&id=2079&Itemid=514](http://www.unredd.net/index.php?option=com_content&view=article&id=2079&Itemid=514).

<sup>1204</sup> For instance, a partnership of the UN-REDD, the GEF and the UN Development Programme, the Community Based REDD+ Programme, will provide small grants to local communities. See more details at "Extracted from 2014 Annual Report: Stakeholder Engagement," accessed 2 March 2017, [http://www.unredd.net/index.php?option=com\\_docman&view=document&alias=14256-stakeholder-engagement-2014-annual-report&category\\_slug=2014-report-excerpts-by-outcome&Itemid=134:1-2](http://www.unredd.net/index.php?option=com_docman&view=document&alias=14256-stakeholder-engagement-2014-annual-report&category_slug=2014-report-excerpts-by-outcome&Itemid=134:1-2).

of the BioCarbon Fund (*Measure Two*).<sup>1205</sup> The newly established Green Climate Fund also temporarily applies the Policy and Performance Standards on Environmental and Social Sustainability of the International Finance Corporation (IFC).<sup>1206</sup>

Concerning risks in the incentives of host countries' governments, the funds' review on project design (*Measure Nine*) should be able to opt out projects with a long-term negative impact (Risk j and k). The involvement of a third-party implementing entity can also contribute to monitoring and counteracting unsustainable activities in practice (*Measure Five*). In addition, the results-based payment approach in *Measure Four* can examine and measure the actual emission reductions produced by the project and avoid corruption as in Risk (l). Lastly, the experience and expertise of the funds and third-party implementing entities in *Measure Five* can help host countries' governments improve their institutional capacity to achieve sustainable forest carbon projects effectively and efficiently (Risk m).

Lastly, this institutional design also considers the two problems that are discovered in the project practices in China and not covered by the theoretical discussion regarding the international institutional framework and the incentive schemes. First, the Chinese government can disapprove a transaction of forest-based carbon credits between foreign countries and Chinese developers because the price per unit is too low. This institutional design recommends that multilateral funds should have more discretion and responsibility in extending the payment for other co-benefits on the ecosystem and local society in forest carbon projects.<sup>1207</sup> Hence, the price for forest-based carbon credits will be increased and this problem can be solved.

Second, political conflicts may impede the interaction between foreign investors and local project owners. Multilateral funds manage funding from multiple countries as third parties which are independent from the political stance of a single investor or recipient. Therefore, multilateral funds as financial intermediaries have a better position to avoid projects being impeded as a result of political conflicts between individual countries.

#### **9.4 Designs for Reforming the Current Institutional Framework of Multilateral Funds**

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<sup>1205</sup> BioCarbon Fund, *Tranche 3 Concept Note, BioCarbon Fund -Next Generation* (the World Bank, 2012): 2. the World Bank safeguards policies are newly updated in 2016 and will be effective from 2018. The World Bank, "The New Environmental and Social Framework," accessed 2 March 2017, <http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/EXTPOLICIES/EXTSAFEPOL/0,,contentMDK:23673401~pagePK:64168445~piPK:64168309~theSitePK:584435,00.html>.

<sup>1206</sup> IFC is a member of the World Bank Group. "IFC Performance Standards on Environmental and Social Sustainability," IFC (2012). The GCF Board is determined to develop its own Environmental and Social Safeguards within three years after the fund becomes functional based on evolving best practices and multi-stakeholders' participation. See "Annex I: Initial Guiding Framework for the Fund's Accreditation Process," GCF (2014), 3. See Chapter 6, Section 6.5.1.3.

<sup>1207</sup> For more details about this recommendation, see Section 9.4.



The previous section proposed ten measures to deter unsustainable activities and promote sustainable activities in foreign forest carbon projects in developing countries. These ten measures are not fully implemented by the multilateral funds. Limitations still exist in the governing systems of multilateral funds. This section will point out the limitations and provide suggestions for institutional reforms.

The measures can be categorised into groups based on how much the current institutional framework should be modified. Section 9.4.1 discusses Group 1, which includes measures that already exist, but are not widely adopted by multilateral funds. Section 9.4.2 discusses Group 2, which contains measures that need to be adopted by more funds and better implemented in practice. Section 9.4.3 discusses measures that need to be enhanced, which constitute Group 3. Lastly, measures in Group 4 need more substantial modifications and are discussed in Section 9.4.4. The ten measures are summarised and grouped in Table 9-5.

**Table 9-5: Grouping of Proposed Measures**

<b>Measure</b>	<b>Description</b>
<b>Group 1: Existing Measures, but Not Widely Applied</b>	
Measure Five	hire or accredit a third entity
Measure Six	payment for other ecosystem services
Measure Seven	enhance data accessibility online
Measure Eight	cooperation with other funds
<b>Group 2: Measures Needing to Be Better Implemented</b>	
Measure One	code of conduct for working with local stakeholders
<b>Group 3: Measures Needing to be Upgraded</b>	
Measure Four	results-based payment to avoid corruption and provide <i>ex-post</i> monitoring
Measure Nine	review project proposals to prioritise projects with more sustainable plans and the financial additionality
<b>Group 4: Measures Needing Substantial Modifications</b>	
Measure Two	develop and implement high-standard environmental and social safeguards to assess projects across countries
Measure Three	mediate between the buyers and the sellers
Measure Ten	ensure the involvement of indigenous peoples and civil society in decision-making

