



# AGRIVITA

## Journal of Agricultural Science

### REDD+ Financing to Enhance Climate Change Mitigation and Adaptation and Biodiversity Co-benefits: Lessons from the Global Environment Facility

Kanako Morita<sup>1)</sup> and Ken'ichi Matsumoto<sup>2)</sup>

<sup>1)</sup> Forestry and Forest Products Research Institute 1 Matsunosato, Tsukuba, Japan

<sup>2)</sup> Nagasaki University, Japan

#### ARTICLE INFO

##### Keywords:

Adaptation  
Biodiversity  
Finance  
Mitigation  
REDD+

##### Article History:

Received: November 2, 2017

Accepted: December 4, 2017

<sup>\*)</sup> Corresponding author:

E-mail: kanakomorita@ffpri.affrc.go.jp

#### ABSTRACT

This study explores ways to effectively and efficiently finance Reducing Emissions from Deforestation and Forest Degradation (REDD+) activities to enhance climate change adaptation and biodiversity conservation by drawing on lessons from the Global Environment Facility (GEF). The study analyzed trends in the focal areas of GEF forest-related projects, the executing and implementing agencies involved in GEF forest-related multi-focal area projects, and the co-fundraisers' trends in GEF forest-related multi-focal area projects. The analysis of GEF forest-related projects identified ways to finance REDD+ mobilization and distribution to enhance its multiple benefits. The key agencies that support REDD+ activities and enhance these co-benefits are the United Nations Development Program (UNDP), the Food and Agricultural Organization (FAO), the World Bank, the United Nations Environment Program (UNEP), and the national governments of developing countries. GEF and the co-fundraisers—multilateral aid agencies, such as UNDP, the World Bank, FAO, the Asian Development Bank, and UNEP, bilateral aid agencies, such as Germany, the United States and the European Union, the private sector and non-governmental organizations—all work to enhance REDD+ co-benefits. Because private contributions to the GEF are limited, it is important to design a scheme to mobilize more private financing for REDD+.

#### INTRODUCTION

Since the 11<sup>th</sup> meeting of the Conference of the Parties (COP11) in 2005, "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+)" has been discussed under the United Nations Framework Convention on Climate Change (UNFCCC). The Warsaw framework for REDD+ at COP19 in 2013, which contains comprehensive rules for REDD+, including national forest monitoring systems, safeguards, and results-based finance for REDD+, was adopted. In 2015, the COP21 adopted the Paris Agreement, which is the international framework for climate change actions after 2020. The agreement

aims to hold the increasing of the global average temperature to well below 2 °C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels (Article 2 of the Paris Agreement). In order to achieve the long-term temperature goal, the agreement states that "parties aim to reach global peaking of greenhouse gas emissions as soon as possible... and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century...(Article 4.1 of the Paris Agreement)". The agreement refers to sink that include forests and it also specifies REDD+ (Article 5 of Paris Agreement).

ISSN: 0126-0537 Accredited by DIKTI Decree No: 60/E/KPT/2016

**Cite this as:** Morita, K., & Matsumoto, K. (2018). REDD+ financing to enhance climate change mitigation and adaptation and biodiversity co-benefits: Lessons from the global environment facility. AGRIVITA Journal of Agricultural Science, 40(1), 118-130. <http://doi.org/10.17503/agrivita.v40i0.1729>

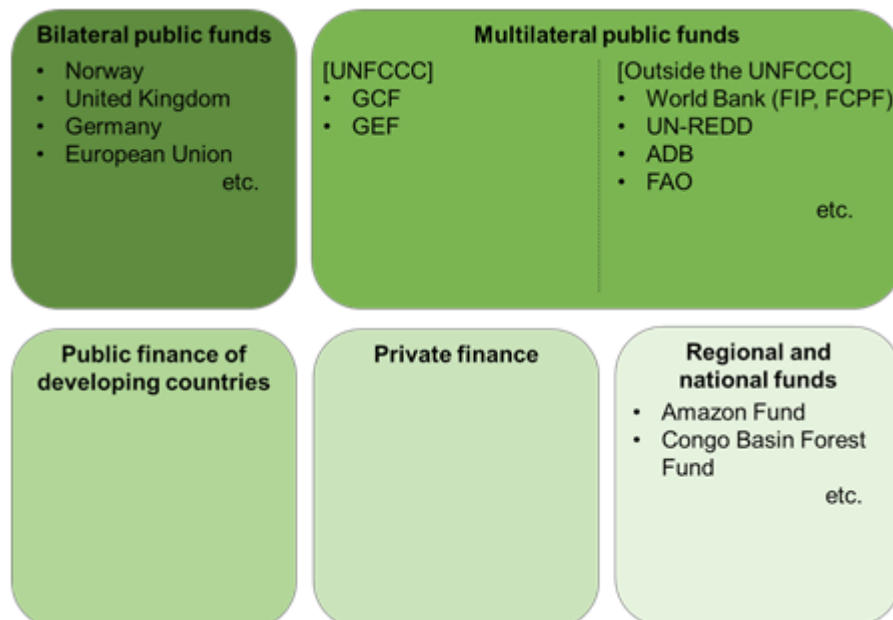
Kanako Morita and Ken'ichi Matsumoto : *REDD+ to Enhance Climate Change Adaptation*.....

Although REDD+ was clearly stated in the Paris Agreement, and the basic rules of REDD+ have been adopted, in order to promote the implementation of REDD+ it is essential to create effective international institutions, including a financing system for REDD+. Furthermore, implementation of REDD+ could be beneficial for greenhouse gas emissions reduction, as well as climate change adaptation, biodiversity conservation, and poverty reduction. In order to enhance these REDD+ co-benefits effectively and efficiently, it is important to design institutions, especially financing systems that support and enhance them.

This study explores effective financing systems for REDD+ that enhance the benefits of REDD+ toward climate change mitigation, climate change adaptation, and biodiversity conservation, by drawing on lessons from the Global Environment Facility (GEF). The GEF is the only agency serving as a financial mechanism for the UNFCCC, which addresses mitigation and adaptation, and the Convention on Biological Diversity (CBD), which addresses biodiversity conservation. In order to discuss ways to effectively and efficiently allocate funds to enhance REDD+ benefits and to explore ways to mobilize financing for REDD+, trends in focal areas in GEF forest-related projects are analyzed.

