

CALL FOR INPUT 2025:

***PROVISION OF A FUNCTIONALITY FOR SECURITY INTEREST
ARRANGEMENTS IN THE MECHANISM REGISTRY THROUGH A
PLEDGE SYSTEM***

ADDRESSED TO:

THE SUPERVISORY BODY (SBM)

***‘Legal Framework Considerations for the Proposed Pledge System in the Article
6.4 Mechanism Registry’***

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TABLE OF CONTENT

1. INTRODUCTION	4
2. LEGAL STATUS OF A6.4ERS	4
2.1. Defining Control Rights versus Ownership Rights	
2.2. Legal Nature of Pledges over Control Rights	
2.3. Implications of Non-Determination of Ownership	
2.4. Comparison with Other Asset Classes in International Markets	
3. JURISDICTIONAL CHALLENGES	5
3.1. Extraterritorial Enforcement Issues	
3.2. Conflicts of Law in Cross-Border Transactions	
3.3. United Nations Legal Framework Considerations	
3.4. Interaction with National Legal Systems	
4. ANALYSIS OF PROPOSED ARBITRATION MECHANISM	8
4.1. Selection Criteria for Qualified Arbitrators	
4.2. Recommended International Arbitration Bodies	
4.3. Standardization of Arbitration Procedures	
4.4. Enforceability of Arbitration Decisions	
4.5. Registry Administrator's Role in Enforcement	
5. RECOMMENDED LEGAL SAFEGUARDS	13
5.1. Liability Limitations in Terms of Use	
5.2. Good Faith Implementation Provisions	
5.3. Force Majeure Considerations	
5.4. Indemnification Requirements	
6. LIABILITY PROTECTION MEASURES FOR PLEDGE PARTICIPANTS	16
6.1. Default Risk Mitigation Strategies	
6.2. Counterparty Verification Requirements	
6.3. Legal Recourse Options for Participants	
6.4. Disclosure and Transparency Obligations	
7. COMPARATIVE ANALYSIS	19
8. RECOMMENDATIONS FOR TERMS AND CONDITIONS DEVELOPMENT	23
9. CONCLUSION	26
10. REFERENCES	28

1. INTRODUCTION

1.1. Purpose and Scope of the Analysis

The research assesses the legal requirements for establishing pledge systems within the Article 6.4 mechanism registry according to the UNFCCC information notes. A system's implementation would need thorough examination of intricate legal matters that protect carbon market integrity and financial security and address United Nations-administered systems' particular framework. The document provides detailed instructions to create legal security mechanisms which protect stakeholders during market facilitation activities along with registry administration by the UNFCCC secretariat.

1.2. Relationship to SBM Information Note A6.4-SBM015-AA-A12

The analysis extends research from information note A6.4-SBM015-AA-A12 by explaining technical aspects of a potential pledge system. The analysis expands the operational document A6.4-SBM015-AA-A12 by examining legal implications of establishing such a system. The document addresses the concept of pledging control rights instead of ownership to handle security interests while allowing registry systems to avoid making decisions about A6.4ER ownership.

1.3. Legal Context of the Article 6.4 Mechanism

Article 6.4 operates as a unique legal system that stands apart from domestic carbon market regulations. The mechanism registry stands outside the boundaries of any particular national authority after its establishment through the Paris Agreement. The UNFCCC secretariat operates as administrator under Supervisory Body oversight to manage the registry infrastructure which traditional financial markets do not have an equivalent structure. The distinct market position of the mechanism registry creates both advantageous and challenging situations when establishing legal frameworks for security interests. As an international treaty-based system the mechanism requires financial market participants to transform traditional collateralization approaches to suit its cross-border functionality.

2. LEGAL STATUS OF A6.4ERS IN THE CONTEXT OF SECURITY INTERESTS

2.1. Defining Control Rights versus Ownership Rights

The mechanism registry's approach of framing users' rights in terms of control rather than ownership represents a pragmatic solution to the complex jurisdictional questions surrounding carbon credits in international markets. The procedural authority to direct actions regarding A6.4ERs within the registry system exists as control rights which enable specific actions such as transfers between accounts and uses for compliance purposes. The rights endure without dependency on ownership decisions because they function separately from national laws that establish property rights and intangible asset standards.

The registry functions smoothly through this distinction, enabling practical operations of market activities while keeping the UNFCCC secretariat free from ownership disputes which would need interpretation through inconsistent national laws.

2.2. Legal Nature of Pledges over Control Rights

The pledge system must focus on creating a security interest that grants the ability to control access to A6.4ERs in the registry rather than claiming ownership of the underlying assets. Security interests in other systems base their collateralization on control functions instead of ownership rights which this proposed system also implements. The system would establish investment security by allowing financiers to obtain control rights when specific events trigger their acquisition but requires the pledge holder to validate their claims according to established arbitration procedures. An alternative structure would offer sufficient protection through control arrangements while enabling the registry to bypass ownership examinations to prevent legal problems while supporting Article 6.4 investments.

2.3. Implications of Non-Determination of Ownership

Non-determination by the registry leads to major legal consequences which affect pledge characterization within the system. The registry establishes a clear boundary between its role in carbon market transactions by defining user rights through control frameworks instead of ownership frameworks. Through its approach the registry sets control determination boundaries but lets private parties handle ownership questions under their national legal frameworks. The registry operates independently to ensure legal certainty about its functions while maintaining capabilities that enable participants to create effective security arrangements.

2.4. Comparison with Other Asset Classes in International Markets

The method used for dealing with A6.4ERs resembles international asset classification practices that use control mechanisms instead of ownership documentation to enable market functions. The tracking of control rights by depositories in dematerialized securities resembles their method of operation since depositories maintain control tracking records without establishing ownership details. Some licensing frameworks for intellectual property assets split the control rights from the ownership questions. The proposed control-based pledge system demonstrates operational viability through analogues that prove its effectiveness without requiring ownership registrations as long as it maintains clear procedures for pledge validation and enforcement through suitable arbitration processes.

3. JURISDICTIONAL CHALLENGES IN THE INTERNATIONAL CARBON MARKET

3.1. Extraterritorial Enforcement Issues

The cross-border execution of security interests in A6.4ERs creates substantial issues for the international carbon market.