#### **9.4.1 Group 1: Existing Measures, but Not Widely Applied**

From the analysis in the previous section, we can see that measures that may contribute to the sustainability of the projects are selectively adopted by multilateral funds. For instance, the involvement of a third-party implementing entity which can monitor unsustainable activities with its expertise and experience can improve the institutional capacity of host countries' governments (*Measure Five*). Many multilateral funds are cooperating with third-party implementing entities including the FCPF, the GCF, the GEF and the Adaptation Fund. However, the endorsed implementing entities are not necessarily entities that are specialised in environmental protection such as those financial entities endorsed by the FCPF. Furthermore, only a few funds state that a payment for ecosystem services will be developed for forest carbon projects (*Measure Six*). In addition, not every relevant multilateral fund is using the Multi-Partner Trust Fund Gateway or a similar platform to clearly demonstrate its financial flows online (*Measure Seven*). Such measures should be adopted by all relevant multilateral funds to assess sustainability issues. Guidelines of how to implement such measures can be systematically developed by authoritative international NGOs or governmental organisations to facilitate synergies among multilateral funds.

Lastly, more effort should be given to cooperating with other funds and employing public funding for biodiversity conservation in forest carbon projects (*Measure Eight*). Some multilateral funds and relevant international organisations have realised their synergies. For instance, the UN-REDD programme, the World Bank's Forest Carbon Partnership Facility (FCPF), and the Forest Investment Programme (FIP) are collaborating for a harmonised approach among REDD+ activities.<sup>1208</sup> In practice, a CDM project in China involved GEF funding for biodiversity conservation and nature reserve management under the support of the Chinese central government.<sup>1209</sup> This funding is separated from the A/R CDM project activity and would be used for a nature reserve. Such practices should be widely applied to other developing countries and more cooperation should be developed among funds to promote sustainable plantation plans in forest carbon projects with high biodiversity values.

#### **9.4.2 Group 2: Measures Needing to Be Better Implemented**

Measures to work with local stakeholders have already been designed by some multilateral funds, nonetheless, need to be better implemented. For instance, the Tranche One and Two of the BioCarbon Fund for CDM A/R projects have a step-by-step code of conduct to ensure a fair benefit sharing with

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<sup>1208</sup> Climate Investment Funds, UN-REDD Programme, and FCPF, "Working Together for REDD+."

<sup>1209</sup> CDM, "Project 0547: Facilitating Reforestation for Guangxi Watershed Management in the Pearl River Basin," Project Design Document, 38.

the local people (*Measure One*).<sup>1210</sup> However, the fund is not in charge of contracting benefit-sharing agreements with the local people or of distributing benefits. In practice, a local entity oversees these tasks, in which corruption and bias may exist.<sup>1211</sup> The fund needs to undertake monitoring measures to ensure the consistency of the implementation with the code of conduct. For instance, funds can conduct examinations randomly on the benefit sharing agreements, or even send representatives, or hire a third party to be directly involved on the ground.

### 9.4.3 Group 3: Measures Needing to Be Upgraded

*Measures Four* and *Nine*, as discussed above, are based on existing policies adopted by the multilateral funds. However, multilateral funds need to impose stricter requirements on these measures in terms of environmental and social sustainability. Currently, multilateral funds employ a results-based payment system, which is merely related to carbon removals.<sup>1212</sup> This study, however, proposes to connect payment with projects' sustainability performance including biodiversity conservation and poverty alleviation. Considering that it is controversial whether the sustainability performance of a project can be quantified accurately, this study proposes that if unsustainable performance is detected, multilateral funds should suspend and stop financing a project to provide *ex-post* monitoring (*Measure Four*).

Furthermore, the funds should assess the additionality of involved private investments (*Measure Nine*).<sup>1213</sup> Namely, the funds should assess whether a forestry company invests in forest carbon projects in a business-as-usual manner for industrial tree plantations. If it is a company that seeks income from timber or other wood products, then this company, as one of the decision makers in the project, may be more inclined to plant industrial trees rather than species more suitable for forest conservation. Consequently, supporting this type of project makes no difference from assisting land degradation and deforestation in developing countries.

### 9.4.4 Group 4: Measures Needing Substantial Modifications

An impartial position in decision-making is essential for the multilateral funds to apply *Measure Two* (to mediate between the North and the South for a reasonable price for forest-based carbon credits) or *Measure Three* (developing and implementing sustainability assessing rules across countries). The specialisation of multilateral funds may make them institutionally independent of national customs and regulations.<sup>1214</sup> However, some multilateral funds may still be influenced by the donors' will and can

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<sup>1210</sup> Salinas and Baroudy, *BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects*, 137.

<sup>1211</sup> Ibid.

<sup>1212</sup> For information on performance- or results-based payment system, see Chapter 6, Section 6.4.1.

<sup>1213</sup> See Chapter 2, Section 2.4.1.3.

<sup>1214</sup> Skogh, "Mandatory Insurance: Transaction Costs Analysis of Insurance," 522.

hardly remain impartial and independent. Such is the BioCarbon Fund, where the donors have a dominant role in the decision-making process, particularly at the proposal selection stage.<sup>1215</sup> Alternatively, the GEF uses a double-voting system to allocate the voting rights both to the donors from the North and to the recipients from the South. This approach may balance the interests of two sides, but is also criticised for its inefficiency.

