

Analysis of Pilot Projects and Its Guidelines for Paris Agreement Article 6*

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Abstract: While the Kyoto Mechanism ended in 2020 and Article 6 of the Paris Agreement is under negotiation, international organizations and developed countries are designing and implementing the Article 6 pilot project. This study analyzes how each provision of Article 6 is interpreted and applied in three examples of pilot projects, with a particular focus on “sustainability,” one of the primary values emphasized in Article 6 of the Paris Agreement. To this end, this study analyzed how the African Development Bank, the Swedish Energy Agency, and the Swiss KfW Foundation interpreted and implemented each provision of the three main frameworks of Article 6, namely the cooperative approach (Article 6.2), the international trading mechanism on the reduction outcome under COP (Article 6.4), and the non-market approach (Article 6.8). As a result, the pilot projects reflected the core values of considering internationally transferred mitigation outcomes (ITMO), developing a baseline methodology, promoting environmental integrity, and the sustainable development of the host country.

Under the new Korean NDC, which increased the portion of overseas reduction, either the government planning a project under Article 6.2 or a company planning a project under Article 6.4 should selectively apply the trials and considerations from the preemptive pilots of Article 6 analyzed in the study.

Key Words: Paris Agreement, Article 6, Pilot Projects, International Market Mechanism, Sustainability

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I . Introduction

With the publication of “Global Warming of 1.5,” by Intergovernmental Panel on Climate Change (IPCC) many countries have declared 2050 carbon neutrality in 2020. Starting with the EU in July 2021, those countries raise their Nationally Determined Contribution (NDC) target as a realistic intermediary target to achieve carbon neutrality by 2050. The Korean government also announced a new NDC in October 2021 stating that it will do its best to find proper means of additional reduction domestically, but will use “overseas reduction” as a supplementary means to achieve its goals, which has been controversial so far. Korean government has reduced the overseas reduction from 96 million tons to 16.2 million tons in 2018 according to the public opposition led by the environmental civil societies and again raised to 33.5 million tons in its stronger NDC in October 2021. The proportion of overseas reduction on the NDC has increased, but who and how to manage overseas reduction remain unclear. Unlike the domestic plan, which explains means and targets of reduction together, the strategy for the overseas reduction is all about diversifying partner countries through bilateral agreements between governments, strengthening multilateral cooperation in international platforms, and promoting the private business related global carbon market. Therefore, it is time to discuss how to deal with overseas reduction beyond the means of detouring from domestic obligation.

The core principle of the Kyoto Protocol agreed in 1997 is to realize the accountability and financial contribution/obligation of the developed countries who have achieved economic growth based on fossil-fuel economy by reducing greenhouse gas emissions. This requires costly measures such as energy conversion, carbon capture, and clean

technology development. Although it was agreed to take the responsibility for climate change mitigation, such an increase in costs will be inevitably burdensome. Market Mechanism introduced accordingly to reduce the cost of each country's obligations. The Kyoto Protocol introduced a Kyoto Mechanism that introduces Joint Implementation (JI) that allows developed countries to jointly fulfill their obligations and Clean Development Mechanism (CDM) that accounts carbon reduction activities performed in developing countries (Jung, 2018).

In Paris agreement, the Article 6 contains principles of the Market Mechanism. It ultimately aims to induce a higher level of climate change response by recognizing that countries trade their reduction outcome in the market, contributing to the achievement of individual countries' NDCs in a cost-effective way, and promoting their willingness to reduce. Contrary to the rules adopted in most of the provisions of the Paris Agreement, Article 6 rule book have not been agreed upon yet.

Despite the end of Kyoto Mechanism as of 2020 and the rule book of Article 6 have not settled yet, some international organizations and developed countries prepare for future uncertainties. Namely, Article 6 Pilots are planned to test the next-generation international carbon market and take lessons from practice. As the name suggests, Article 6 Pilots was developed targeting the Article 6 of Paris Agreement. Though Article 6 Pilots were recently established at the absence of the rule book of the Article 6, they include the components of current negotiation issues considered between the state and stakeholders after the settlement of the Article 6 provisions.

Therefore, this study examines the details of the Article 6 provisions of Paris Agreement, reviews what Article 6 Pilots tries to implement, and the values importantly considered in the design of the three examples of

pilots. Specifically, we examined the Article 6.2, 4, and 8¹⁾ which are discussed in the Subsidiary Body for Scientific and Technological Advice (SBSTA), and analyzed the business model that major organizations prepare for the each provisions of the Paris Agreement Article 6. Especially, we analyzed how each organization tried to ensure the value of sustainability in their pilot project focusing on the aspect of sustainable development, which is a major criticism point of the projects under Kyoto Mechanism. As a target pilot projects, this study analyzed the Adaptation Benefit Mechanism (ABM) of the African Development Bank, the Article 6 Virtual Pilot of the Swedish Energy Agency (SEA), and the Article 6 Pilots of the KliK Foundation. Although the Article 6 rulebook of Paris Agreement has been finalized at COP 26 recently, it is still required to discuss and adjust the details of each provision between member states. In these circumstances, there is value that this study analyzes how the prospective participants of international carbon market proactively tried to design their project to realize the core issues of Article 6 in spite of uncertainty.