The lack of unified authority over mechanism registries makes it impossible to enforce domestic legal system enforcement mechanisms in this context. Security interests established between multiple jurisdictions face an intricate system of jurisdictional requirements which determine their enforcement potential. The principle of territorial sovereignty, a cornerstone of international law dating back to the Peace of Westphalia, creates inherent limitations on one nation's ability to enforce security interests in another's territory. Digital entries that make up carbon market instruments pose major problems because they exist primarily as registry system records instead of tangible assets that maintain fixed geographical locations.

The Brussels I Regulation (Regulation (EU) No 1215/2012) and its preceding versions in European law demonstrate the enforcement difficulties when attempting cross-border action within an established harmonized legal framework. The enforcement of security interests across international jurisdictions becomes more difficult because different jurisdictions possess divergent legal systems for secured interests. International enforcement of arbitration decisions is possible through the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards (1958) but its application to carbon market instruments security interests has not been confirmed by global courts.

The doctrine of sovereign immunity along with its complications obstructs the enforcement process for cases involving state participants. Jurisdictional Immunities of the State (Germany v. Italy) represents one of the cases that has established this principle. States receive protection against foreign court jurisdiction under the provisions of customary international law according to the Jurisdictional Immunities of the State (Germany v. Italy, ICJ 2012). Security interests face specific implementation difficulties when enforced against state-owned entities active in the carbon market because such enforcement could vary in effectiveness based on the type of counterparty.

3.2. Conflicts of Law in Cross-Border Transactions

The use of A6.4ERs in transactions across borders creates numerous difficulties in conflict of laws interpretations. Any international carbon market operation requires determining what law will apply to security interest creation and perfection as well as enforcement. The traditional location-based law (lex situs) encounters problems in managing digital assets including carbon credits because these assets are locationless. The carbon market lacks definitive legal frameworks since the law of registry and the law of issuing authority have not yet established clear rules for these instruments.

The Hague Conference on Private International Law has attempted to address similar issues through conventions such as the Convention on the Law Applicable to Certain Rights in Respect of Securities Held with an Intermediary (2006), which adopts a "place of the relevant intermediary" approach. The enforcement of this convention remains restricted because countries have ratified it only in limited ways and its principles have not expanded beyond carbon market instruments. The UNCITRAL Model Law on Secured Transactions (2016) establishes guidelines to resolve conflict of laws matters in secured transactions yet its application toward carbon market instruments remains vague and nonuniform between jurisdictions.

Scholarly work by Goode, Kronke, and McKendrick in "Transnational Commercial Law: Text, Cases and Materials" (2015) emphasizes the persistent challenges in achieving uniform conflict of laws rules for intangible assets, noting that divergent approaches to characterization and connecting factors continue to create legal uncertainty. The legal treatment of carbon credits as a novel asset stands as especially uncertain because these instruments resist classification across different legal buildings into traditional property or financial instrument categories.

3.3. United Nations Legal Framework Considerations

The United Nations framework structure where the mechanism registry exists results in increased legal intricacy. The UNFCCC secretariat functions differently from traditional international organizations because it lacks full immunities and privileges in all jurisdictions according to the information notes. The UNFCCC secretariat functions autonomously as a treaty body while maintaining its institutional ties to the United Nations but its legal status differs from one jurisdiction to another. The vague legal framework surrounding the registry operations leaves uncertain which laws should apply when enforcing security interests that have been recorded in the system.

Under the Vienna Convention on the Law of Treaties (1969) diplomats receive general directions about treaty implementation yet specific handling of carbon market instrument security interests remains ambiguous. The UNFCCC secretariat Headquarters Agreement provides German territory immunities to the organization but they do not necessarily encompass comprehensive registry operational protection particularly when those operations contain commercial elements such as security arrangement facilitation.

The particular legal status of the mechanism registry creates uncertainties about how its activities should be categorized under international legal standards. The ILC's Articles on the Responsibility of International Organizations (2011) create legal grounds for understanding international organization accountability but their specific application to UNFCCC secretariats remains under discussion. The uncertainty about liability exposure of the secretariat remains unresolved when it comes to its work with the mechanism pledge system operated through the registry platform.

Boisson de Chazournes' work on "United Nations Specialized Agencies" (2021) highlights the challenges that arise when treaty bodies engage in activities that have commercial implications, noting the difficult balance between maintaining the body's treaty mandate and accommodating practical market needs. The pledge system development demonstrates this conflict as it attempts to provide market capabilities while retaining the original treaty foundation of the mechanism.

3.4. Interaction with National Legal Systems

An effective pledge system faces its biggest jurisdictional obstacle through the connection between the mechanism registry and national legal systems.

National legal systems exhibit tremendous diversity when recognizing security interests which results in potential differences between how mechanism registry records will be managed across different jurisdictions. Under civil law systems the formation of valid security interests needs formal procedures which common law systems do not require and Islamic legal systems implement religious-based limitations.

In the case *Credit Agricole Corp v. Paribas* (1996) parties encountered difficulties when security interests created through one legal framework needed to be enforced within another jurisdiction. The English court in that matter needed to address intricate recognition issues concerning French security arrangements which lacked English legal equivalents through a functional analysis of the economic substance behind the arrangement. Courts handling A6.4ER security interests should probably deploy a functional analysis to resolve these cases yet this approach demands judicial flexibility toward adopting new legal instruments.

Organizations such as UNCITRAL and UNIDROIT have succeeded in harmonizing parts of secured transactions law but major differences between jurisdictions continue to persist. The Cape Town Convention on International Interests in Mobile Equipment (2001) remains one of the most effective global frameworks for security interests since it includes both procedural mechanisms and definitions for interests in valuable mobile property. The convention shows limited success only in asset classes that include aircraft, railway rolling stock and space assets because these assets demonstrate clear economic value and established industry standards.

Benjamin's work on "Financial Law" (2019) emphasizes that even within relatively harmonized areas like financial collateral, national implementation can create significant divergences that complicate cross-border transactions. Police and classification methods for carbon market instruments differ between jurisdictions which produce inconsistent security interest applications throughout different jurisdictions.

The work of scholars like Schwartz and Scott on the economic analysis of secured transactions law ("The Political Economy of Private Legislatures," 1995) suggests that market participants may develop private ordering mechanisms to mitigate jurisdictional uncertainties when formal legal frameworks prove inadequate. A proposed arbitration framework within the pledge system functions as a private dispute resolution system because it provides contractual dispute mechanisms to address jurisdictional obstacles that arise in global enforcement.