The governing body of the funds can take more responsibility in the decision-making to avoid donors' dominance and inefficiency. The donors and the recipients, instead, should only play a supervising role in decision-making. Namely, once the donors or investors agree with the concept of the multilateral fund and decide to join, they cannot interfere with the decision-making of the fund regarding, for instance, which project to support. The fund's governing body should take the leading role in decision-making and maintain the fund's original principles and objectives in the implementation. In this way, the decision-making process can both remain impartial and improve efficiency.

The donors and recipients can supervise and evaluate the fund's governing system at two stages. One is *ex ante*, namely, before they hire the funds as the trustee of their funding. The other is *ex-post*, where it can be arranged that donors can withdraw their investments and the recipients can terminate the project if either of them disagrees with the fund's decision. In addition, the behaviour of the multilateral funds can be examined by an independent monitoring body and will be examined by the market. If a fund cannot deliver what it has promised to the donors and to the recipients, the future development of the fund will be affected.

Furthermore, measures to ensure public participation in the decision-making process of the multilateral funds need to be strengthened and clarified (*Measure Ten*). Currently, in many funds, indigenous peoples and civil societies can only observe rather than participate in the decision-making process.<sup>1216</sup> Following Tacconi (2007), the following measures should be considered by the funds.<sup>1217</sup> Multilateral funds should publish online how the observers are selected from each region, how long in advance they are informed of the topics of the meeting, and provide funding for their travel expenses to participate in the meeting in person. In addition, the local stakeholders' right to speak during relevant

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<sup>1215</sup> UK Department of Energy and Climate Change, *An International Climate Fund Business Case for Decc Investment in the BioCarbon Fund and the Forest Carbon Partnership Facility – Carbon Fund*, 98.

<sup>1216</sup> Such as the UN-REDD Programme, indigenous peoples are represented by the chairperson of the UNPFII, who has one permanent seat in the decision-making body, the UN-REDD Policy Board. A Civil Society Representative from an industrialized country has one seat on the board as well. One representative of civil societies and one representative of indigenous peoples from each of the three regions Africa, Asia-Pacific and Latin America-Caribbean constitute six observers of the meeting. See UN-REDD, "Policy Board."

<sup>1217</sup> Tacconi, "Decentralization, Forests and Livelihoods: Theory and Narrative," 346.

meetings should be specified to guarantee that they can convey their opinions about each subject of the meeting. Lastly, the decision-making meetings should be published to the public in a timely manner.

#### **9.4.5 Feasibility of the Design**

It is almost inevitable that implementing the design will involve institutional bargaining associated with increased transaction costs. Additionally, more educational programmes may be necessary to facilitate indigenous peoples' participation, which would also add more costs. Whether these additional costs are necessary is an issue that should be decided by the decision makers of the funds, the governmental donors, and recipients of the funds. This study can only propose that the additional costs should be valued against the significance of forest conservation and the severe violation of indigenous peoples' rights in practice. At the very least, this study offers measures for the multilateral funds which choose forest conservation and protecting indigenous peoples' rights over saving costs.

In addition, this design for the multilateral funds provides flexible alternative methods rather than changing international policies, laws, and implementation rules. Considering the complexity of sustainability issues, the proposed measures should be flexibly adopted into the governing systems of the multilateral funds. Specific measures can be transformed to fit with the institutions of the funds and may even be fragmentally embedded into the governing system of the funds.

#### **9.5 Outlook**

This section intends to summarise existing research gaps and draw up an agenda for research extensions. A valuable extension of this study would be to assess the competition of the multilateral funds of forest carbon projects in developing countries. Should there be more funds to enhance the competition or should the funds be centralised?

In addition, this study proposed one of the possible solutions to achieve sustainable results in foreign forest carbon projects in developing countries. As mentioned, the sustainability assessment is stipulated in the CDM rules to be conducted by the host developing countries' governments. Therefore, it would be valuable to conduct normative research about how to reform the national sustainability assessment of a developing country based on reliable empirical evidence. Likewise, another promising avenue for future research would be to explore how to improve the practices of private forest certification schemes in forest carbon projects in developing countries. Lastly, a closer look at the procedure for implementing the UNFCCC REDD+ safeguards may improve the sustainability of REDD+ pilot projects.

Finally, the Rio Conventions have all recognised that forests can provide significant ecosystem services to combat climate change, biodiversity loss, and desertification. However, no effective

measures have been taken to address these three problems comprehensively in forest activities. Therefore, an interesting avenue for future exploration could be to study how to enhance workable and binding cooperating measures of the three Rio Conventions on forest protection.



## 10 SUMMARY

Under the international climate legal regime, many foreign-invested tree planting and forest management activities have been conducted in developing countries with the intention to generate carbon offsets (forest carbon projects). However, studies have shown that some foreign forest carbon projects lead to severely unsustainable results on the environment and the local society. The current international institutional framework cannot guarantee the long-term environmental and social benefits of foreign forest carbon projects in developing countries.

This study set out to investigate how to design institutional reforms to promote sustainable results in foreign forest carbon projects in developing countries, combining multiple instruments and actors. The study provides one possible solution to this question that lies in an institutional reform of the existing governing systems of multilateral funds, which invest in foreign forest carbon projects in developing countries as financial intermediaries between the North and the South.

First, this study reviews the international institutional framework on forest carbon projects in developing countries using doctrinal and historical approaches in Part I. Chapters 2 through to 4 in this part examine the international policies and laws, implementation rules, and sustainability assessments on foreign forest carbon projects in developing countries. The study finds that the international institutional framework focuses on addressing climate risks, but fails to address risks in sustainable development.