The implementing and executing agencies (i.e. implementing agencies administer and supervise the projects, and executing agencies which are responsible for the implementation of the projects) involved in GEF forest-related multi-focal area projects, and the co-fundraisers' trends in GEF forest-related multi-focal area projects are also analyzed.

As part of the Warsaw framework for REDD+, Decision 9/CP.19 of the UNFCCC states that the COP reaffirms that results-based finance provided to developing country Parties for the full implementation of REDD+ activities may come from a wide variety of sources, such as public and private, bilateral and multilateral, including alternative sources. Moreover, the COP encourages entities financing the activities of REDD+, through the wide variety of sources, including the Green Climate Fund (GCF) as a key role. GCF collectively channels adequate and predictable results-based finance in a fair and balanced manner, and to increase the number of countries that are in a position to obtain and receive payments for results-based actions. This means that various funding sources can finance REDD+. As shown in Fig. 1, these sources include bilateral public funds, multilateral public funds (e.g., GCF, GEF, and the World Bank), public financing from developing countries, private financing, and regional and national funding.



Remarks: FIP = Forest Investment Program; FCPF = Forest Carbon Partnership Facility; ADB = Asian Development Bank; FAO = Food Agriculture Organization.

**Fig. 1.** Financing sources for REDD+ assistance (created based on Watson, Patel, & Schalatek, 2016)



**Fig. 2.** The three-phase REDD+ strategy

Furthermore, a three-phase strategy is used to implement REDD+ in each country, as described in Decision 1/CP.16 of UNFCCC (Fig. 2). Phase 1 is the readiness phase, which includes the development of national strategies or action plans, policies and measures, and capacity-building. Phase 2 is the implementation phase, in which national policies and measures and national strategies or action plans are instituted that could involve further capacity-building, technology development and transfer, and results-based demonstration activities. Phase 3 is the full implementation phase, in which results-based actions are enacted that should be fully measured, reported, and verified.

Although the REDD+ encourages payments for result-based actions, developing countries need financing to implement all three phases. The GEF and the GCF are both multilateral public funding sources under the UNFCCC, however this study focuses on the GEF. The GCF was established by the 2011 UNFCCC decision 1/CP.16 and by a Transitional Committee, and it was launched at COP17 through decision 3/CP.17. The GCF is an operating entity of the financial mechanism of the UNFCCC (UNFCCC, 2017). It also has the potential to finance the result-based actions of REDD+. However, in comparison to the GEF, which was established in 1992 at the Rio Earth Summit, the GCF lacks experience in mobilizing and allocating finances to forest-related projects, and the details of financing schemes for REDD+ are still being discussed (GCF, 2017). Furthermore, although the GCF provides funds for mitigation or adaptation activities, the GEF is able to finance forest-related activities that produce multiple benefits. This is because the GEF is the only agency serving as a financial mechanism for the UNFCCC and the CBD as mentioned above; it also actively cooperates with the United Nations Forum on Forests (UNFF) (GEF, 2010).

The GEF is a partnership mechanism that unites 183 countries, 18 GEF agencies (multilateral and regional development banks, UN agencies,

international institutions, and non-governmental organizations [NGOs]), and executing agencies (e.g., countries government, NGOs, and the private sector) (GEF, 2017d). By pooling investments from different focal areas, the GEF is in a unique position to generate multiple environmental and social benefits from REDD+ in a cost-effective way, and the catalytic use of GEF resources creates significant additional financing for REDD+ (GEF, 2010). All the multilateral organizations involved in the implementation of projects under the major REDD+ programs, such as the UN-REDD Programme (implemented by the Food and Agricultural Organization [FAO], the United Nations Development Programme [UNDP], and the United Nations Environment Programme [UNEP]), the World Bank's Forest Carbon Partnership Facility, and the Forest Investment Program (implemented by the World Bank, the African Development Bank [AfDB], the Asian Development Bank [ADB], the European Bank for Reconstruction and Development [EBRD], and the Inter-American Development Bank [IADB]), are also GEF agencies (GEF, 2010).

Existing research on finance for REDD+ includes the following topics. Since various funding sources support REDD+ related activities, some studies have investigated fragmentation of the institutions in relation to REDD+, including financing (Well & Carrapatoso, 2017). Other studies have analyzed the characteristics of REDD+ initiatives and projects (Sunderlin et al., 2015). Streck (2016) evaluated options for mobilizing REDD+ financing. Private financing is essential to that mobilization. McFarland (2015) explored opportunities for private sector firms to support REDD+. With regard to effective financing, Streck (2012) reported on the need for matching funding and support of REDD+. The Warsaw Framework stressed that finance should be results-based, and previous research has included an implementation analysis of REDD+ in developing countries in the context of access to results-based finance (Voigt & Ferreira, 2015).

Kanako Morita and Ken'ichi Matsumoto : *REDD+ to Enhance Climate Change Adaptation*.....

In terms of identifying the correlation between financing REDD+ and the resulting multiple benefits, Busch (2013) reported that, under conditions consistent with emerging REDD+ programs, money spent on a mixture of carbon payments and biodiversity payments has the potential to incentivize the provision of greater climate benefits than an equal amount of money spent only on carbon payments.

However, existing studies have failed to provide concrete suggestions for effective finance mobilization and allocation for enhancing not only emissions reduction but other co-benefits of REDD+, such as adaptation and biodiversity. Research on effective financing and actor participation to enhance the co-benefits of REDD+ could contribute to more efficient implementation of forest conservation and management measures within the limitations of forest financing.