The international carbon market demands pragmatic solutions because existing legal frameworks both have their constraints and require adequate market participant clarity. The proposed pledge system functions as an effective practical solution because it uses control rights instead of ownership structures and arbitration to resolve disputes within the limitations imposed by international law.

4. ANALYSIS OF PROPOSED ARBITRATION MECHANISM

4.1. Selection Criteria for Qualified Arbitrators

The success of the proposed pledge system depends heavily on creating strict evaluation standards for arbitrators who possess qualified backgrounds. Specialized expertise beyond standard commercial arbitration experience must be present in arbitrators who handle cases in carbon markets because of their exclusive nature. Arbitrators who handle disputes in international climate finance and carbon market mechanisms need substantive understanding of these areas together with registry operation expertise. Technical institutions in other dispute resolution fields maintain expert panels with specific qualifications because of established industry best practices.

To address international law matters arbitration experts should demonstrate their skills in treaty-related instruments together with their expertise in cross-border intangible property transactions. The selection of arbitrators should include experts who hold experience with multilateral environmental agreements together with knowledge of the Paris Agreement structure as well as earlier carbon market programs such as the Clean Development Mechanism. In financial arbitration tribunals follow a pattern for which arbitrators need competent understanding of interstate regulations within local legal systems.

Necessary selection criteria for Article 6.4 need dedicated attention regarding both independence and impartiality. Arbitrators need to maintain complete independence from all associations with market participants as well as project developers and relevant national authorities. A framework of analysis designed by the International Bar Association's 2014 guidelines helps detect conflicts but requires extra security because the carbon market maintains high concentrations along with its ramifications toward public climate finance initiatives.

A qualified group of arbitrators needs equal representation from both developed and developing nations because it follows the Paris Agreement's mandate for equity as well as common but differentiated responsibilities. The implementation of a diversity requirement would reduce arbitration bias issues and make the arbitration system more legitimate for all market stakeholders. Major arbitral institutions like the International Chamber of Commerce continue implementing geographic diversity in recent reforms as they widen their arbitrator market beyond traditional arbitration centers.

4.2. Recommended International Arbitration Bodies

Multiple well-known international arbitration organizations prove suitable choices to manage disputes about pledges recorded in the Article 6.4 mechanism registry. The Permanent Court of Arbitration at The Hague stands as an attractive choice because it handles environmental matters and disputes between states. The PCA's Optional Rules for Arbitration of Disputes Relating to Natural Resources and/or the Environment (2001) contains a specially developed procedural structure for environmental disputes that could apply to carbon market issues. The PCA exists as an intergovernmental organization through treaty creation which matches the treaty foundation of Article 6.4.

The ICC International Court of Arbitration under the International Chamber of Commerce stands as another suitable choice because it handles intricate commercial cases spanning multiple territories. Market participants can trust the ICC due to its successful experience administering valuable disputes and its worldwide presence which strengthens confidence in arbitration procedures. The International Chamber of Commerce through its Commission on Environment and Energy shows its dedication to climate change issues which indicates its preparedness to build expertise in carbon market disputes.

The Arbitration Institute of the Stockholm Chamber of Commerce (SCC) warrants consideration due to its extensive experience with energy-related disputes and East-West arbitrations. The organization possesses important skills which would be useful because carbon markets span worldwide territories and frequently generate legal disagreements between parties with diverse legal frameworks. Market participants who need quick resolution of issues regarding mechanism registry pledges would find benefit from the SCC's efficient reputation combined with its streamlined arbitration rules for small disputes.

The International Centre for Settlement of Investment Disputes (ICSID) specializes in investment treaty disputes while demonstrating capabilities for managing state parties that could serve the carbon market domain. ICSID maintains affiliation with the World Bank Group but needs jurisdictional adjustments to handle disputes stemming from the pledge system.

The dispute resolution options should include arbitration centers operated by SIAC in Singapore as well as HKIAC in Hong Kong and CRCICA in Cairo to ensure diverse geographical reach. The institutions have accumulated detailed knowledge about cross-border commercial disputes and thus can serve as essential entities for providing market participants worldwide with arbitration accessibility.

4.3. Standardization of Arbitration Procedures

The carbon market disputes experience improvement through standard procedures designed for their unique characteristics which makes pledge enforcement more efficient as well as predictable. The procedures need to recognize the time-sensitive nature of carbon market transactions by providing accelerated processes to stop market chaos and price volatility impacts. The ICC Expedited Procedure Provisions together with the SIAC Expedited Procedure serve as useful models which can be adjusted to better meet the urgent requirements of carbon market disputes.

Special care must be given to evidence handling procedures because carbon market instruments along with registry operations present technical challenges. An efficient resolution of factual disputes requires standardized protocols which authenticate registry records alongside protocols for verifying the history of transactions. Such protocols should adopt proven practices used in electronic banking and securities trading arbitrations because they address similar issues regarding digital record authentication. Specific carbon market-related rules would enhance the IBA Rules on the Taking of Evidence in International Arbitration (2020) by providing targeted industry-specific provisions.

Climate finance agreements require confidentiality clauses that protect commercial interests together with public policy objectives of environmental sustainability. The public policy goals of carbon credits' environmental attributes should receive greater transparency despite parties having valid interests in safeguarding their proprietary financial methods. The approach utilized in investor-state dispute settlement reforms seems suitable since it establishes default transparency rules for particular information types without endangering genuine business secrets.

Choice of law provisions create specific difficulties because the mechanism registry operates as a legal entity without borders between any nation state. Standardized arbitration procedures must establish simple rules regarding choice of law questions by using a stepwise system to examine first the Article 6.4 rules then international law principles and finally national laws when needed for filling gaps. The approach would duplicate the sophisticated selection of law provisions that appear in contracts with the World Bank and regional development banks and other international organizations.

The remedies accessible through arbitration need specific adjustments based on the properties mentioned in the mechanism registry. The authority of arbitral tribunals to order A6.4ER transfers within the registry system should be clear yet they should exercise caution in issuing declarations that affect ownership rights because these could contradict national laws. Standardized procedures must include explicit guidelines for tribunals to order both freezing orders and interim measures to prevent pledged A6.4ERs from being transferred during arbitration proceedings.

4.4. Enforceability of Arbitration Decisions

The ability to enforce arbitration decisions stands as an essential factor which determines the success of the pledge system. A total of 170 countries currently support the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards (1958) to enforce arbitral awards throughout different jurisdictions. However, its application to decisions involving carbon market instruments may face challenges related to the "commercial" reservation adopted by some states and public policy exceptions that could be invoked in climate-related matters.