Chapter 5 and Chapter 6 in Part II analyse the incentive schemes and the financial streams among major project actors from developed and developing countries under the current international institutional framework. The analysis takes advantage of secondary data from NGOs and shows that unsustainable risks exist in incentives for public and private project actors from both developed and developing countries. Funding from developed to developing countries is delivered directly or indirectly through multilateral funds.

Part III presents a case study of China, which examines the national institutional framework and practices based on interviews and project-site visits. The analysis shows that China has not established a sustainability assessment for forest carbon projects. Relevant practices, which deviate from their online documents, have adverse environmental and social impacts.

The analysis in the previous parts shows that some multilateral funds have already adopted a few incentive-based measures to ensure sustainable results. Hence, this study takes on the challenge of exploring to what extent an institutional design can be conducted from the perspective of multilateral



funds. The discussion in Chapter 9 confirms that multilateral funds have institutional and economic advantages in addressing the problems identified in the institutional framework and in the incentive schemes. Ten measures are discussed and divided into four groups for the purpose of reforming the existing governing systems of multilateral funds. The first group are measures to be widely applied: hire or accredit a third entity, include payment for other ecosystem services, enhance data accessibility online, and cooperate with other funds. The second group are measures to be better implemented: develop and implement codes of conduct for working with local stakeholders. The third group are measures to be upgraded: apply results-based payment to avoid corruption and to provide *ex-post* monitoring, and review project proposals to prioritise projects with more sustainable plans and financial additionality. The fourth group are measures to be substantially modified: develop and implement high-standard environmental and social safeguards to assess projects across countries, remain impartial when mediate between the buyers and the sellers, and ensure the involvement of indigenous peoples and civil society in decision-making. Thereby, the design provides institutional reforms that are tailored to address identified problems, based on evidence from practice, and embedded in a workable existing system.



## APPENDIX

### Appendix I Main International Documents on Climate Change and Forestry before the Kyoto Protocol <sup>1218</sup>

Stages	Year	Event and documents (organiser)	Main decision
Scientific Foundation Period -1985	1979	Declaration of the First World Climate Conference	First international political action: calling governments to prevent human-induced activities leading to harmful changes in climate.
Pre-negotiation period 1985-1990	1985	Villach Conference	Call for a global climate convention.
	1988	IPCC establishment	First intergovernmental organisation for climate change issue.
		Toronto Conference	Recognised the interdependence of global atmospheric problems; <sup>1219</sup> Proposed a global atmospheric convention for all atmospheric problems; <sup>1220</sup> Call for early action to reduce emissions of carbon by reducing use of fossil fuels and by improving management of forests.
	1989	Ottawa Conference <sup>1221</sup>	Proposed essential elements for a “framework ‘umbrella’ convention on protection of the atmosphere”; Proposed to negotiate an international convention only focused on climate change. Proposed to establish a world atmosphere trust fund with developing countries as beneficiaries. <sup>1222</sup>
	1989	Tata Conference <sup>1223</sup>	Recognised GHGs contribute to global warming; First conference addressing the particular concerns of the developing nations;

<sup>1218</sup> It is worth noting that conferences about protecting the ozone layer also contribute to combating global warming. However, considering the focus of this research, the table narrows down the scope to conferences focusing on climate change and excludes those particularly focused on the ozone layer. The list draws upon information from the UNFCCC official website, see UNFCCC, "Climate Change Information Sheet 17: The International Response to Climate Change," accessed 17 March 2017,

[http://unfccc.int/essential\\_background/background\\_publications\\_htmlpdf/climate\\_change\\_information\\_kit/items/300.php](http://unfccc.int/essential_background/background_publications_htmlpdf/climate_change_information_kit/items/300.php). The setting of the phases is developed based on relevant discussions of Bodansky, "The History of the Global Climate Change Regime," 25. Bodansky left out the Ottawa Conference and the Tata Conferences.

<sup>1219</sup> The Changing Atmosphere: Implications for Global Security Conference Statement Toronto, Canada 27-30 June 1988, in Center for International Environmental Law, "Selected International Legal Materials on Global Warming and Climate Change," *American University International Law Review* 5, no. 2 (1990): 515.

<sup>1220</sup> This proposal was criticised for being politically unrealistic at the Ottawa Conference. See more at Irving M. Mintzer and J. Amber Leonard, *Negotiating Climate Change: The inside Story of the Rio Convention* (Cambridge University Press, 1994), 53.

<sup>1221</sup> Protection of the Atmosphere: Statement of the Meeting of Legal and Policy Experts Ottawa, Ontario, Canada, 22 February 1989, in Center for International Environmental Law, "Selected International Legal Materials on Global Warming and Climate Change," 530-42.

<sup>1222</sup> The fund was proposed to collect funding through voluntary contributions and fines for violations of the global climate convention. See Roda Verheyen, *Climate Change Damage and International Law: Prevention Duties and State Responsibility*, vol. 54 (Leiden and Boston: Martinus Nijhoff Publishers, 2005), 47.

<sup>1223</sup> International Conference on Global Warming and Climate Change: Perspectives from Developing Countries (Tata Conference Statement), in Center for International Environmental Law, "Selected International Legal Materials on Global Warming and Climate Change," 543-66.