## MATERIALS AND METHODS

### The Case of Global Environment Facility Financing

The data from the GEF project database (GEF, 2016) is used to analyze GEF financing for the forest sector. To date, the GEF has supported over 411 forest projects and programs totaling more than USD 2.7 billion in GEF grant support, leveraging USD 13.8 billion from other sources (as of 1st April, 2017) (GEF, 2017e). The GEF has launched forest-related programs, and from GEF-1 to GEF-3 (until June 2006), the organization's early efforts have mainly dealt with single focal areas, such as focusing on biodiversity (GEF, 2010). In GEF-4 (July 2006 to June 2010), the GEF launched a pilot incentive scheme, a tropical forest account, and implemented multi-focal area projects, yielding benefits to REDD+ (GEF, 2010). In GEF-5 (July 2010 to June 2014), the GEF launched the Sustainable Forest Management (SFM)/REDD+ incentive mechanism, which resulted in multiple environmental benefits such as climate change and biodiversity due to improving the management of all types of forests (GEF, 2010). The fifth GEF replenishment (GEF-5) from 2010 to 2014 funded 69 projects in 80 countries, with over USD700 million in grants (GEF, 2015). GEF-6 (July 2014 to June 2018), established a separate SFM funding window of USD 250 million operated as an incentive mechanism for countries willing to enhance the

financing of their forests (GEF, 2017e). With a goal of encouraging investments in the forestry sector and promoting integrated approaches, the SFM funding allowed recipient countries to add up to 50 % of GEF support using their GEF allocation in the focal areas of biodiversity, climate change and land degradation (GEF, 2017e).

The GEF funds are projected for the following focal areas: biodiversity, climate change, chemicals and waste, international waters, land degradation, ozone layer depletion, persistent organic pollutants, and multi-focal areas. The majority of multi-focal area projects are designed to produce multiple benefits (IEO, 2017) for three focal areas; at least 75 % of the multi-focal area projects in the portfolio tracked some combination of biodiversity, land degradation, or climate change environmental status indicators within the same project (IEO, 2017).

Multi-focal area projects have the potential to create synergies in the form of project management efficiencies, focal area mainstreaming, and institutional learning (IEO, 2017). The increasing number of multi-focal area projects is likely to be due to the need to enhance the efficiency and cost-effectiveness of the projects (IEO, 2017). Efficiencies in project management were cited by both GEF agencies and executing agencies as a synergistic effect of targeting multiple focal area benefits simultaneously instead of through separate projects, and multi-focal area projects have allowed for focal area mainstreaming in more projects, while utilizing fewer resources from each focal area's funding allocation (IEO, 2017).

To address forest-related issues, acting on GEF Council guidance to foster a convergence of investments in more efficient and cost-effective projects and programmatic approaches, GEF-5 expanded and strengthened its SFM efforts (GEF, 2014). The GEF-5 initiative supported countries in combining resources from biodiversity, climate change, and land degradation focal areas for more comprehensive SFM/REDD+ multi-focal area projects and programs (GEF, 2014). The GEF-6 SFM strategy is based on a dedicated SFM funding envelope, which operates as an incentive mechanism to encourage countries to invest portions of their allocations from biodiversity, climate change, and land degradation into fully integrated multi-focal area SFM projects and programs (GEF, 2014).

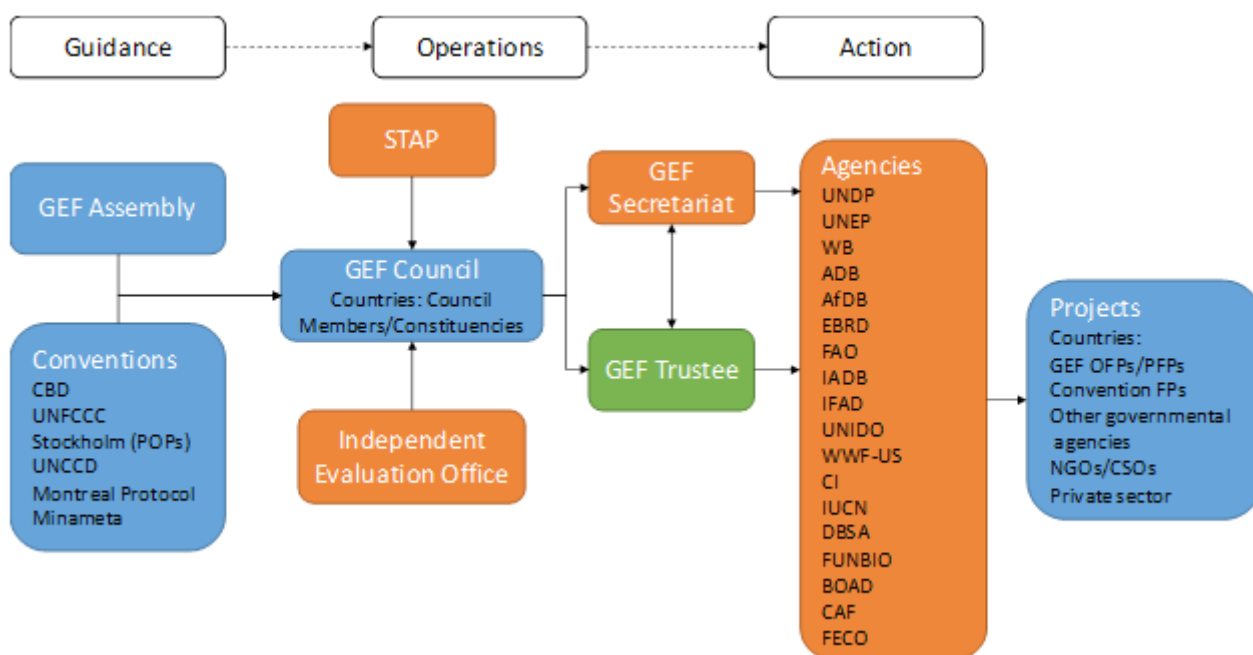
Kanako Morita and Ken'ichi Matsumoto : *REDD+ to Enhance Climate Change Adaptation*.....

Since multi-focal area projects have the potential to create synergies in the form of project management efficiencies, focal area mainstreaming, and institutional learning, it is important to analyze those projects in the forest sector, to identify the implications for financing REDD+ that effectively and efficiently enhance the co-benefits.