II. Literature Review

Although the climate regime under UNFCCC has tried to incorporate sustainable development of host country into GHG reduction project, sustainable development was regarded as too complex and costly to be

1) Drafts of Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement, rules, Modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement, work programme under the framework for non-market approaches referred to in Article 6, paragraph 8, of the Paris Agreement are produced and revised continuously.

planned, implemented and monitored. The sustainable development in the climate change regime is not new at all. We can start our discussion with the experience with sustainable development under the CDM and in the debate on post-2020 market mechanisms. According to Article 12, para. 5, of the Kyoto Protocol, CDM projects should be voluntary, provide real, measurable, and long-term support for mitigating climate change, and contribute to the sustainable development of the host country. CDM has not been successful in delivering sustainable development benefits (Cole and Roberts, 2011; Subbarao and Lloyd, 2011). It is noted that defining this principle implies that the means to achieve sustainable development is complex and specific to the evaluation context.

The CDM under the Kyoto Protocol was initially conceived as a way to achieve both global GHG reductions and provide capital to host countries to invest in sustainable development. However, two issues regarding this have been frequently identified. First, the definition of sustainable development is highly subjective because there is no standardized methodology for assessing sustainable development benefits like there is with quantitative emission reductions. According to the 2001 Marrakesh Accords, each CDM host country chooses its own sustainable development criteria and assessments (Benites-Lazaro and Mello-Thry, 2019; Mori-Clement, 2019). On the consequences, a CDM project activity was objectively evaluated by standards, procedures, and methodologies of the CDM Executive Board, with the exception of the project's aim to sustainable development. Without international standards for the definition of sustainable development, and the privilege of evaluating the CDM's contribution to sustainable development was transferred to host countries (de A Pereira, 2019).

Also, the lack of participation by people who are most impacted by

CDM projects has been also criticized (Cole and Roberts, 2011). The 2001 Marrakesh Accords required that CDM project participants include a section with comments from community participants in the Project Design Document (PDD) (Benites-Lazaro and Mello-Thry, 2019). However, in reality, community participation varies greatly depending upon the national context because each host country sets its own rules for participation and consultation (Cole and Roberts, 2011).

From the CDM experience, we could see several challenges and barriers to sustainable development in the Paris regime. They can be institutional, technical, and/or financial. Institutional barriers are mainly caused by a lack of clarity on the mechanism of Article 6 and the absence of a mandate for safeguarding and promoting sustainable development. We can imagine other barriers, i.e., the possibly different interpretation of sustainable development in the Agenda 2030 and the Paris Agreement. In the negotiating process, some have worried that strict mechanisms for monitoring, reporting, and verification (MRV) and environmental and social safeguards for sustainable development would lead to increased transaction costs (Kachi, Mooldijk and Dransfeld, 2020). And many still wanted to leave the definition and assessment of sustainable development for a host country. Consequently, they opposed any common international standards or transparency on this.

Some suggest that political and institutional aspects need to be addressed first, before technical challenges on the operational level, such as issues around MRV can be defined (Dransfeld et al., 2017). Technical challenges include the lack of detail regarding what the supervising body of Article 6.4 has to do and the lack of standardized frameworks for safeguards and the MRV for sustainable development.

Another technical challenge is the capacity for MRV. The complexity

of impact measurement (especially for sustainable development) of carbon market projects may lead to increased transaction costs. It is also related to what precisely this contribution entails and also stakeholders' roles and responsibilities (Dransfeld et al., 2017).

Initially, there was no clear structure for sustainability assessments under the early CDM: the modalities and procedures provided only general requirements for documentation of environmental impacts, without offering further guidance on how impacts were to be analyzed and what minimum quality requirements projects should meet in order to make concrete claims of positive impacts (UNFCCC, 2006). Depending on the project type, environmental impacts were, for instance, demonstrated through environmental impact assessments. In addition, a stakeholder consultation was a formal requirement of the CDM registration process. However, there was no guidance on how assessments and consultations were to be carried out and no process for recourse if the implementation of a project varied from how it was originally planned.

In order to get a CDM project certified, the host country had to issue a letter of approval (LoA), which was supposed to confirm that the project would contribute to the respective country's sustainable development. Without a clear definition of sustainable development or consistent criteria about how it should be measured, the attestation quickly became procedural without even a discussion of what the country might consider contributing to sustainable development on the national or local level (TERI, 2012). Furthermore, since this approach allowed flexibility to suit local circumstances, it made comparing sustainable development impacts in different countries difficult.