			<p>Proposed that coordinated international policies to promote research, monitoring and exchange of data;</p> <p>Recognised the importance of afforestation to CO<sub>2</sub> concentration;</p> <p>Proposed to involve local communities in such activities.</p>
1989	Hague Declaration <sup>1224</sup>		<p>Proposed to develop a new institutional authority within the UN;</p> <p>Recognised “the industrialised nations have special obligations to assist developing countries”;</p> <p>Proposed that international or domestic financial institutions and development agencies must coordinate to promote sustainable development.</p>
1989	Noordwijk Ministerial Conference		<p>Proposed employing forest to slow down climate change;</p> <p>Emphasised the ecologically sustainable development principle;</p> <p>Emphasised to combat climate change by reducing emissions and increasing sinks;</p> <p>Proposed to investigate quantitative emission targets to limit emissions;</p> <p>Proposed to balance global deforestation and afforestation and sound forest management, to maintain biodiversity and to duly consider people depending on forest land.</p>
1989	UN General Assembly accepted the First IPCC report 1990		<p>IPCC report 1990 recognised the functioning of deforestation and reforestation;</p> <p>UN Resolution “Convinced that climate change affects humanity as a whole and should be confronted within a global framework”;<sup>1225</sup></p> <p>Endorsed the establishment of the IPCC;</p> <p>Requested the Secretary-General to draw the attention of all governments and other relevant institutions.</p>
1989	Cairo Compact		<p>Proposed to deploy sources for military security “in pursuit of environmental security”;</p> <p>Proposed to complete a “framework climate convention” before the 1992 Rio conference;</p> <p>Proposed to promote reforestation and reduce population growth rates to combat climate change.</p>
1990	Bergen Conference <sup>1226</sup>		<p>Some industrialised countries “declared their willingness to ‘assume a major responsibility to limit or reduce greenhouse gases.’”;</p> <p>Supported the “precautionary principle” and the “principle of the common but differentiated</p>

<sup>1224</sup> Declaration of The Hague, Netherlands, 11 March 1989, in *ibid.*, 567-42.

<sup>1225</sup> Agenda Item 148, "Forty-Third Session: Protection of Global Climate for Present and Future Generations of Mankind Resolution," UN General Assembly (1989), A/RES/43/53.

<sup>1226</sup> Ministers of thirty-four countries plus the EC Commissioner for the Environment attended the conference and focused on the need for industrialised countries to limit GHGs emissions. See UNFCCC, "Bergen Conference on Sustainable Development," accessed 2 March 2017, <http://unfccc.int/resource/ccsites/senegal/fact/fs220.htm>.

			responsibilities of states” in the international climate change regime.
	1990	Second World Climate Conference <sup>1227</sup>	Scientific Statement: recognised the importance of GHGs for climate change, the severe impact of climate change on forests and other sectors, the necessity to take measures despite the scientific uncertainties; Ministerial Declaration: recognised the principle of equity, the common but differentiated responsibility of countries, sustainable development and the precautionary principle; urged developed states to establish emission reduction targets or national programmes; recognised that developing countries must still grow to accommodate their development needs.
Formal Intergovernmental Negotiations 1990-1992	1990	INC establishment	Started negotiating terms of UNFCCC
	1992	United Nations Conference on Environment and Development or the Earth Summit	Set the goal to “stabilise greenhouse gas concentrations in the atmosphere at the level that would prevent dangerous, human-induced climate change”
Post-agreement phase until 1997	1997	Kyoto Protocol	Set quantified emission reduction targets and market-based mechanisms
LULUCF	1997	COP 3	Carbon accounting for forest carbon projects
	1998	COP 4	Clarified carbon accounting for forest carbon projects
	2000	IPCC SASTA 13	Special report on land use change and forestry Forest definition
CDM A/R	2001	COP 6	Negotiations failed because of disagreement on the forest sector
		COP 6 bis	Draft agreement on principles, limited CDM forestry projects to afforestation and reforestation (A/R) activities and up to 1% of the assigned amount
		COP 7	Reached a decision on CDM A/R with definitions and guidelines
	2003	COP 9	More detailed rules for CDM A/R projects: temporary certified emission reductions
	2004	COP 10	Small scale CDM projects, IPCC good practice guidance
REDD+	2005-	COP 11	Proposed to discuss REDD in future COP meetings

<sup>1227</sup> The Second World Climate Conference, 29 October to 7 November 1990, Geneva, attended by ministers and heads of government from 137 states and the European Community, See "Second World Climate Conference," accessed 2 March 2017, <http://unfccc.int/resource/ccsites/senegal/fact/fs221.htm>.

## Appendix II COP Decisions Regarding REDD+

COP Session	Finance	Safeguards & non-carbon benefits	Emissions	Coordination of support	Drivers of deforestation and forest degradation	Alternative policy approaches
COP 13	2/CP.13	\	2/CP.13	\	2/CP.13	\
COP 15	4/CP.15	\	4/CP.15	\	\	\
COP 16	1/CP.16,	1/CP.16	1/CP.16,	1/CP.16	1/CP.16	\
COP 17	2/CP.17, 12/CP.17,	2/CP.17 12/CP.17	2/CP.17 12/CP.17	2/CP.17	2/CP.17,	2/CP.17
COP 18	1/CP.18	1/CP.18	\	1/CP.18	\	1/CP.18
COP 19	9/CP.19 10/CP.19 to 15/CP.19	9/CP.19, 11/CP.19 12/CP.19	11/CP.19 13/CP.19 14/CP.19	10/CP.19	15/CP.19	
COP 21	\	17/CP.21 18/CP.21 1/CP.16	\	\	\	16/CP.21



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## SUMMARY

Under the international climate legal regime, many foreign-invested tree planting and forest management activities have been conducted in developing countries with the intention to generate carbon offsets (forest carbon projects). However, studies have shown that some foreign forest carbon projects lead to severely unsustainable results for the environment and the local population. The current international institutional framework cannot guarantee long-term benefits of foreign forest carbon projects in developing countries.