As seen in Fig. 3, GEF has a unique governing structure organized around an Assembly, the Council, the Secretariat, 18 Agencies, a Scientific and Technical Advisory Panel (STAP), and an Evaluation Office (GEF, 2017d). The conventions, for which the GEF serve as financial mechanism, provide broad strategic guidance to the GEF Assembly and the GEF Council (GEF, 2017c). The GEF Council converts this broad strategic guidance into operational criteria for GEF projects

(GEF, 2017c). Eighteen GEF agencies create project proposals and then manage the projects on the ground; they also help eligible governments and NGOs develop, implement, and execute their projects (GEF, 2017b).

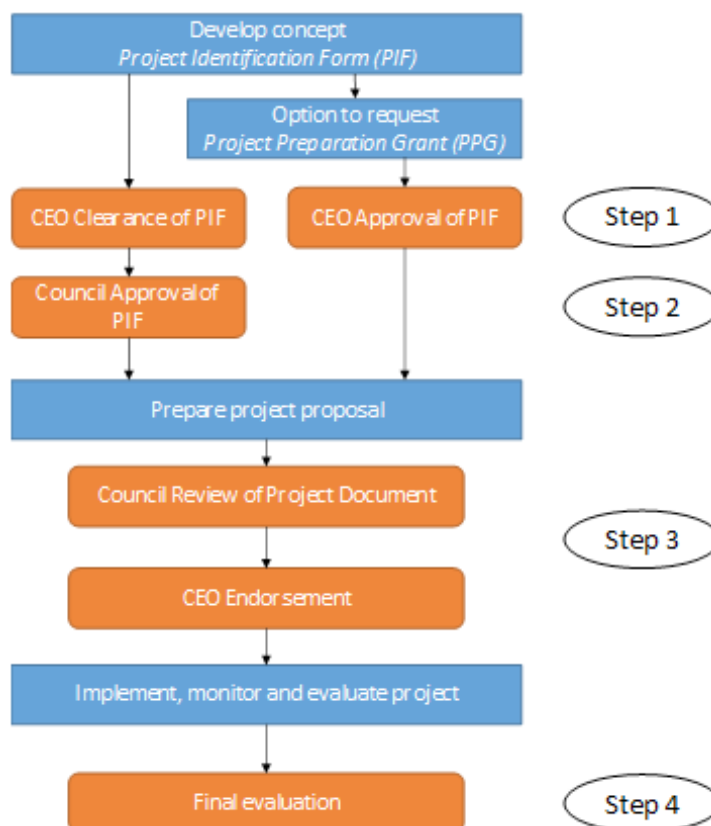
In association with the action phase in Fig. 3, Fig. 4 presents the GEF project approval cycle. There are four points in the project cycle where the GEF Secretariat and/or the GEF Council play a role in reviewing and making decisions about funding projects (referred to as Step 1, Step 2, Step 3, and Step 4 in the GEF project cycle). These four decision points are depicted as orange boxes in Fig. 4. The blue boxes signify stages in the project cycle where the recipient country, together with its partner GEF agency, takes the lead (GEF, 2017a).



Remarks: UNCCD = United Nations Convention to Combat Desertification; WB = World Bank; IFAD = International Fund for Agricultural Development; UNIDO = United Nations Industrial Development Organization; WWF-US = World Wildlife Fund; CI = Conservation International; IUCN = International Union for Conservation of Nature; DBSA = Development Bank of Southern Africa; FUNBIO = Brazilian Biodiversity Fund; BOAD = West African Development Bank; CAF = Development Bank of Latin America, FECO = Foreign Economic Cooperation Office; China Ministry of Environmental Protection; OFP = Operational Focal Point; PFP = Political Focal Point; NGO = Non-Governmental Organization; FP = Focal Point; CSO = Civil Society Organization

**Fig. 3.** The GEF Institutional Framework (GEF, 2017d)

Kanako Morita and Ken'ichi Matsumoto : *REDD+ to Enhance Climate Change Adaptation*.....



**Fig. 4.** GEF project cycle (GEF, 2017a)

#### Data from the GEF Project Database

In the present study, the following three items are analyzed by using the information available from the GEF project database and project reports:

- 1) Trends in the focal areas of GEF forest-related projects;
- 2) The implementing and executing agencies in GEF forest-related multi-focal area projects;
- 3) The co-fundraisers and the amount of co-funding for GEF forest-related multi-focal area projects.

As shown in Table 1, forest-related project data from the GEF project database was used (as of July 11, 2016). The forest-related project data was extracted by sorting the data from the GEF project database and typing the word "Forest."

Using the term "Forest" to search the data, 149 approved national forest-related projects and 29 approved global and regional forest-related

projects were extracted. The data in relation to the number of projects as well as the focal area, implementing agencies, executing agencies, and co-funding for each project were organized. The project information was classified according to the replenishment period, GEF-1 to GEF-6 (e.g., projects starting between July 1994 and June 1998 were categorized as GEF-1). Since not all the projects provided all this information, the ones in which were lack of information were excluded.