Many enforcement issues would become less significant because the mechanism registry intends to execute arbitral decisions directly by releasing or transferring pledged A6.4ERs. The direct implementation method of arbitration matches how certain domains like the Internet Corporation for Assigned Names and Numbers (ICANN) Uniform Domain-Name Dispute-Resolution Policy lets decisions execute without court involvement. The system would navigate difficulties with cross-border enforcement through the use of the registry as its primary enforcement mechanism.

The registry faces difficulties when arbitral decisions extend to matters which fall outside its control zone including accompanying financial contracts and related contractual agreements. The New York Convention would serve as the main enforcement tool for parties in these situations while they face the jurisdictional problems described in section 3.

Empirical studies led by the School of International Arbitration at Queen Mary University demonstrate that international arbitral awards encounter varying enforcement rates between different countries but show commonly high compliance according to research findings.

Interim measures in carbon market disputes need specific focus because of their time-critical nature. Many jurisdictions support interim measure enforceability through either statutory changes or judicial interpretations even though the New York Convention lacks specific provisions regarding this matter. The 2006 amended version of the UNCITRAL Model Law on International Commercial Arbitration formally allows interim measure enforcement together with similar rules in various national arbitration laws. Standard arbitration procedures under the pledge system must address enforcement of interim measures by allowing registry access to implement such measures whenever possible.

The execution of arbitral awards faces issues when arbitral awards need to be enforced during times of insolvency. When a pledgor becomes insolvent national insolvency laws may activate automatic stays or other restrictions which make it difficult to carry out an arbitral award requiring the transfer of pledged A6.4ERs. The enforcement challenges in financial collateral arrangements could find solutions through comparative research of the EU Financial Collateral Directive (2002/47/EC) which could establish explicit exemptions for carbon market collateral assets like financial instruments receive in several jurisdictions.

4.5. Registry Administrator's Role in Enforcement

The registry administrator needs to define their enforcement role with precision so that arbitral decisions receive effective implementation while administrative discretion and liability reach appropriate bounds. To perform their duties the registry administrator should take a ministerial position rather than an adjudicative role by executing verified arbitral decisions without reevaluating their core elements. The execution of properly authenticated instructions matches the operational model of securities depositories and other financial market infrastructure providers who avoid evaluating commercial agreements.

A reliable authentication system for arbitral decisions protects against fraudulent enforcement attempts when submitted to the registry administrator. The protocols must contain dependable processes to ensure the verification of authentic and full arbitral decisions before their execution. A comprehensive authentication framework can be built by using digital signature technologies together with secure communication channels along with standardized certification procedures from recognized arbitral institutions. Similar to ICANN domain name dispute procedures the registry should operate an authorized arbitrator or institution list to confirm their decisions for enforcement recognition.

The precise definition of implementation authority boundaries for the registry administrator will avoid the unintentional growth of administrative duties. The administrator should possess specific authority to transfer pledged A6.4ERs according to arbitral decisions but complex or conditional arbitral orders may exceed their proper administrative scope.

Market participants need transparent information about the types of arbitral directions that registry administrators can execute as stated in the terms and conditions.

The operating procedures of the registry need clear specifications regarding timing aspects for carrying out implementations. The administrator should set defined deadlines for decision implementation after receiving authenticated arbitration documentation while considering operational limitations. The procedures should establish deadlines for verification steps that respect the fast pace of carbon market business operations. Defined service levels for implementation enhance market participants' and arbitral tribunals' ability to predict compliance timelines which contributes to informed arbitration process. Liability protections need to exist for the registry administrator when enforcing decisions due to carbon market's financial transaction potential. The administrator should receive comprehensive liability protection through terms and conditions which defend them when implementing arbitral decisions correctly. Secure liability limitations exist in the terms of service used by securities depositories and payment systems along with other financial market infrastructure providers to protect themselves from properly executed instructions yet hold them responsible for gross negligence or willful misconduct. An adequate balance must be achieved between administrative viability of enforcement and appropriate diligence incentives for proper implementation.

5. Recommended Legal Safeguards for the Registry Administrator

5.1. Liability Limitations in Terms of Use

To prevent legal claims the registry administrator needs strong protection through terms of use conditions which shield the UNFCCC secretariat from legal repercussions that might stem from pledge system operation. The terms of use need to define specific restrictions regarding the administrator's duties along with their legal responsibility scope. Standard financial market infrastructure practices should guide the terms which explicitly eliminate liability for all types of damages including consequential, indirect, special, punitive or exemplary damages even if they could be foreseen. The carbon market operates at such high financial levels that administrative resources provided to the secretariat become inadequate to manage these transactions.

The administrator's implementation of the pledge system requires explicit attention in liability limitations which must cover pledge recording procedures and A6.4ER transfer restrictions and arbitral decision-based transfer execution. Case law from financial market infrastructure litigation, such as *DPC Industries v. American International Specialty Lines Insurance Co.* (2010) demonstrates that liability limitations become valid when infrastructure providers clearly define their role and display the limitations in obvious ways. Administrative fees should serve as the maximum liability limit that the terms should define instead of using the assets' market value.

The creation of liability limitations needs special attention regarding jurisdictional elements. Due to its special status the UNFCCC secretariat encounters different levels of enforceability regarding liability limits within various jurisdictions.

Similar to international financial institutions like the International Finance Corporation it would be advisable to deploy a multi-tiered approach which includes treaty-based immunities (where applicable) together with contractual protections and insurance arrangements. The agreement should contain provisions for selecting applicable laws and courts to enhance enforcement of liability limitations but these selections may face different levels of deference among jurisdictions.

Another essential protection for the administrator comes from time restrictions which apply to liability claims. Terms should include standard standards for notice of potential claims alongside short deadlines to start legal proceedings which match those of leading securities depositories Euroclear and Clearstream. Temporal restrictions in the contract protect both the administrator from old claims and enable time for real issues to be found and handled before deadlines expire. The judiciary system supports these limitations which grant sufficient time to both discover and present claims according to rulings such as *Menominee Indian Tribe v. United States* (2016). *United States* (2016).

5.2. Good Faith Implementation Provisions

The registry administrator benefits from good faith implementation provisions which create standards to protect their actions during pledge system implementation. These procedures must establish their administrator role as strictly ministerial with clearly defined limitations that disallow extensive investigation of transactions and commercial relationships beyond proper authentication of instructions. Similar roles of intermediaries receive legal backing through court decisions such as *SEI Investments Co. v. Commissioner* (2007) that defined their limited financial infrastructure obligations.