Some still argued that market-based mechanisms under the UNFCCC should focus primarily on mitigating GHG emissions (Dransfeld et al.,

2017). The perception was that further rules for the demonstration of sustainable development impacts would increase transaction costs for project development and cause an additional administrative burden for project developers, auditors, and regulators (Dransfeld et al., 2017). However, over time it became clear that projects with sustainable development benefits could command a price premium, especially in the growing voluntary market and pilot projects for Article 6 of the Paris agreement.

Carbon standards appear in the voluntary market and the pilot projects for Article 6 of the Paris agreement ensure that 'self-regulation' is credible and include criteria on project eligibility; on additionality; on the setting of baselines; on sustainable development; and on community participation. Ultimate success, however, will depend on a market that is willing to pay a legitimate price of co-benefits and sustainable development component.

III . Purpose of Allowing the International Carbon Market Mechanism in NDC under the Paris Agreement

Article 6 of the Paris Agreement largely consist of the general provisions on the operation of Article 6 (provision 1), transactions by voluntary cooperation between countries (provision 2-3), international carbon market managed by COP (provision 4-7), and the non-market approach (provision 8-9).

As a general operating rule, Article 6.1 explains the purpose of the Market Mechanism. It recognizes that each country voluntarily cooperates with other countries when implementing its own NDC.

According to the Article 6.1, the purpose of the market mechanisms is to stipulate efforts to reduce , promote sustainable development of host country and environmental integrity. The voluntary cooperation mentioned here can be interpreted as a) cooperation using the existing cooperation mechanism, and b) all of the cooperation through the new carbon market (ADB, 2020). The Market Mechanism in Article 6 suggests two approaches; bottom-up and top-down approaches (Asadnabizadeh, 2019). Article 6.2 is a regulation on the decentralized markets that can be voluntarily formed between countries, which can be a bottom-up approach. On the other hand, Article 6.4 intends to establish the international market under a centralized operating system managed by the COP. With those two approaches, Article 6 aims to secure the effectiveness of the market.

The logical explanation for allowing international transfer of the mitigation outcome under the Paris Agreement is that carbon emissions have the same impact on climate change, regardless of the source of the emission. Climate change caused by one ton of carbon emission in developed countries and one in developing countries affects same. It means that the effect of reducing carbon emission is also the same anywhere in the world. However, the cost of reducing carbon emissions by one unit is not the same in different region. The marginal cost of abatement faced by individual countries is different, so the Market Mechanism can lower global carbon reduction costs (Mani et al., 2018). In fact, according to the International Emissions Trading Association (IETA), cooperation between countries through the Paris Agreement Article 6 can halve the cost of achieving the NDC submitted by the parties to the agreement by 2030 (Edmonds et al., 2019). The value of reduced cost is equivalent to appx. US\$250 billion, and if this value is invested in carbon

reduction, it could further reduce 5 Gigatons of carbon per year by 2030. Using this scheme, it is expected that a higher level of reduction can be achieved while reducing costs.

IV. Analysis of Pilot Projects of Article 6 Provisions

1. Article 6.2

〈Box1〉 Paris agreement article 6.2

Parties shall, where engaging on a voluntary basis in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards nationally determined contributions, promote sustainable development and ensure environmental integrity and transparency, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double counting, consistent with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to this Agreement.

Article 6.2 acknowledges that reduction outcomes generated through voluntary cooperation between countries can be transferred and used to achieve NDC (Box 1). However, rather than mentioning specific details on the occurrence of mitigation outcomes, the Article 6.2 focuses on the procedural aspects of the transfer of mitigation outcome after the cooperation between countries (Kim et al., 2017). Specifically, the cooperative approach should satisfy the conditions of promoting sustainable development, ensuring environmental integrity, transparency, and strict calculations to prevent double-counting.

In the Paris Agreement, the term reduction outcome traded between countries is named Internationally Transferred Mitigation Outcomes (ITMOs). Article 6.2 requires ITMO to comply with the guidelines adopted by the COP. Regarding the phrase that ITMO can be used to achieve NDC, Sweden and Switzerland are operating pilot project to make use of it.

Sweden announced that it plans to use Article 6 of the Paris Agreement as a supplementary means for their NDC (SEA, 2021a). The Swedish Energy Agency (SEA), Sweden's Designated National Authority (DNA) for CDM, is using it as an opportunity to shape the framework of international cooperation under Article 6 by testing discussions and theories related to Article 6 of the Paris Agreement. Thus, SEA established 9 virtual pilot projects in 7 countries with well designed rules and standards, which will be linked to actual projects after confirming Article 6 rule book. We can find the evidence that SEA's virtual pilots intend to use the market mechanism on the questionnaires of concept note, such as 'Has the host country announced an interest in using market mechanism(s) for achieving its NDC? If yes, please describe.' and 'Describe the host country's track record in pursuing international market mechanism(s) to support GHG mitigation actions?' SEA does not specify which Article to associate with, however, it can be inferred based on some of the characteristics revealed in the SEA virtual pilot projects.