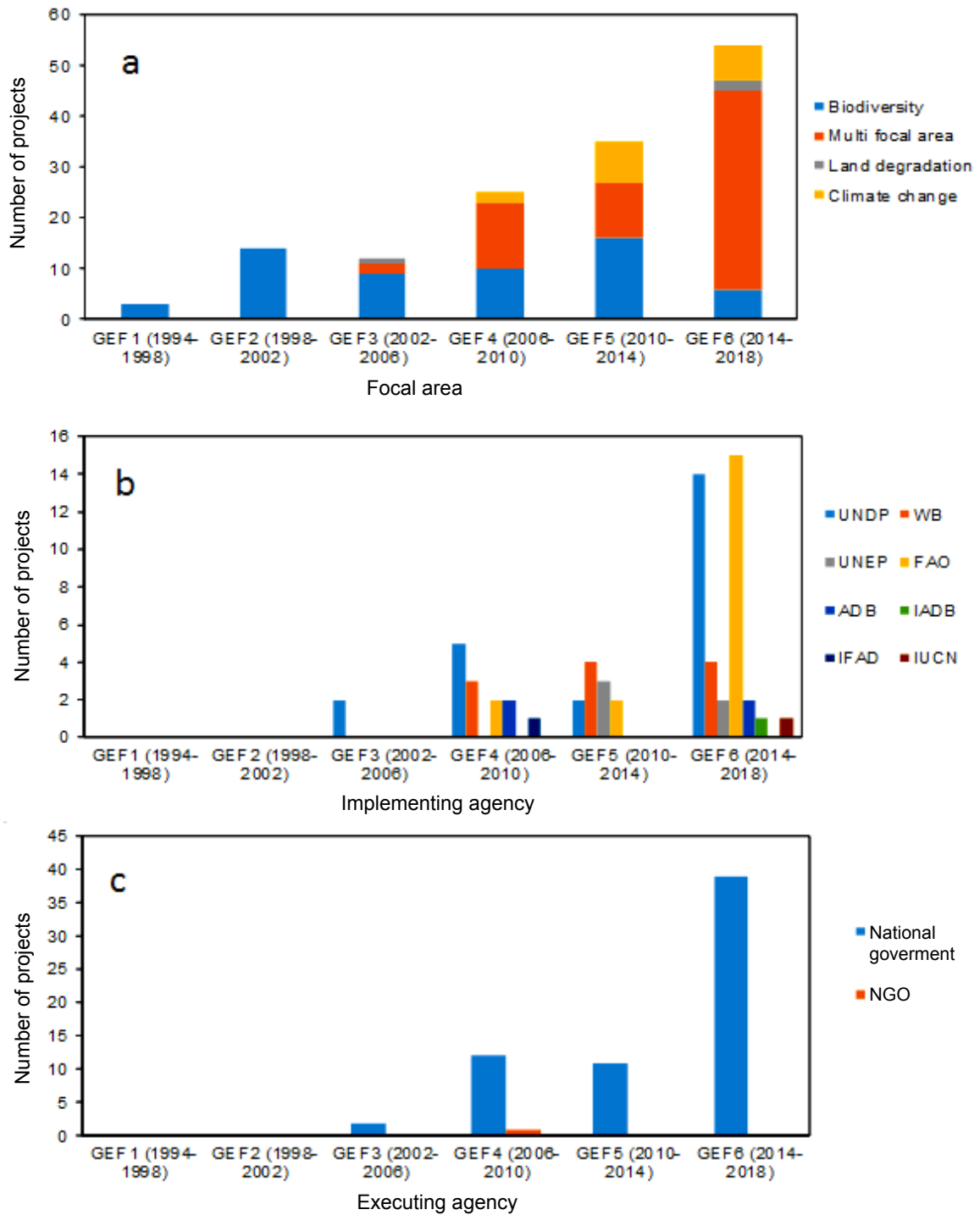
Moreover, in order to analyze the elements to enhance the co-benefits in the forest-sector, the forest-related multi-focal area projects were extracted by analyzing the project documents. The national projects from the global and regional projects were also separated, because the institutional scale of these projects is different. Global and regional projects are targeted to several countries.

**Table 1.** Examples of forest-related projects in the GEF projects database

GEF_ID	Country	Project Name	Focal Area	Agency	Project Type	GEF Grant (USD)	Co-financing	Status
2	Philippines	Samar Island Biodiversity Project: Conservation and Sustainable Use of the Biodiversity of a Forested Protected Area	Biodiversity	UNDP	FP	5,759,470	7,198,420	Project Completion
218	Central Figure Republic	A Highly Decentralized Approach to Biodiversity Protection and Use: The Bangassou Dense Forest.	Biodiversity	UNDP	FP	2,500,000	1,000,000	Project Closure
356	Mauritius	Restoration of Highly Degraded and Threatened Native Forests in Mauritius	Biodiversity	UNDP	FP	200,000	0	Project Completion
368	Guyana	Programme for Sustainable Forestry (Iwokrama Rain Forest Programme)	Biodiversity	UNDP	FP	3,000,000	780,000	Project Completion
490	Uganda	Kibale Forest Wild Coffee Project	Biodiversity	World Bank	MSP	750,000	3,400,000	Project Closure
539	Poland	Forest Biodiversity Protection	Biodiversity	World Bank	FP	4,500,000	1,700,000	Project Closure
642	Malaysia	Conservation and Sustainable Use of Tropical Peat Swamp Forests and Associated Wetland Ecosystems	Biodiversity	UNDP	FP	5,990,000	6,670,000	Project Completion
661	Suriname	Conservation of Globally Significant Forest Ecosystems in Suriname's Guayana Shield	Biodiversity	UNDP	FP	9,240,000	8,800,000	Project Closure
793	Benin	Program for the Management of Forests and Adjacent Lands	Multi Focal Area	World Bank	FP	6,000,000	22,000,000	Project Completion
815	Grenada	Dry Forest Biodiversity Conservation	Biodiversity	World Bank	MSP	723,000	404,580	Project Closure
818	Sri Lanka	Conservation of Globally Threatened Species in the Rainforests of Southwest Sri Lanka	Biodiversity	UNDP	MSP	724,713	226,000	Under Implementation

Remarks: GEF project database <http://www.thegef.org/projects> (Accessed July 11, 2016); FP = Full-Sized Project; MSP = Medium-Sized Project

Kanako Morita and Ken'ichi Matsumoto : *REDD+ to Enhance Climate Change Adaptation*.....



**Fig. 5.** The number of GEF forest-related national projects and forest-related multi-focal area national projects. a) the composition of focal areas of GEF forest-related national projects; b) the composition of implementing agencies of GEF forest-related multi-focal area national projects; c) the composition of executing agencies of GEF forest-related multi-focal area national projects.



## RESULTS AND DISCUSSION

### Analysis of the Results: Approved Forest-related National Projects

As shown in Fig. 5a, the number of forest-related national projects is increasing, up from three projects in GEF-1 to 54 projects in GEF-6. Until GEF-3 (2006), biodiversity was the primary focal area of forest-related national projects; however, for the current GEF-6, the focal areas of the projects include biodiversity, climate change, and multi-focal areas. Of the forest-related multi-focal area national projects, 53.8% have clearly targeted both climate change and biodiversity focal areas (some projects also address climate change, biodiversity, and land degradation). Furthermore, 90.8 % of the forest-related multi-focal area national projects address multiple issues, including climate change and biodiversity.