Administrative actions require exact definitions of their good faith standards to determine appropriate liability levels and provide clear operational guidelines. Good faith principles in carbon market registry operations should follow the definition of §1-201(b)(20) from the Uniform Commercial Code which states "honesty in fact and the observance of reasonable commercial standards of fair dealing." The definition brings together honesty in fact as a subjective element with reasonable commercial standards as objective criteria which has shown success in similar contexts.

Good faith implementation depends heavily on the documentation requirements that must be met. The terms need to define step-by-step procedures which establish proper authentication requirements for pledges and pledge releases along with enforcement instructions through verification protocols. The administrator needs detailed guidance but also needs flexibility to adapt the requirements to advancements in authentication technology and procedures. The legal system protects intermediaries when they execute correct instructions which satisfy pre-defined documentation requirements according to *Regions Bank v. Provident Bank* (2004). *Provident Bank* (2004).

Explicit treatment must occur regarding how good faith implementation relates to competing or inconsistent instructions.

Terms need to define the order of precedence for dealing with opposing directions about pledged A6.4ERs by establishing a system that gives weight to authenticated arbitral decisions ahead of unilateral directions from both account holders and pledge holders. The agreed provisions would establish clear procedures to protect both parties and shield the administrator from liability when resolving contradictory instructions through a process similar to interpleader protection available to neutral stakeholders.

5.3. Force Majeure Considerations

The registry administrator maintains crucial protection through force majeure provisions which relieve them from performance responsibility because of uncontrollable conditions. The provisions must be specifically adapted to match the operational characteristics of the mechanism registry by covering standard force majeure events and technology-based disruptions that affect registry operations. The COVID-19 pandemic has exposed the critical role of detailed force majeure provisions because courts now accept properly drafted provisions that handle classic and novel risks according to *In re Hitz Restaurant Group* (2020).

Cybersecurity incidents need special focus because the registry operates digitally. The force majeure clauses need specific language to differentiate between difficult cyber attacks that standard security protocols can prevent from attacks which overwhelm any system design. The classification follows new industry standards established for technology agreements and cyber protection policies since some advanced persistent threats remain inevitable despite appropriate preventive measures. The agreement should specify that the administrator will deploy proper security measures but does not provide complete protection from every possible attack.

System outages and technical failures require rules which distinguish different failure root causes from their severity levels. The terms differentiate between brief scheduled maintenance periods and prolonged unplanned outages since these situations have different consequences for administrator liability. The established responsibility model follows the agreement structure used by cloud computing and financial technology services through their technical disruption-based service level agreements. Business continuity planning along with disaster recovery and backup system obligations should be specified in the terms but without establishing impractical system availability expectations for the administrator.

The force majeure notification requirements must strike a balance between timely notices of disruptions and practical circumstances by enabling administrators to supply practical notice even when communication capabilities temporarily fail. The terms should define reasonable steps expected from the administrator together with provisions for how the administrator must restore services when possible during force majeure events. The provisions support international standards for financial market infrastructure because they promote operational resilience through transparent communications about disruptions according to CPMI-IOSCO Principles for Financial Market Infrastructures.

5.4. Indemnification Requirements

The registry administrator needs essential protection through indemnification provisions which obligate users to protect the administrator in case of registry and pledge system-related claims. The administrator should receive protection by way of indemnification provisions for legal fees and settlement costs and judgments together with expenses from defending against third-party claims. The courts maintain support for these provisions when commercial parties bargain on an equal basis as shown through *Perkins v. United States* (55 F.3d 910, 1995), though with varying requirements for clarity and conspicuousness.

A pledge system should establish specific definitions regarding which claims will trigger indemnification coverage for users who participate in the system and its users and third-party external claimants. The indemnification clause must specifically encompass claims that stem from ownership disputes and competing security interests and charges of improper transfers or unauthorized instructions. A broad approach mirrors reality because the administrator provides registry services to users without assuming financial responsibility for their disputes that involve registry assets.

Detailed descriptions of how indemnification operates should appear in the terms. During indemnified proceedings the administrator should choose counsel and settle disputes with reasonable notice and cooperation requirements for the indemnifying party. The established procedural measures both protect defense operations and preserve acceptable levels of participation from the funding party. Judicial authorities tend to support procedural requirements which do not create excessive obstacles for indemnifying parties based on the *Pac. Employers Ins. Co. v. Global Reinsurance Corp. of Am.* (693 F.3d 417, 2012) ruling.

The definition of indemnification exception clauses needs to remain specific because it protects the administrator's fundamental rights but recognizes reasonable user responsibility boundaries. The terms of the agreement exclude indemnification when claims stem exclusively from administrator gross negligence or willful misconduct but protect claims with multiple causes. Commercial indemnification practice guides the structure of this approach which protects both the core registry functions and ordinary pledge system operations.

6. LIABILITY PROTECTION MEASURES FOR PLEDGE PARTICIPANTS

6.1. Default Risk Mitigation Strategies

To effectively manage default risk for pledge participants both registry system controls and external due diligence need to be used together in a comprehensive strategy. Real-time asset monitoring through registries allows pledge holders to keep track of their collateral assets enabling them to identify problems before defaults happen. The system would provide automatic alert features for selected triggering events which include attempts to move pledged A6.4ERs and changes in account status. The European Central Bank through its studies of financial collateral management services demonstrates how similar monitoring systems work well in traditional financial arrangements.

Pledge participants need to establish detailed default definitions in their contractual agreements which specify exactly when enforcement actions become necessary. The definitions need to cover payment defaults together with significant changes to pledgor conditions and regulatory compliance and statements about the pledged A6.4ERs status. The Commercial Finance Association studies secured lending practices illustrate that detailed default protocols lead to reduced financial losses and optimized enforcement protocols.

The valuation methods applied to pledged assets are essential components for reducing default risk. Parties need to create specific procedures for valuing pledged A6.4ERs through third-party price indices or valuation services that prevent disputes when enforcing the contract. The evaluation methods require proper margin requirements or haircuts to deal with carbon market volatility in the same way that securities lending markets work. The carbon market can benefit from research conducted by Brunnermeier and Pedersen about margins in volatile markets which helps establish appropriate arrangements.