SEA aims to contribute to the achievement of NDC through bilateral and multilateral cooperation under the Paris Agreement. In the mutual cooperation process, SEA emphasizes that a) there should be a dialogue between buyers and a host country for the transfer of ITMOs; and b) the buyer country and the project owners within the host country must agree on how ITMOs will be produced and contracted (SEA, 2021b).²⁾ SEA does not specifically present ITMO-related procedures. However, reports prepared by organizations participating in virtual pilots suggest how to use ITMO in the business model. For example, the net-zero energy building project in Columbia shows that ITMO sales revenue can be used

2) <https://www.energimyndigheten.se/en/cooperation/swedens-program-for-international-climate-initiatives/cooperation-under-the-paris-agreement/bilateral-cooperation-under-the-paris-agreement/>.

to reduce energy service rates, support mortgage interest rates for energy-efficient housing by financial institutions, or enhance net-zero energy building price competitiveness in the housing market (Kachi, Warnecke, Hagemann, Nascimento, Mooldijk and Tewari et al., 2020).

In addition, as one of the criteria for selecting a pilot project, it is suggested to take measures to prevent double-counting, such as the host country's corresponding adjustment for mitigation outcome. Considering that the core component of Article 6.2 is ITMO's potential contribution to achieve each country's NDC, and the main issue of Article 6.2 is how to set up a corresponding adjustment method to prevent double-counting in transactions between countries, SEA's virtual pilot projects are highly relevant to Article 6.2.

On the other hand, the pilot projects of the KliK Foundation in Switzerland are attempting to link to Article 6.2 directly. According to Switzerland's NDC submitted last year, Switzerland aims to achieve 25% of the target amount by 2030 with ITMO from the reduction through the pilot projects. The KliK foundation was established in 2012 by CO₂ Act of Switzerland, and has a plan to secure 35million tons of GHG reduction from 2022 to 2030. The foundation called for projects for three times from January 2019 to January 2020. Not only private companies but also individual national governments can participate in cooperation projects after evaluation of project application.

Although the details of ITMO are still under discussion, the KliK foundation's pilot project presents the ITMO procurement process (Table 1) in relation to the contract procedure of the project. When ITMO is created as a result of the mitigation projects, the KliK foundation purchases and managed ITMO by the Mitigation Outcome Purchase Agreement (MOPA).

〈Table 1〉 The ITMO procurement process

Step 1	Online submission of MAs after registration with KliK (international.klik.ch) Private institutions submit MAs in periodic Calls for Proposals (CfP), governmental bodies can submit MA proposals any time. Documents to be submitted: • Mitigation Activity Idea Note (MAIN) explaining the proposed MA • Letter of Intent from transferring country (LoI TC) to confirm support of MA, willingness to perform CAs and enter talks for bilateral agreement (BA)
Step 2	KliK evaluates MA against a set of criteria. Outcomes: • Rejection: KliK no-go criteria not met, resubmission in a next CfP possible • Resubmission: Adjustments need to be made, resubmit MA any time • Preselection: No-go criteria met, Mitigation Activity Design Document (MADD) development approved by KliK Board ? Feedback in form of CARs and FARs in case of Resubmission and Pre-selection
Step 3	After first contact between governments, applicant requests LoI from Switzerland (LoI CH) to confirm the GoS' no-objection to the MA and TC
Step 4	Upon LoI CH and resolution CARs, KliK issues Letter of Support (LoS) to fund the development of the Mitigation Activity Design Document (MADD) and business model (MA Design Documents). KliK provides online: • Terms of Reference (ToRs) for development of MA Design Documents • Template Mitigation Activity Design Document (MADD) Resolution Protocol to track the development of the MA Design Documents
Step 5	Applicant provides technical and financial proposal to KliK. Upon signing of contract with KliK: • Applicant develops the MA Design Documents in an iterative process with KliK and other stakeholders • During development of the MA Design Documents, key commercial terms for the ITMO sale to be fixed by ITMO seller and KliK in a term sheet
Step 6	KliK Foundation evaluates final MA Design Documents and presents them for approval to KliK Board, GoS and TC. BA negotiations may be initiated by TC and GoS at any point during the process. BA signed precondition for next step.
Step 7	Independent Validator accredited by TC and GoS validates the MADD in accordance with the BA: • Validator presents its findings and requests for revision (if any) in a Validation Report to the involved parties • Applicant shall revise MADD where necessary
Step 8–9	Authorisation is the formal acceptance of MA by TC and GoS in accordance with Article 6.3 of the Paris Agreement and the BA: • The authorisation process in the TC and Switzerland may run in parallel, but independently of each other • If either TC or GoS does not authorise the MA, it cannot continue
Step 10	The compensation by KliK for ITMOs generated by the MA is result-based and governed by a Mitigation Outcome Purchase Agreement (MOPA): • MOPA includes terms for the implementation and operation of the MA as well as generation of ITMOs and the payment of unit price • MOPA is signed by KliK and seller of ITMOs. This could be the applicant of the MA or someone else, depending on the MA design • MOPA negotiations may be initiated by KliK at any point during the process