Beginning with GEF-4 (2010), the number of forest-related multi-focal area national projects has increased. Currently, UNDP and the FAO are the main agencies that oversee these projects, and both are GEF agencies (Fig. 5b). For example, a project like UNDP's Sustainable Forest Management to Secure Multiple Benefits in High Conservation Value Forests uses an integrated approach at the landscape level to manage high conservation value forests that will deliver global biodiversity, carbon benefits, and ecosystem services to local communities (cited from the project identification form). The Integrated Forest Management in the Solomon Islands implemented by FAO aims to integrate activities supporting biodiversity, sustainable land management, and climate change and sustainable forest management objectives and outcomes by ensuring that capacity building,

knowledge generation, technical assistance, and policy/legal documents are implemented holistically to work toward improving the four focal areas (cited from the project identification form).

Most of the executing agencies overseeing these projects are national governments of host countries (Fig. 5c). Table 2 shows the average amount of GEF funding and co-funding for each project and the average share of co-funding for each project. The share of co-funding for each forest-related project increased from 67.7 % to 81.4 % from GEF 3 to GEF6. Co-fundraisers include multilateral aid agencies (e.g., UNDP, FAO, the World Bank, ADB, and UNEP), bilateral aid agencies (e.g., Germany, the EU, and the US), governments in developing countries (e.g., ministries addressing the environment and forestry), NGOs (e.g., the World Wildlife Fund for Nature [WWF] and the Wildlife Conservation Society [WCS]), and the private sector (e.g., the banking and financial sector, nut producers, and coffee institutes) that provide grants, loans and in-kind assistance.

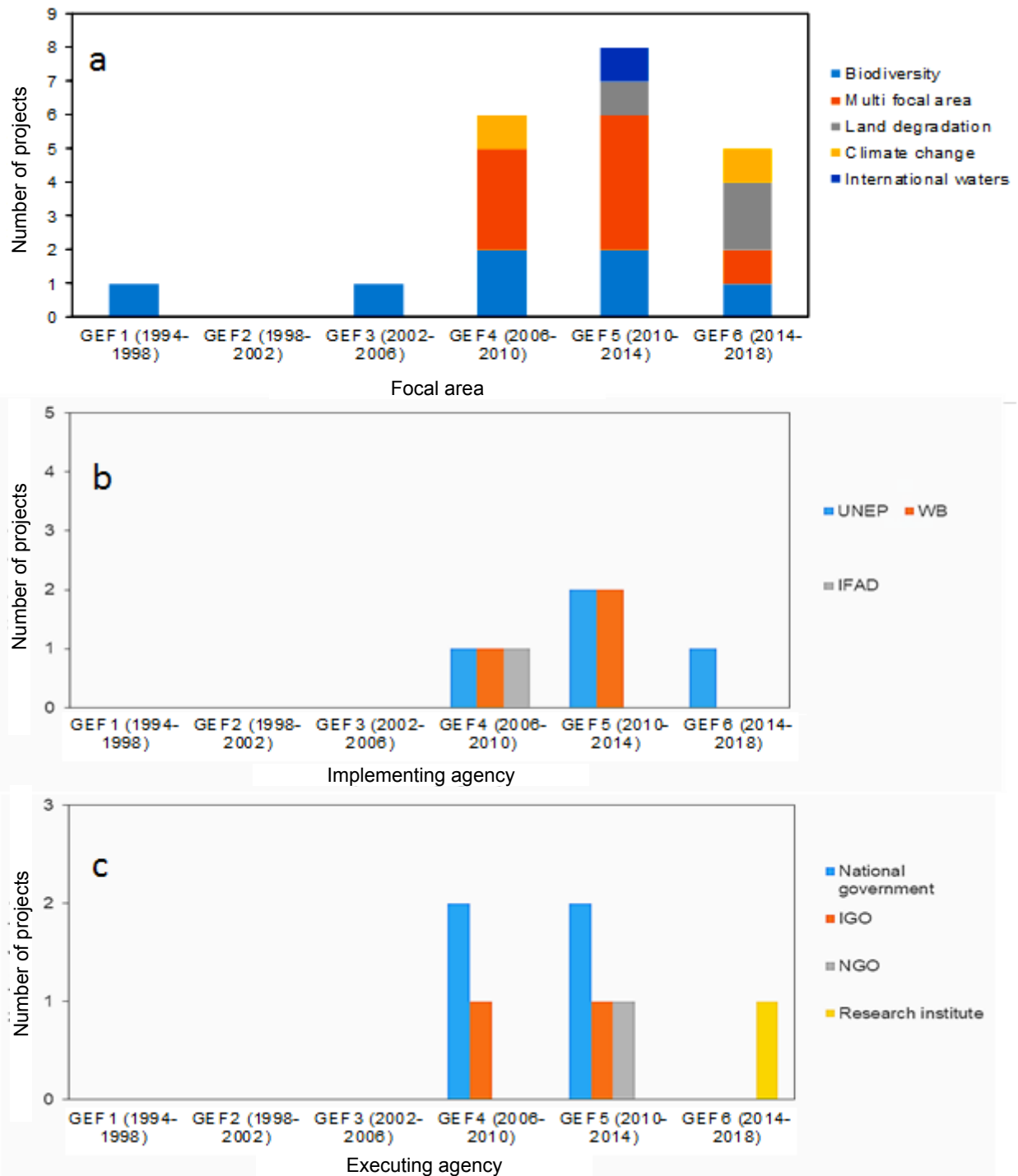
### Analysis of the Results: Approved Forest-related Global and Regional Projects

Unlike national projects, the number of forest-related global and regional projects (Fig. 6a) is limited, and the focal areas of these projects include biodiversity, land degradation, climate change, and multi-focal areas. Of the forest-related multi-focal area global and regional projects, 64.3 % clearly note that the projects target both climate change and biodiversity focal areas (some projects also address land degradation and international waters). Furthermore, 85.7 % of the forest-related multi-focal area global and regional projects address multiple issues, including climate change and biodiversity.