This study sets out to investigate how to design institutional reforms to promote sustainable results in foreign forest carbon projects in developing countries, combining multiple instruments and actors. The study provides one possible solution to this question which lies in an institutional reform of the existing governing systems of multilateral funds. Multilateral funds invest in foreign forest carbon projects in developing countries as financial intermediaries between the North and the South.

First, this study reviews the international institutional framework on forest carbon projects in developing countries using doctrinal and historical approaches in Part I. Chapters 2 through 4 in this part examine the international policies and laws, implementation rules, and sustainability assessments on foreign forest carbon projects in developing countries. The study finds that the international institutional framework focuses on addressing climate risks, but fails to address risks related to sustainable development.

Chapter 5 and Chapter 6 in Part II analyse the incentive schemes and the financial streams among major project actors from developed and developing countries under the current international institutional framework. The analysis takes advantage of secondary data from NGOs and shows that unsustainable risks exist in incentives for public and private project actors from both developed and developing countries. Funding from developed to developing countries is delivered directly or through multilateral funds as financial intermediaries.

Part III presents a case study of China, which examines the national institutional framework and practices based on interviews and project site visits. The analysis shows that China has not established a sustainability assessment for forest carbon projects. Relevant practices, which deviate from their online documents, have adverse environmental and social impacts.

The analysis in the previous parts shows that some multilateral funds have already adopted a few incentive-based measures to ensure sustainable results. Hence, this study takes on the challenge of exploring to what extent an institutional design can be conducted from the perspective of multilateral funds. The discussion in Chapter 9 confirms that multilateral funds have institutional and economic advantages in addressing the problems identified in the institutional framework and in the incentive schemes. Ten measures are discussed and divided into four groups for the purpose of reforming the existing governing system of multilateral funds. The four groups are measures to be widely applied, better implemented, upgraded and substantially modified. Thereby, the design provides institutional reforms that are tailored to address identified problems, based on evidence from practice, and embedded in a workable system.

## SAMENVATTING

Op grond van het internationale juridische kader inzake de bescherming tegen klimaatverandering zijn er veel met buitenlands geld gefinancierde bomenaanplantings- en bosbeheeractiviteiten uitgevoerd in ontwikkelingslanden, met als doel CO<sub>2</sub>-compensatie tot stand te brengen (projecten voor emissiereducties via bossen). Uit onderzoek blijkt echter dat sommige reeds uitgevoerde projecten voor emissiereducties via bossen ernstige niet-duurzame gevolgen hebben voor het milieu en voor de lokale bevolking. Het huidige internationale institutionele kader kan geen langetermijnvoordelen van dergelijke projecten waarborgen inzake de emissiereducties via bossen in ontwikkelingslanden.

In deze studie wordt onderzocht hoe institutionele hervormingen tot stand kunnen worden gebracht ter bevordering van duurzame resultaten bij projecten voor emissiereducties via bossen, waarbij meerdere instrumenten en actoren worden gecombineerd. De studie biedt een mogelijke oplossing voor deze vraag via een institutionele hervorming van de bestaande bestuursstructuren van multilaterale fondsen die investeren in projecten voor emissiereducties via bossen in ontwikkelingslanden als financiële intermediairs tussen het Noorden en het Zuiden.

Allereerst wordt in deel I van deze studie het internationale institutionele kader voor projecten voor emissiereducties via bossen in ontwikkelingslanden beoordeeld aan de hand van theoretische en historische invalshoeken. In hoofdstuk 2 tot en met 4 in dit deel wordt gekeken naar internationale beleidsmaatregelen en regulering, uitvoeringsregels en duurzaamheidsbeoordelingen van buitenlandse projecten voor emissiereducties via bossen in ontwikkelingslanden. Uit de studie blijkt dat het internationale institutionele kader zich concentreert op de bestrijding van klimaatrisico's, maar niet op de aanpak van risico's met betrekking tot duurzame ontwikkeling.

Hoofdstuk 5 en hoofdstuk 6 in deel II zijn gewijd aan een analyse van de stimuleringsregelingen en de financiële stromen tussen grote projectactoren uit ontwikkelde landen en ontwikkelingslanden in het huidige internationale institutionele kader. De analyse, waarbij is geput uit secundaire gegevens van NGO's, laat zien dat er risico's van niet-duurzaamheid schuilen in

prikkels voor publieke en particuliere projectactoren uit zowel ontwikkelde landen als ontwikkelingslanden. De financiering van ontwikkelde landen naar ontwikkelingslanden wordt rechtstreeks of via multilaterale fondsen als financiële intermediairs geleverd.

Deel III biedt een casestudy van China, waarin wordt gekeken naar het nationale institutionele kader en de werkwijzen op basis van interviews en projectbezoeken. Uit de analyse blijkt dat China geen duurzaamheidsbeoordeling heeft opgesteld voor projecten betreffende emissie-reducties via bossen. De praktijk blijkt af te wijken van de onlinedocumenten en vertoont veelal negatieve milieu- en sociale effecten.