Step 11	Upon signing of MOPA, the applicant implements and operates the MA in accordance with the MADD and MOPA: • Periodic verification of GHG reductions achieved by MA and transfer of ITMOs from TC to GoS and KliK in accordance with the BA • Payment for the delivered ITMOs will occur upon delivery to KliK • Exact procedure of ITMO issuance and transfer are defined in BAs
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Source: KliK foundation (2020)

Since the key element of the rulebook of Article 6.2 is environmental integrity and sustainable development of the host country as it is expressed as shall, selection criteria or concept note of both organizations’ pilot projects for Article 6.2 reflects these aspects³⁾.

SEA presents selection criteria and concept note to help organizations that wish to participate in the pilot project to design their project corresponding to the core value of Article 6.2. According to the SEA’s project selection criteria (Table 2), for example, it is stated that ‘reductions must be real, quantifiable, and permanent’, ‘net reductions must be made’, and ‘obvious additionality’. In addition, SEA’s project selection criteria emphasizes the need to ‘apply a methodology that considers a strict baseline’ to the project. Those criteria show SEA’s virtual pilots lay stress on actual reduction for sustainability of project and climate change mitigation.

〈Table 2〉 SEA’s project selection criteria

- The emission reduction of the activity must be real, credibly quantifiable, and permanent.
- The proposed activity should be in line with national priorities and fit with the policy framework of the host country.
- The proposed activity should enable/foster increased domestic ambition.
- The methodology of the proposed activity must present a robust and stringent emissions baseline.
- The proposed activity should result in net mitigation.
- The proposed activity must demonstrate clear additionality including that the activity would not be implemented without the support from SEA or another carbon finance provider.

3) Parts related to environmental soundness are bold, and parts related to sustainable development are underlined.

- Activity should clearly demonstrate the role of carbon finance.
- The emission reduction units should be fully transferable including corresponding adjustments to avoid double counting.
- If multiple sources of concessional finance are present in the financing package for the activity the emission reductions resulting from the activity should be appropriately attributed to each source.
- Any organization can propose activities, but applicants will have an advantage if they can show a track record of implementing complex programs in developing and emerging economies, including having the requisite capacity and experience to follow and articulate the UNFCCC negotiation process, work with host government counterparts and propose economically sound policy solutions.
- A proposed activity must be located in a host country that is a NonAnnex I Party to the UNFCCC and a Party to the Paris Agreement.

Source: SEA (2019a)

The concept note requirements of SEA also have questions considering ‘sustainability’ of the project, including environmental factors. It requires ‘capacity and prerequisites for quantification of reduction potential’, ‘baseline and monitoring method’, and ‘additional collateral measures’, ‘contribution to overall mitigation of global emissions’ to be described (Table 3). Although environmental integrity is not required explicitly, it can be seen that it is important to ensure environmental integrity through related concepts such as additionality and net mitigation. In sustainable development aspect, it requires to describe both positive and negative impact of project on agenda 2030 SDGs and host country’s SD priorities.

Table 3 SEA concept note requirements

Questionnaire	
Sector, additionality, baseline	How will the activity enhance the NDC ambition level and scope? (maximum 300 words)
	Are there government plans and documents describing the policies and measures for achieving the unconditional and conditional parts of the NDC for the relevant sector? Describe these.
	Are there other policies or activities in the relevant sector targeting emission reductions? If yes, describe.
	Describe the existing barriers for the activity to be undertaken without international support.
	How will carbon finance support through Article 6 help to enhance the level, pace and/or scale of the activity?