**Table 2.** Co-financing of the GEF forest-related multi-focal area national projects

	Average amount of GEF funding for each project (USD)	Average amount of co-funding for each project (USD)	Average share of co-funding for each project
GEF1 (1994–1998)	-	-	-
GEF2 (1998–2002)	-	-	-
GEF3 (2002–2006)	3,322,673	6,756,400	67.7 %
GEF4 (2006–2010)	3,668,226	27,780,306	72.9 %
GEF5 (2010–2014)	6,511,468	32,671,945	79.7 %
GEF6 (2014–2018)	7,530,084	44,789,038	81.4 %

Kanako Morita and Ken'ichi Matsumoto : *REDD+ to Enhance Climate Change Adaptation*.....



**Fig. 6.** The number GEF forest-related global and regional projects and forest-related multi-focal areal global and regional projects. a) the composition of focal areas of GEF forest-related global and regional projects; b) the composition of implementing agencies of GEF forest-related multi-focal area global and regional projects; c) the composition of executing agencies of GEF forest-related multi-focal area global and regional projects. (IGO: intergovernmental organization)

Kanako Morita and Ken'ichi Matsumoto : *REDD+ to Enhance Climate Change Adaptation*.....

**Table 3.** Co-financing of the GEF forest-related multi-focal area global and regional projects

	Average amount of GEF funding for each project (USD)	Average amount of co-funding for each project (USD)	Average share of co-funding for each project
GEF1 (1994–1998)	-	-	-
GEF2 (1998–2002)	-	-	-
GEF3 (2002–2006)	-	-	-
GEF4 (2006–2010)	4,125,593	11,192,389	72.4 %
GEF5 (2010–2014)	3,941,250	4,118,700	53.4 %
GEF6 (2014–2018)	5,342,465	68,300,000	92.7 %

As seen in Fig. 6b, UNEP and the World Bank, which are GEF agencies, are the main implementing agencies for global and regional projects. For example, Global Forest Watch 2.0, which is implemented by UNEP, has the potential to improve the monitoring of multiple benefits of REDD+, notably biodiversity conservation, through a number of proxy indicators for forest degradation (cited from the project identification form). Congo Basin Strategic Program Enhancing Institutional Capacities on REDD issues for Sustainable Forest Management in the Congo Basin project, which is implemented by the World Bank, will be part of the pilot projects that are focused on REDD issues and that generate experiences and lessons on how to create innovative instruments to protect high value biodiversity sites (cited from the project identification form).

In terms of the executing agencies, projects are executed by diverse actors; this includes the national government of host countries as well as research institutes, intergovernmental organizations (IGOs) and NGOs (Fig. 6c).

As shown in Table 3, similar to the forest-related multi-focal area national projects, the share of co-funding for each global and regional project is high; the average co-funding was 92.7 % in GEF-6. Co-fundraisers include multilateral aid agencies (e.g., UNEP, the World Bank, UNDP, and FAO), bilateral aid agencies (e.g., Germany, and the EU), governments in developing countries, NGOs (e.g., WWF and WCS), and the private sector (e.g., MacArthur Foundation), that provide, grants and in-kind assistance.

The following is a summary of the key findings for the GEF forest-related national projects and the global and regional projects.

1) Approved GEF forest-related national projects

- The number of forest-related national projects is increasing.

- Until GEF-3 (2006), biodiversity was the main focal area of forest-related national projects. Currently, however, the major focal areas of these projects are multi-focal areas, climate change, and biodiversity, and the number of forest-related multi-focal area national projects is increasing.
- Of the forest-related multi-focal area national projects, 90.8 % address multiple issues, including climate change and biodiversity
- Currently, the main agencies implementing forest-related multi-focal area national projects are UNDP and FAO.
- Most of the agencies executing the forest-related multi-focal area national projects are the national governments of host countries.
- The share of co-funding for each forest-related multi-focal area national project is increasing.
- Co-fundraisers include multilateral aid agencies (e.g., UNDP, FAO, the World Bank, ADB, and UNEP), bilateral aid agencies (e.g., Germany, the EU, and the US), governments in developing countries (e.g., ministries addressing the environment and forestry), NGOs (e.g., WWF and WCS), and the private sector (e.g., the banking and financial sector, nut producers, and coffee institutes).

2) Approved GEF forest-related global and regional projects

- The number of forest-related global and regional projects is limited.
- The focal areas of forest-related global and regional projects are diverse.
- Of the forest-related multi-focal area global and regional projects, 85.7 % address multiple issues, including climate change and biodiversity.
- UNEP and the World Bank are the primary implementing agencies of forest-related multi-focal area global and regional projects.

Kanako Morita and Ken'ichi Matsumoto : *REDD+ to Enhance Climate Change Adaptation*.....

- The range of executing agencies of forest-related multi-focal area global and regional projects is diverse; it includes national governments of host countries, as well as research institutes, IGOs, and NGOs.
- The share of co-funding for each forest-related multi-focal area global and regional project is high.
- Co-fundraisers include multilateral aid agencies (e.g., UNEP, the World Bank, UNDP, and FAO), bilateral aid agencies (e.g., Germany, and the EU), governments in developing countries, NGOs (e.g., WWF and WCS), and the private sector (e.g., MacArthur Foundation).

A comparison of the national projects and the global and regional projects showed that most of the forest-related multi-focal area projects include climate change and biodiversity. Moreover, all the multilateral organizations involved in the implementation of projects under the major REDD+ programs, such as UNDP, FAO, the World Bank, and UNEP are key to implementing and funding multi-focal area projects. However, agencies and organizations that oversee national projects have more experience implementing forest-related multi-focal area projects, including climate change and biodiversity.