De analyse in de vorige delen laat zien dat sommige multilaterale fondsen al enkele stimuleringsmaatregelen hebben genomen om duurzame resultaten te waarborgen. Vandaar dat in deze studie de uitdaging wordt aangegaan om te onderzoeken in hoeverre het mogelijk is om een beter institutioneel kader aan te reiken voor de multilaterale fondsen. Met de bespreking in hoofdstuk 9 wordt bevestigd dat multilaterale fondsen institutionele en economische voordelen hebben bij de aanpak van de problemen in het institutionele kader en in de stimulerings-regelingen. Er worden tien maatregelen, verdeeld in vier groepen, besproken om de bestaande bestuursstructuur van multilaterale fondsen te hervormen. De eerste groep bestaat uit breed toe te passen maatregelen: een derde entiteit contracteren of accrediteren, betaling voor andere ecosysteemservices opnemen, toegankelijkheid van gegevens online verbeteren, samenwerking met andere fondsen. De tweede groep bevat maatregelen die beter moeten worden uitgevoerd: ontwikkeling en implementering van gedragsregels voor het werken met lokale belanghebbenden. De derde groep zijn maatregelen die moeten worden opgewaardeerd: betaling op basis van resultaten ter voorkoming van corruptie, controle achteraf, en evaluatie van projectvoorstellen om prioriteit te geven aan projecten met duurzamere plannen en financiële toegevoegde waarde. De vierde groep behelst maatregelen die een aanzienlijke wijziging meebrengen: hoogwaardige milieu- en sociale waarborgen ontwikkelen en implementeren om projecten in verschillende landen te beoordelen, onpartijdig blijven bij het bemiddelen tussen kopers en verkopers, de betrokkenheid van de inheemse bevolking en burgersamenleving bij de besluitvorming waarborgen. Daarbij biedt dit boek institutionele hervormingen die op maat zijn gemaakt om problemen aan te pakken op basis van wat de praktijk heeft uitgewezen, ingebed in een werkbaar bestaand systeem.

# Curriculum Vitae

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## Short bio

Motivated by the passion of protecting the environment, I pursued a PhD research at the *Erasmus School of Law* regarding the international climate change legal regime. I am Chinese with professional proficiency in English and elementary proficiency in French and Dutch. At the beginning of my study at *Erasmus*, I realized that economic instruments have great potential to complement traditional legal methods. Therefore, I started to explore law and economic analysis and empirical studies. Throughout my four-year stay in Europe, I published two English papers, and prepared another two conference papers to be published. Additionally, I gave a presentation at five international conferences on international environmental law issues. During my Master and Bachelor studies in the China University of Political Science and Law (CUPL), I was included in several research projects through which I conducted historical and comparative legal studies. For instance, I was the leader of a Master's research project on the liabilities of oil pollution in China and in America. Additionally, I published four papers in Chinese on international law, won a first-prize scholarship twice, and obtained a second prize of the CUPL Academic Star essay competition. Throughout my ten-year study of law, I have developed extensive academic experience in international law and environmental law.

## Education

<b>PhD</b> , "Institutional Designs for Sustainable Forest Carbon Projects in Developing Countries", Erasmus School of Law, Erasmus University Rotterdam.	2012-2017
Doctoral Courses, Hamburg Summer School of Law and Economics, Germany.	2014
Doctoral Courses of Law and Economics, Study Center Gerzensee, Switzerland.	2013
<b>Master of Law</b> , China University of Political Science and Law, China.	2010 - 2012
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## Work experience

<b>Assistant Professor</b> , School of International Law, Southwest University of Political Science and Law (SWUPL).	Sep. 2017-
<b>Research Intern</b> , Department of International Trade and Economic Affairs, Ministry of Commerce of the People's Republic of China	Jun. 2012- Jul. 2012
<b>Arbitration Clerk</b> , China International Economic and Trade Arbitration Commission.	Jul. 2011- May 2012
<b>Research Assistant</b> of China's Executive Council Member of the Comité Maritime International.	Jul. 2011- May 2012
<b>University Representative</b> of the Westlaw Database, Thomson Reuters.	Sep. 2010- Jul. 2012
<b>Legal Clerk</b> of the Civil Court, Chongqing Superior People's Court.	Jun. 2010- Jul. 2010
<b>Project Leader</b> of the Legal Clinic for Administrative Law, China University of Political Science and Law (CUPL).	Sep. 2008- Jul. 2009

## Prizes and awards

First Prize, Creative and Scientific Research Scholarship, CUPL.	2011
First Class Scholarship for the excellence of Academic Performance and Volunteers in academic year 2010-2011, CUPL.	2011
2nd Prize, 8th Academic Essay Competition, CUPL.	2010