	Describe the preconditions and capacity for quantification of the mitigation potential of the activity (MRV, data availability etc...).
	Describe the baseline and monitoring methodology proposed for this activity.
	How is additionality ensured in this activity (e.g. crediting thresholds etc...)?
Sustainable development	Does the activity have the potential to deliver co-benefits in line with the Agenda 2030 SDGs? Are the co-benefits aligned with national SD priorities/frameworks? Please describe.
	Please provide a brief risk analysis, for how the activity might have negative impacts on any of the agenda 2030 SDGs (trade-off) or a group of stakeholders? How will these risks be mitigated?
Monitoring, Reporting, Verification (MRV)	Describe the proposed MRV approach and its components. (maximum 300 words)
	Does the host country have the institutional capacity to issue mitigation outcomes (including requisite data collection)? (maximum 100 words)
	Does the host country have the institutional capacity to register and transfer mitigation outcomes? (maximum 100 words)
	Describe how corresponding adjustments will be applied, in accordance with the currently proposed approaches? (maximum 300 words)
	Please propose a way of ensuring that the activity will contribute to overall mitigation of global emissions. (maximum 100 words)

Source: SEA (2019b)

The KliK foundation also presents the project selection evaluation criteria for candidate projects that have submitted the Mitigation Activity Idea Note (MAIN) as follows (Table 4). In this criteria, the Article 6.2 is reflected by the expressions of environmental integrity and sustainable development. For example, criteria 4 and 5 indicate the consideration on environmental sustainability through actual and transparent reduction, and criteria 6, 7, 12, 13 show the consideration on sustainable development and sustainability aspects of the project.

〈Table 4〉 Pre-Selection criteria of KliK foundation article 6 pilots

1. ELIGIBILITY OF PROJECT TYPE AND TRANSFERRING COUNTRY	8. RISK OF CORRUPTION OR BAD GOVERNANCE
2. AVAILABILITY OF LETTER OF INTENT	9. PLAUSIBILITY OF BUSINESS CASE
3. COVERAGE IN NDC	10. COMPLIANCE WITH FINANCIAL MODALITIES
4. ENVIRONMENTAL INTEGRITY AND APPLIED TECHNOLOGY	11. CONVINCING ROLE OF CARBON
5. RISK OF DOUBLE CLAIMING	12. SELF-SUSTAINABILITY
6. PROMOTION OF SUSTAINABLE DEVELOPMENT	13. LIMITED AND PREDICTABLE PROJECT RISKS
7. RISK OF VIOLATION OF HUMAN RIGHTS	14. SUITABILITY OF COUNTERPARTY
	15. COMPLIANCE WITH KLIK ICS GUIDELINES

Source: KliK foundation (2021)

2. Article 6.4

〈Box2〉 Paris agreement article 6.4

4. A mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development is hereby established under the authority and guidance of the Conference of the Parties serving as the meeting of the Parties to this Agreement for use by Parties on a voluntary basis. It shall be supervised by a body designated by the Conference of the Parties serving as the meeting of the Parties to this Agreement, and shall aim:
- (a) To promote the mitigation of greenhouse gas emissions while fostering sustainable development;
 - (b) To incentivize and facilitate participation in the mitigation of greenhouse gas emissions by public and private entities authorized by a Party;
 - (c) To contribute to the reduction of emission levels in the host Party, which will benefit from mitigation activities resulting in emission reductions that can also be used by another Party to fulfil its nationally determined contribution; and
 - (d) To deliver an overall mitigation in global emissions.

Article 6.4 of the Paris Agreement is a guideline on establishing a mechanism to reduce greenhouse gases and promote sustainable development 〈Box 2〉. Although Article 6.4 also covers voluntary cooperation between countries and transferring mitigation outcome, Article 6.4 is managed by COP, which is the main difference between Article 6.2. In the scheme of Article 6.4, all processes such as approval of reduction projects, management of approved projects, issuance of credit,

and transfer of outcomes are managed by an organization designated by COP (Park et al., 2020). Recently, in COP 26, the international carbon market under Article 6.4 was decided to implement key issues through a supervisory body (SB) consisting of a total of 12 members. The article defines that the purpose of Article 6.4 is to promote sustainable development, reduction of greenhouse gases, and to provide incentives not only to the public sector but also to the private sector. Article 6.4 is expected to replace CDM of Kyoto Protocol and includes criteria for the transition of existing registered CDM projects and issued Certified Emission Reduction (CER).

There was a wide gap between developed and developing countries as to whether to use CER or Pre-2021 CER, issued for credit until December 31, 2020, the end of the second period of the Kyoto Protocol of the existing registered CDM project, to achieve NDC in the Paris Agreement. The EU opposes the use of CER of CDM projects in the Paris Agreement, while some developing countries, including Brazil, insist CER of CDM projects should be used within the Paris Agreement.

With Kyoto Protocol closed in 2020 and the absence of operating standards for the CDM projects after 2021, the CDM Executive Board is temporarily handling the Post 2020 CDM projects. The registration of new projects after January 1, 2021, the renewal of the expiration date, and the issuance of CER (Post-2020 CER) will be operated, as before, by the procedure of a) application of the project entities, b) third-party verification, and c) evaluation of UNFCCC CDM organizations. However, the approvals will be made after the relevant criteria (Post 2020 CER issuance number, GWP application criteria, etc.) are established at COP.