Risk reduction in default cases becomes more effective through warning systems and staged intervention procedures that enable parties to handle emerging problems ahead of full enforcement activities. The systems feature maintenance margin requirements that initiate additional collateral requirements as prices descend beneath defined boundaries thus enabling parties to recover sufficient coverage prior to full enforcement steps. Derivatives markets have successfully implemented staged approaches that could work for carbon markets after adjusting them to suit the particular characteristics of A6.4ERs.

6.2. Counterparty Verification Requirements

The verification process for counterparties provides vital protection to pledge participants against fraudulent activities and misleading information and general integrity risks. Participants must perform extensive research to validate their counterparties' status as well as their eligibility to use the mechanism registry and their ability to pledge or receive A6.4ERs according to the specific arrangement. Participants conducting the verification process should review corporate documentation and regulatory approvals and obtain information about beneficial ownership by meeting international financial transaction standards.

The Financial Action Task Force (FATF) Recommendations contain two main counterparty verification guidelines that are found in Recommendations 10 (Customer Due Diligence) and 24-25 (Transparency and Beneficial Ownership). Carbon market stakeholders who do not face equivalent financial institution regulatory standards can still minimize counterparty risks by adopting these standards voluntarily. The verification approach needs to match both the transaction amount and the risk level of the counterparty. Additional verification steps should be implemented for scenarios with elevated risk profiles.

Another essential component in counterparty due diligence depends on technical verification of registry accounts along with authority authorizations. Participants need to ensure that their counterparties have correctly created registry accounts with valid permissions granted by relevant Parties under the Paris Agreement.

Verification of authorization status should directly come from the registry whenever possible instead of depending on counterparty information alone. This method resembles financial market standards that determine settlement abilities before conducting transactions according to the International Securities Services Association's industry guidance.

Monitoring obligations should follow initial verification to detect changes in either counterparty circumstances or authorizations that affect pledge arrangements. The validity of pledge arrangements depends on regular inspections of counterparty status especially after substantial regulatory or ownership changes. The approach complies with modern financial market counterparty monitoring standards that now require ongoing verification rather than single-time checks according to EU 5th Anti-Money Laundering Directive standards.

6.3. Legal Recourse Options for Participants

Every pledge participant must be informed about the available legal remedies during defaults or disputes through unambiguous definitions. The main enforcement process within the arbitration system explained in section 4 enables participants to find remedies through the registry system. The participants need to know that further legal options exist for connected disputes which exceed the registry administrator's implementation scope including monetary compensation claims and performance-based contract demands.

The urgent nature of carbon market transactions requires special attention for preliminary relief procedures. Participants need to implement an expedited arbitration process which mirrors the emergency relief procedures at major arbitral bodies including ICC and SIAC. The system would enable quick freezing commands for A6.4ER transfer prevention during disputes and could operate from the registry through authenticated arbitral emergency orders. The Stockholm Chamber of Commerce along with other academic organizations have conducted studies showing how emergency arbitration procedures successfully protect assets until full dispute resolution is achieved.

Registry-based remedies should be used in combination with monetary damages when default losses exceed what A6.4ERs pledged for transfer can replace. Parties should add liquidated damages clauses to their contracts because they provide protection when pledged A6.4ERs get distributed to third parties or are unobtainable through the registry system. The provisions need structured development to represent authentic forecasts of estimated losses instead of penalties in a manner compliant with widely accepted contract law principles for enforceable liquidated damages.

The enforcement of assets exceeding pledged A6.4ERs becomes necessary in cases where primary recovery methods fail to yield results. To strengthen registry-based pledges, participants should evaluate if supplementary security measures would benefit the system through traditional asset-based and account-based national laws with established enforcement procedures. The security structure with multiple enforcement methods follows standard practices in project finance deals since lenders want various ways to enforce their rights when default occurs.

6.4. Disclosure and Transparency Obligations

Pledge participants receive vital protection through comprehensive disclosure requirements because these obligations ensure they can access necessary information needed for risk assessments and enforcement decisions. The initial disclosure system must provide complete information about pledged A6.4ERs regarding their authorizing authority and age and their core project features and current claims or limitations. Pledge holders benefit from this information because it enables them to properly assess both the worth of their collateral asset and potential risks in ways comparable to secured lending markets for other asset classes.

Reporting duties must include reports about both substantial changes affecting the status of pledged A6.4ERs and any developments in the pledgor's position which could impact the security interest. The pledge holder must receive regular updates about asset control, regulatory changes affecting asset status or value and projects that generate credits. Ongoing disclosure practices follow modern standards in financial market collateral management which the International Capital Market Association among others has defined.

The implementation of registry transparency features would protect pledge participants better by allowing registry users to access specific information about pledged A6.4ERs through the public interface. When pledge information becomes publicly accessible through a registry it helps prevent asset fraud by double-pledging while also warning potential buyers about pledged assets like standard security recording systems in many jurisdictions. A transparent registry system should include access limitations for different types of commercial transaction details through defined authorization levels.

Standard reporting systems guarantee the maximum usefulness of disclosures because they enable consistent delivery and comparative evaluation between different pledge agreements. Standards for environmental attributes disclosure from initiatives such as the Task Force on Climate-related Financial Disclosures could form the basis of reporting formats that fit the needs of A6.4ERs and their pledge system. Standards-based reporting decreases market participants' information processing expenses and leads to better risks evaluations which creates higher liquidity levels while decreasing transaction costs.

7. COMPARATIVE ANALYSIS WITH OTHER INTERNATIONAL REGISTRY SYSTEMS

7.1. Cape Town Convention Registry Framework

The International Registry under the Cape Town Convention on International Interests in Mobile Equipment serves as a substantial reference model for the pledge system used by the Article 6.4 mechanism registry. The International Registry has operated since 2006 to establish a worldwide system for asset security recording that focuses on high-value mobile equipment including aircraft equipment through its one million successful recorded transactions. The main attribute of the registry system is its "notice filing" procedure because it prioritizes registration date over analyzing the validity of underlining agreements.

The registry functions independently of ownership disputes because its notice filing mechanism maintains separate roles for registration and legal determinations thus ensuring it can operate across multiple jurisdictions.

As an international treaty the Cape Town International Registry gains its legal power from its explicit coverage of security interest creation and perfection and priority rules. States that join the Convention accept to recognize international security interests registered at the International Registry using established priority rules which build an international security framework that supports domestic secured transactions laws. This treaty-based system helps resolve jurisdictional issues which normally cause problems for international security interests but states still maintain different levels of treaty implementation through their domestic laws and declaration choices.