The analysis of GEF forest-related projects provides justification for implementing the mobilization and distribution of REDD+ financing to enhance its multiple benefits. The analysis identifies that the GEF has high potential to finance REDD+ co-benefits. This is because the GEF has increased its support for forest-related multi-focal area projects, including climate change and biodiversity. Furthermore, in analyzing the trends related to funding and the actors (the co-fundraisers and the implementing and executing agencies), it was determined that the UNDP, FAO, the World Bank, ADB, and UNEP, as well as the national governments of developing countries, are likely to be the key agencies and organizations that support REDD+ activities that enhance the co-benefits. In mobilizing funds, the GEF, as well as project co-fundraisers, which include multilateral aid agencies, such as UNDP, FAO, the World Bank, ADB, and UNEP, bilateral aid agencies, such as Germany, the EU, and the US, NGOs, and the private sector, could play a key role in enhancing REDD+ co-benefits. GEF has been able to mobilize financing

from multiple donors and engage diverse actors in implementing forest-related projects. As such, it has provided good models for financing REDD+ co-benefits. However, since contributions from GEF's private funds are limited, it is important to design a scheme to mobilize private financing.

## CONCLUSION AND SUGGESTION

The analysis of GEF forest-related projects provides a justification for implementing financial mobilization and distribution to enhance the REDD+ co-benefits such as adaptation and biodiversity. The UNDP, the World Bank, FAO, UNEP, and the national governments of developing countries are the key agencies that support REDD+ activities that enhance these co-benefits. Furthermore, GEF, and project co-fundraisers, which include multilateral aid agencies, such as UNDP, FAO, the World Bank, ADB, and UNEP, bilateral aid agencies, such as Germany, the EU, and the US, NGOs, and the private sector, play a key role in enhancing REDD+ co-benefits. Since contributions from private funds are limited in the GEF, it is important to design a scheme to mobilize more private financing for REDD+.

## ACKNOWLEDGEMENT

This research was supported by grants from the Environment Research and Technology Development Fund (S-14) of the Ministry of the Environment in Japan.

## REFERENCES

- Busch, J. (2013). Supplementing REDD+ with biodiversity payments: The paradox of paying for multiple ecosystem services. *Land Economics*, 89(4), 655–675. <http://doi.org/10.3368/le.89.4.655>
- GCF. (2017). *GCF consultations on REDD+ results-based payments*. Retrieved from <http://www.greenclimate.fund/reddplus-results-based-payments>
- GEF. (2010). *The GEF incentive mechanism for forests: A new REDD+ multilateral finance program*. Retrieved from [https://www.thegef.org/sites/default/files/publications/REDDEnglish\\_2.pdf](https://www.thegef.org/sites/default/files/publications/REDDEnglish_2.pdf)
- GEF. (2014, May 22). *GEF-6 programming directions*. Retrieved from <https://www.thegef.org/sites/default/files/documents/GEF-6%20Program%20Directions.pdf>

- Kanako Morita and Ken'ichi Matsumoto : *REDD+ to Enhance Climate Change Adaptation*.....
- GEF. (2015). *Forests and the GEF: A brief look at two decades of support for forests*. Retrieved from <https://www.thegef.org/publications/forests-and-gef-brief-look-two-decades-support-forests>
- GEF. (2016). *Projects*. Retrieved from <http://www.thegef.org/projects>
- GEF. (2017a). *A GEF operational focal point's guide to the GEF project cycle: What is a project cycle and why is it important?*. Retrieved from <http://gef.prisenet.com/docs/922.pdf>
- GEF. (2017b). *GEF Agencies*. Retrieved from <https://www.thegef.org/partners/gef-agencies>
- GEF. (2017c). *Conventions*. Retrieved from <https://www.thegef.org/partners/conventions>
- GEF. (2017d). *Organization*. Retrieved from <https://www.thegef.org/about/organization>
- GEF. (2017e, April). *Sustainable forest management*. Retrieved from [https://www.thegef.org/sites/default/files/publications/GEF\\_SFMFactsheet20\\_17\\_CRA-web.pdf](https://www.thegef.org/sites/default/files/publications/GEF_SFMFactsheet20_17_CRA-web.pdf)
- IEO. (2017, May). *IEO briefing: Evaluation of the multiple benefits of GEF support through its multifocal area portfolio*. Retrieved from <https://www.gefio.org/sites/default/files/ieo/signposts/files/multiple-benefits-2016-brief.pdf>
- McFarland, B. J. (2015). International finance for REDD+ within the context of conservation financing instruments. *Journal of Sustainable Forestry*, 34(6–7), 534–546. <http://doi.org/10.1080/10549811.2015.1017109>
- Streck, C. (2012). Financing REDD+: Matching needs and ends. *Current Opinion in Environmental Sustainability*, 4(6), 628–637. <http://doi.org/10.1016/j.cosust.2012.10.001>
- Streck, C. (2016). Mobilizing finance for REDD+ after Paris. *Journal for European Environmental & Planning Law*, 13(2), 146–166. <http://doi.org/10.1163/18760104-01302003>
- Sunderlin, W. D., Sills, E. O., Duchelle, A. E., Ekaputri, A. D., Kweka, D., Toniolo, M. A., ... Otsyina, R. M. (2015). REDD+ at a critical juncture: Assessing the limits of polycentric governance for achieving climate change mitigation. *International Forestry Review*, 17(4), 400–413. <http://doi.org/10.1505/146554815817476468>
- UNFCCC. (2017). *Green Climate Fund (GCF)*. Retrieved from [http://unfccc.int/bodies/green\\_climate\\_fund\\_board/body/6974.php](http://unfccc.int/bodies/green_climate_fund_board/body/6974.php)
- Voigt, C., & Ferreira, F. (2015). The Warsaw Framework for REDD+: Implications for National implementation and access to results-based finance. *Carbon and Climate Law Review*, 9(2), 113–129. Retrieved from <https://cclr.lexion.eu/article/CCLR/2015/2/5>
- Watson, C., Patel, S., & Schalatek, L. (2016). Climate finance thematic briefing: REDD+ finance. *Climate Finance Fundamentals*, 5, 1–4. Retrieved from [https://us.boell.org/sites/default/files/uploads/2016/11/cff5\\_2016\\_redd\\_english.pdf](https://us.boell.org/sites/default/files/uploads/2016/11/cff5_2016_redd_english.pdf)
- Well, M., & Carrapatoso, A. (2017). REDD+ finance: Policy making in the context of fragmented institutions. *Climate Policy*, 17(6), 687–707. <http://doi.org/10.1080/14693062.2016.1202096>