AfDB's ABM is an example that reflecting the characteristics of CDM. Since adapting to the changes and solving the problems occurred by

climate change is as urgent as mitigation in Africa, AfDB launched ABM by the need for more projects focusing more on adaptation. It was fundamentally designed to adopt the non-market approach of Article 6.8, but its project procedures and operational ideas are similar to CDM. Some of the terms are different, but the framework of ABU(Adaptation Benefits Unit)/CER issuance after verification, i.e., verification of the project from the proposal, plan preparation and evaluation, registration, monitoring, and monitoring reports, is the same as CDM. In addition, the details required at each stage are similar. Commonly, ABM's Activity Description Document (ADD) and CDM's Project Design Document (PDD) require an overview, methodology, stakeholder opinions, and expected impact. It is also similar that after reviewing the ADD and PDD, the project must be registered with the executive committee after national approval, which must be reviewed by at least three executives, and monitoring will be carried out through a third-party verification agency.

〈Table 5〉 Comparison of the procedure: ABM and CDM

Mechanism	Procedure
ABM	Activity identification → Activity Description Document preparation → Methodology design and application → Activity Description Document validation → Activity registration → Activity implementation → Monitoring report verification → Issuance of Certified Adaptation Benefits
CDM	Project design(preparing project design document) → National approval → Validation → Registration → Monitoring → Verification → CER issuance

Source: authors' own by referring to AfDB(2021) and CDM website(year unknown)

AfDB aims to enlarge the adaptation projects through ABM as the reduction projects have brought about large-scale investments for technology development in Kyoto Protocol and CDM. Thus, the CDM is benchmarked to design ABM but at the same time, AfDB tries to differentiate from CDM. ABM intends to conduct verification,

registration, and credit issuance according to the approved methodology like CDM to secure reliability and transparency. However, ABM does not allow the transfer of ABU and it is registered only in the ABM registry and receives the usage code for it. That is, ABM is not transmitted from the ABM registry to another registry. This is the difference between CDM. CDM is a market-based mechanism, and so the generated CER can be transferred away from the host country to the registry in other countries, and the price of each unit is also affected by the international supply-demand curve and external factors. However, the price of ABU is not affected by market principles or other external factors. In this sense, ABM has the characteristic of non-market mechanism. Since ABUs of different projects are not replaceable to each other, they are marked in a simple unit reflecting the outcome of the project. For example, ABU can be expressed as the number of households using clean cook-stoves for one year and the number of farms applying climate-smart agricultural methods for one year. Therefore, the cost of monitoring and verification is cheaper, and the process can be simplified. In addition, ABU issued by ABM reflects the effects of SDGs as well as reduction and adaptation. It does not only allow host countries to achieve a long-term reduction goal of net-zero but also SDGs.

One of the important issues in the Article 6 rule book is the baseline methodology. This is a major issue because the amount of credits issued in the future is determined by the baseline methodology applied. In this regard, ABM provides 'Guidelines: Development of an Adaptation Benefits Mechanism methodology' (Table 6) as a reference for ABM participants in preparing the ABM baseline and monitoring methodology. As a principle of methodology development, the ABM guideline states 'Transparency', 'Conservativeness and internal consistency', 'Appropriateness and

adequacy’, ‘Accuracy and reliability’, ‘Measurability’, and ‘Comparability’ to reflect the Article 6.4.

〈Table 6〉 Principles underlying methodology development of ABM

Principles	Description
Transparency	assumptions are explicitly explained and choices are substantiated
Conservativeness/ Internal Consistency	in the case of doubt, values shall be used that show lower climate impacts in the baseline, or generate a lower quantity of ABs. Time periods for ABs generation shall be conservatively estimated
Appropriateness/ Adequacy	Appropriateness and adequacy of calculations and assumptions
Accuracy/Reliability	Accuracy and/or reliability of data; uncertainties shall be limited and evidence in form of references to relevant sources shall be provided
Measurability	measurements (quantitative and/or qualitative) are preferred over using estimates. Default values are allowed subject to the condition that a solid rationale for their use and their appropriateness is provided
Comparability	in similar ecological, environmental, social and economic contexts ABM methodologies shall achieve similar levels of ABs. Activities of similar types shall apply similar methodological approaches, and met

Source: AfDB (2020)