The governance model of the International Registry serves as a strong candidate to establish the operational framework for the mechanism registry. ICAO Council carries out Supervisory Authority functions but Aviareto manages registry operations in daily practice through its contractual relationship with ICAO. The operational functions of the Supervisory Body align with the UNFCCC secretariat responsibilities in Article 6.4 governance while providing examples to define authorities and oversee potential liabilities. The International Registry has supported its current operational model for longer than fifteen years while completing millions of transactions without triggering substantial legal disputes.

The International Registry sustains its administrative operations by charging user fees which support technological development and service extension. The registry functions through cost-based funding because it recovers operational expenses from user fees but maintains accessibility across the market. The funding model of the International Registry serves as a basis for developing sustainable financing strategies for the Article 6.4 mechanism registry while adjustments must be made to suit distinct market characteristics and user demographics.

7.2. Securities Depositories Models

The Article 6.4 mechanism registry can learn important concepts from securities depositories and clearing systems about how to distinguish legal ownership from operational control. The modern securities holding systems use a multi-level structure which places official securities issuance records at the central securities depository (CSD) yet allows intermediaries to hold records of beneficial ownership. The structure described as "indirect holding" allows efficient book entry transfers of securities at intermediary levels while maintaining official registry integrity between each transaction. If connected registries develop intermediary functions for A6.4ERs then they could implement certain features from this approach into the Article 6.4 mechanism registry.

The security depository legal structure outlines rights across three specific levels which include CSD-issuer relations and relations between CSDs and intermediaries and between intermediaries and end-investors. The rights protection framework along the holding chain depends on EU Central Securities Depositories Regulation legislation as well as contractual agreements and account agreements.

The Article 6.4 mechanism's legal framework must develop comparable relationships between the mechanism registry, connected registries and account holders by implementing the tiered approach which securities markets have established.

Security interest registration in securities depositories uses a control-based approach instead of conventional possession or title transfer methods. The EU Financial Collateral Directive alongside Article 8 of the US Uniform Commercial Code establish control of securities accounts as the essential procedure through which security interests become enforceable without requiring formal ownership. The control-based system used by Article 6.4 provides guidance to the registry on structuring pledge systems because it focuses on rights management instead of ownership determination.

The security depository industry has developed default management systems which combine swift enforcement mechanisms with necessary safeguards for all market participants. The default management framework implements computerized procedures that execute collateral transfers after default confirmation through pre-established contractual frameworks. The ISDA Master Agreement demonstrates how derivatives markets use close-out netting provisions to ensure swift collateral enforcement through contractual frameworks ensuring proper liquidation protections. Similar verification approaches used for Article 6.4 should guide the mechanism's pledge enforcement system through automated solutions that preserve proper verification standards.

7.3. Intellectual Property Rights Registries

Public policy-related intangible assets gain comparative insights through intellectual property rights registries when it comes to registration procedures. The World Intellectual Property Organization (WIPO) operates various international registration programs like trademarks through Madrid System along with Patent Cooperation Treaty system which enable global applications with jurisdictional restrictions. These systems act as coordination platforms instead of supranational registries which provide unified application procedures alongside information exchanges to national authorities who maintain their authority to determine rights. This method recognizes the territorial basis of intellectual property rights by providing useful administrative harmonization for practical purposes.

The Article 6.4 mechanism registry shows similarities with security interests used to protect intellectual property assets. Security interests in intellectual property currently lack an extensive global recording system which creates complex different approaches between jurisdictions that lead to substantial legal ambiguities. The modernization efforts by UNCITRAL concerning secured transactions of intellectual property properties show the problems that emerge when establishing jurisdiction constraints in intangible asset protection. The Article 6.4 pledge system shows promise to solve certain issues because it concentrates on registry system control rights instead of property rights limited by territories.

International intellectual property registration systems choose to pass fundamental disputes to national courts and arbitration bodies yet retain their administrative oversight of recorded information and registrations.

The Uniform Domain-Name Dispute-Resolution Policy (UDRP) that runs through ICANN creates a hybrid dispute resolution system by allowing administrative panels to determine specific bad faith registration issues under UDRP procedures that send larger trademark disputes to national courts. Through this model a registry system demonstrates how to directly execute specific types of decisions yet stays within appropriate bounds when it comes to substantive legal dispute involvement. Article 6.4 mechanisms should follow a pledge system concept by validating arbitral court decisions on control rights yet abstaining from making decisions about ownership or validity.

The development of intellectual property registry systems gives core attention to interoperability by applying efforts to create standardized formats and transmission protocols for inter-system information sharing. The WIPO Digital Access Service together with the International Patent Classification system allow different registry systems to exchange information while respecting varying national laws. The experience of developing connected systems offers important insights to the Article 6.4 mechanism registry as it establishes interoperability standards for linked registries by showing possible technical solutions and governance strategies for maintaining system consistency.

7.4. Lessons from Domestic Carbon Registry Systems

The carbon markets operate through distinct accommodation systems which show differences based on market organization and legal regulatory systems. The New Zealand Emissions Trading Scheme Registry provides direct capabilities according to its information note for both recording and enforcing carbon unit security interests. Fits within the New Zealand legal system to benefit from established secured transactions laws and court systems for enforcement. Through its security interest mechanism the registry expands Personal Property Securities Register principles to carbon units which maintains standardized treatment of different types of assets.

The European Union Registry for the EU Emissions Trading System provides members states with freedom to develop their own national laws regarding emission allowance security interests but it also offers restricted direct security interest functionality. Through the registry provision of "additional authorized representatives" interested parties can establish control mechanisms to secure transactions from accounts instead of registering direct security interests. This methodology demonstrates how the EU system handles its complex multi-jurisdictional nature since allowances originate from EU law but security interests continue to depend on national laws.

The California Cap-and-Trade Program registry relies on state laws to provide restricted direct recognition of security interests for intangible property. The market depends on contractual arrangements together with account access limitations to establish practical security when registry functions to record interests are absent. The system shows how security arrangements function when there is no specific registry network yet market actors establish viable contracts through additional costs and regulatory ambiguity.

Voluntary carbon market registries at Verra and Gold Standard choose not to engage directly with security interests according to their information note. Environmental and verification procedures are the main functions of these registries rather than establishing financial connections among market participants. These markets operate voluntarily because they face considerable challenges in establishing uniform security interest rules beyond their borders. These markets use escrow arrangements and conditional retirement commitments as workarounds because security mechanisms are needed yet establishing a legal framework proves difficult.