Honoured for Participation, 'Eighteenth Annual Willem C. Vis International Commercial Arbitration Moot'.	2010
Certificate, China's National Judicial Examination (China's Bar Exam, the qualification test for judges, prosecutors, and lawyers in China).	2009
<b>Publications</b>	
Yixin Xu, A Legal Analysis on the Sustainability of Foreign Forest Carbon Projects in China, <i>Climate Law</i> , 7. 2-3 (2017): 150-84	2017
Yixin Xu, From Host to Investor: Enhancing the Sustainability of CDM Forest Projects, <i>Environmental and Planning Law Aspects of Large Scale Projects</i> , (2016): 47-72.	2016
Yixin Xu, Analysis on the Definition and Jurisdiction of Pirates based on American Precedents and the Latest International Documents of Maritime Crimes, <i>World Shipping</i> , 35.3 (2012): 53-56.	2012
Yixin Xu, Interpretation of the 'De Facto Export Contingency' under the WTO - base on the cases of Civilian Aircraft, <i>WTO Law and China</i> , (2012): 264-272.	2012
Yixin Xu, 'Specific' and 'Against' Standards: Judging the Legitimacy of Anti-dumping and Countervailing Measures, <i>Journal of Xidian University (Social Sciences Edition)</i> , 4(2011): 97-100.	2011
Yixin Xu, Checking-and-balancing Contractual Mechanism to Control Pre-Operational Risks of PPP Project, <i>Graduate Law Review CUPL</i> , 26.2 (2011): 119-128.	2011
<b>Others: Volunteer Experience and Student Activities</b>	
Board Member of Erasmus PhD Association Rotterdam, the Netherlands. (My major task was to manage public relations and design posters. For the "PhD Day", I proposed a new theme of seminars and invited speakers).	Nov. 2014-Apr. 2016
Volunteer, 'Our Children, We Care', China Foundation for Poverty Alleviation & Tencent Charity.	Oct. 2011
Volunteer, English Teacher of the Yue Village, Beijing Tong Xin Primary School.	Dec. 2010
Volunteer, 'Home of Love', Children's Shelter in Beijing.	Apr. 2010
President of the Youth League Committee of the International Law School, CUPL.	Sep. 2008- Jul. 2009
Volunteer Teacher to provide education aid to Ying Peng Migrant Workers' Primary School.	Mar. 2009- May 2009
Volunteer at the VIP Reception of Beijing Olympic Games Triathlon Competition.	Jul. 2008- Aug. 2008



## PhD Portfolio

Name PhD student	:	Yixin Xu
PhD-period	:	2012-2017
Promoters	:	Prof. Michael Faure & Prof. Yuwen Li
Co-promoter	:	Not applicable

## PhD training

<i>EGSL courses</i>		<i>year</i>
1) Research Lab (RL)		2012-2013
2) Introduction Legal Methods		2012-2013
3) Academic Writing in English		2012
4) Writing Clinic part I		2013
5) Reflection on Social Science Research		2013
6) Writing Clinic part II		2013
<i>Specific courses</i>		<i>year</i>
1) Public Law & Economics		2012
2) Comparative Law & Economics		2012
3) Microeconomics & Tutorials		2012
4) L & E courses at Study Center Gerzensee		2013
5) Hamburg L&E summer school courses:		2014
a) Subsidies, Regulation Procurement, and Consumer Information in WTO LAW: Economic and Legal Concepts		
b) The Economics of Law Enforcement		
<i>Seminars and workshops</i>		<i>year(s)</i>
1) IMPRS Uncertainty Topics Workshop		2012
2) EGSL PhD Lunch Lectures (Biweekly Wednesday)		2012-2015
3) BACT (Behavioural Approaches to Contract and Tort) seminar (Once a month)		2012-2015
4) EDLE seminar (Every Thursday)		2012-2015
5) ECLC Brown Bag lunches (once in a month)		2013-2016
6) ECLC seminars (Twice or three times a week in March and June)		2013-2016
7) Joint Seminar 'The Future of Law and Economics' (once a year)		2014-2016
8) Workshop "Smart Mixes in relation to Forest and Climate Change Governance"		2015-2016

9) Chair a session at the EMLE MTM Workshop	2015
<b>Presentations</b>	<b>year</b>
1) The 2nd European Environmental Law Forum, Brussels, Belgium. Presentation: From Host to Investor: Enhancing the Sustainability of CDM Forest Projects.	2014
2) EGSL Poster Presentation (once a year).	2014-2016
3) Erasmus Graduate School of Law Lectures, Rotterdam, the Netherlands. Presentation: From Host to Investor: Enhancing the Sustainability of CDM Forest Projects.	2014
4) ECLC Presentation: Sustainability Assessments on Forest Carbon Projects in Developing countries.	2014
5) ECLC Presentation: Incentive Schemes and Financial Streams of Forest Carbon Projects in Developing countries.	2015
6) ECLC Presentation: Policies, Laws and Practices of Forest Carbon Projects in China.	2015
7) The 20th Annual Ius Commune Conference, Leuven, Belgium. Presentation: Michael Faure & XU Yixin, The Institutional Design of Multilateral Funds for Forest Carbon Projects in Developing Countries: A Comparative Law and Economics Analysis.	2015
8) The Third European Environmental Law Forum, Aix-en-Provence, France. Presentation: XU Yixin, How Multilateral Funds Incentivize Sustainable Forest Carbon Projects in Developing Countries.	2015
9) The 32nd Conference of the European Association of Law and Economics, Vienna, Austria. Presentation: XU Yixin, From Host to Investor: Enhancing the Sustainability of CDM Forest Projects.	2015
10) 8th Joint Seminar 'The Future of Law and Economics', Rotterdam, the Netherlands. Presentation: XU Yixin, How Multilateral Funds Incentivize Sustainable Forest Carbon Projects in Developing Countries.	2016
11) Erasmus Gradual Law School Lecture, Rotterdam, the Netherlands. Presentation: The Laws of Forest and Climate Change in China.	2016
12) ECLC Presentation: An Institutional Design for Sustainable Forest Carbon Projects in Developing Countries.	2016
<b>Attendance (international) conferences</b>	<b>year</b>
1) Conferences of the Parties to the United Nations Framework of Convention on Climate Change, Warsaw, Poland.	2013
2) Conferences of the Parties to the United Nations Framework of Convention on Climate Change, Paris, France	2015
<b>Teaching</b>	<b>year</b>
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<b>Others</b>	<b>year</b>
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