3. Article 6.8

〈Box 3〉 Paris agreement article 6.8

8. Parties recognize the importance of integrated, holistic and balanced non-market approaches being available to Parties to assist in the implementation of their nationally determined contributions, in the context of sustainable development and poverty eradication, in a coordinated and effective manner, including through, inter alia, mitigation, adaptation, finance, technology transfer and capacity building, as appropriate. These approaches shall aim to: (a) Promote mitigation and adaptation ambition; (b) Enhance public and private sector participation in the implementation of nationally determined contributions; and (c) Enable opportunities for coordination across instruments and relevant institutional arrangements
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During the negotiations of the Paris Agreement, some parties wanted to include a non-Market approach which is a voluntary cooperation frame

covering not only mitigation but also adaptation, finance, technology transfer and capacity building in the context of sustainable development between countries (Box 3), and included in Articles 6.8. (ADB, 2020). However, there is no clear definition of the non-Market approach, and regarded relatively insignificant among parties compared to the market mechanism (Jung, 2018). The non-Market approach means that countries (mainly developed countries) that voluntarily provide support should not demand ITMOs. Throughout the negotiation process, countries like Bolivia and Saudi Arabia, which strongly insisted on including a non-market approach, argued that the core of the non-market approach should lie in the historical responsibility of developed countries (Michaelowa et al., 2021). Recalling this background, it is reasonable to understand that introducing a non-market approach is to further support developing countries. There are only loose definition on the types of cooperation and structure of governance regarding the non-Market approach in Article 6.8. (ibid).

The concept of AfDB's ABM reveals that it intends to link itself to Article 6.8. At the 45th meeting of UNFCCC's Subsidiary Body for Scientific and Technological Advice (SBSTA) in 2016, AfDB suggested establishing ABM as part of its non-market approach. In addition, Uganda urged the establishment and operation of ABMs within the UNFCCC at the 46th meeting, and Cte d'Ivoire supported at the 47th meeting in response to the parties' requests for non-Market Approach Framework of Article 6 presented by SBSTA.

They emphasized that the purpose of ABM is to meet a need to "strengthen the role of the private sector in finance in the adaptation sector," as mentioned in COP22's Decision on Long-term Climate Finance (7/CP.22). In addition, it explains that the non-market nature of

ABM can support environmental soundness, finance, technology transfer, capacity building, and sustainable development. And also, the decision clarifies that it can contribute not only to poverty reduction but also to achieving development goals prioritized by host countries. It argues that the units issued by ABM based on the amount of adaptation and reduction have non-market characteristics, which are not affected by market principles because they are uneven in units formed by equal units in the market due to the nature of quantifying outcomes by the project.

Some of SEA's virtual pilot projects also describe that there is a partly connected with Article 6.8. The Net-Zero Energy Building project in Columbia by SEA can contribute to preparing policy initiatives to improve Colombia's electricity and gas price structure, provides technical assistance and academic exchange programs for Colombian architects (Kachi, Warnecke, Hagemann, Nascimento, Mooldijk and Tewari et al., 2020).

V. Conclusion

While the Kyoto Mechanism ended in 2020 and the Paris Agreement Article 6 rule book is under negotiation, international organizations and developed countries are designing or implementing the Article 6 pilot project. This study analyzes how each provision of Article 6 are interpreted and applied in pilot projects. To this end, this study analyzed how African Development Bank, the Swedish Energy Agency, and the Swiss KliK Foundation interpreted and implemented each provision of the three main frameworks of the Article 6, the cooperative approach (Article 6.2), the international trading mechanism on reduction outcome

under COP (Article 6.4), and the non-market approach (Article 6.8). As these pilot projects either have not yet been realized as actual projects, or have been started very recently, it is difficult to conduct an empirical analysis or evaluation focusing on the result of the project. Still, it is possible to identify how each provisions of the Article 6 will be realized through the project selection criteria, project purpose, and guideline.

In common, the pilot projects reflected the consideration of Internationally Transferred Mitigation Outcome (ITMO), the development of a baseline methodology, the promotion of environmental integrity, and the sustainable development of the host country as the core values. Switzerland prepared the guidelines transferring ITMO, the African Development Bank adopted the principles underlying the development of the baseline methodology mentioned in Article 6.4 and Sweden signed an MoU with Ghana to help ensure environmental integrity, transparency, sustainable development and raise ambition of the reduction goal (SEA, 2021c).

As all parties to the Paris agreement are obligated to submit and implement the NDC, and as the sense of crisis about climate change intensifies, overseas reduction projects increasingly pursue quality reduction through securing and enhancing the additionality of the reduction project. In addition, reduction projects under the Paris agreement promotes SDG of the host country through identifying project impacts on the host country, which is considered a limitation in the Kyoto mechanism.

This study identified that international organizations and individual countries differentiate their new overseas reduction project models under Paris agreement according to their geographical characteristics, economic conditions, reduction goals and relative emphasis on the interpretation of

the Article 6. The diversified overseas reduction projects under the Article 6 can be a risk and opportunity for the companies who used to implement or planning to implement the overseas reduction project. Under the new Korean NDC that raised the portion of overseas reduction, either government planning Article 6.2 project or company planning Article 6.4 project should selectively apply the trials and considerations from the preemptive pilots of Article 6 analyzed in the study.

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