8. RECOMMENDATIONS FOR TERMS AND CONDITIONS DEVELOPMENT

8.1. Key Provisions for Entity Account Holders

Entity account holders need to follow details regarding their participation in the mechanism registry through terms and conditions which focus specifically on features that impact pledge functionalities. The necessary requirements for establishing accounts should involve rigorous identity verification processes that stick to international AML/CFT guidelines and might adopt risk-based and volume-dependent tiers. The requirements need to provide enough clarity for future participants but should also support entities from different jurisdictions that have different document handling rules.

Security measures must be properly structured in authorized representative provisions for both operational flexibility and security purposes. The agreement should contain specific processes which determine how representatives get designated and approved along with possible multiple authorizations depending on transaction type. Systematic rules about representative authority to manage pledge functions must include dedicated sections containing authorization standards for pledge operations. The provisions require establishment of digital certificate-based authentication as well as governance document-enforced authority restrictions.

Special focus should be dedicated to termination and suspension clauses because they have significant effects on A6.4ERs that are pledged. Terms must precisely specify the suspension and account termination conditions as well as the procedures and effects on pledged A6.4ERs in affected accounts. Pledge holder protection measures must be included in these provisions while they should also contain notification requirements and temporary preservation of pledges during suspension times. Platform agreements with reasonable termination provisions gain court approval when they establish procedural safeguards and avoid arbitrary use of termination rights based on the Register.com v. Verio, Inc. (356 F.3d 393, 2004) decision. Verio, Inc. (356 F.3d 393, 2004).

General account dispute resolution protocols need matching operational procedures with those dedicated to pledge dispute management. For disputes involving account operations the terms should define specific jurisdiction and venue rules as well as applicable law possibly using the same arbitration mechanism as for pledge disputes to maintain consistency across registry-related claims. Attorneys should draft these provisions after considering how they will function in different jurisdictions while respecting local laws that may limit the enforceability of chosen dispute resolution mechanisms.

8.2. Pledge-Specific Terms and Conditions

The mechanism registry needs pledge-specific terms and conditions that establish complete guidelines for pledge creation and enforcement. The creation procedures need to outline the technical steps which establish valid pledges through choices of specific A6.4ERs and identification of pledge holders together with necessary approval or notification requirements. The procedures must achieve security and operational efficiency through possible tiered requirements that scale with the amount or worth of pledged A6.4ERs. The terms need to clarify if partial pledges of A6.4ER batch units are authorized and how registry systems maintain tracking of these partial pledges.

Terms for maintaining pledged A6.4ERs must define the obligations of account holders by describing both their restricted actions like transferring units or canceling pledges during the pledge duration. The terms need to specify how the registry system will process transactions with pledged A6.4ERs by determining whether automatic rejection applies or if pledge holder approval is required. The provisions should establish precise event notifications for pledged A6.4ERs which could involve automatic registry alert systems when their status changes.

The rules for enforcement operations must receive comprehensive treatment because they need to provide clear expectations to all parties involved. The terms should detail an arbitration procedure from section 4 with precise steps to start enforcement procedures along with clearance procedures and transfer protocols for pledged A6.4ERs. The procedures outline specific timing protocols as well as documentation standards that focus on verification systems which confirm all proper authorization for enforcement operations. The terms need to include provisions for handling challenges that may occur during enforcement such as conflicting claims and situations where enforcement is only partial.

The release procedures must include comprehensive protocols that enable both parties and the satisfaction of obligations to terminate pledge agreements. The procedures must detail the technical operations to release pledges inside the registry system while establishing needed approvals or notifications as well as describing the impact on previously pledged A6.4ERs. The terms need to cover situations where release disputes arise and should use identical arbitration processes as enforcement disputes to maintain procedural consistency.

8.3. Dispute Resolution Framework

The dispute resolution framework of the pledge system needs to utilize and develop the arbitration system from section 4 while establishing complete procedures to handle all pledge-related disputes. These protocols should express how the designated arbitration providers maintain the authority to handle pledge disputes and retract alternative forum access to stop parallel proceedings and varied judgment outcomes. The system should contain provisions that cover both original enforcement matters along with supplemental matters about pledge interpretation and default determination and secured debt calculations.

The procedural rules need to offer extensive arbitration process guidance through incorporation of designated arbitration provider rules and extra specifications to adapt these rules for carbon market applications. The modified rules should include tight deadlines for specific cases together with expert arbitrator requirements for carbon market expertise and confidentiality protocols that protect business needs while safeguarding public climate finance interests. The procedural rules need to establish explicit guidelines that allow arbitrators to protect pledged A6.4ERs by preserving them while arbitration proceedings are ongoing.

Implementation provisions need to establish how arbitral decisions relate to registry actions so that decisions can be properly executed. Procedural rules must describe what types of arbitral decisions qualify for implementation and establish documentation standards for delivering decisions to the registry administrator and verification standards for authenticating received decisions and the period within which decisions become operational after authentication. The guidelines for implementation need to establish responses for cases where instructions are technologically unfeasible as well as for situations that create conflicts between registry protocols and Paris Agreement standards.

Special appeal processes need to have restricted access to preserve the speed and conclusion of the dispute resolution approach. The terms enable judges to review procedural irregularities yet they would prevent the review of substantive matters in a way that matches restrictions for challenging awards under the New York Convention. The arbitral process needs proper procedural safeguards before a competent tribunal to allow every party enough time to present their case. The terms must define how review proceedings affect decision implementation by allowing implementation to continue if no suspensive orders exist.

8.4. Implementation Timeline Considerations

The implementation timeline for the pledge system needs to include stages regarding its initial development as well as sustained evolution throughout time. The first phase of implementation should concentrate on establishing pledge functionality which tracks security interests and preserves pledged A6.4ERs from unauthorized transfers while developing advanced enforcement capabilities. The progressive deployment methodology will enable market participants to implement security arrangements right away although the complete system development will continue as a parallel process just like Target2-Securities in Europe underwent stage-by-stage implementation.

The implementation plan must include stakeholder consultation timelines which provide sufficient review periods to market participants along with legal experts and other interested parties for proposed terms and procedures. The consultation process should follow major project development points including conceptual design phases and draft terms and conditions and technical specifications and testing protocols stages. Strong engagement of stakeholders worked well in comparable market infrastructure projects because it discovered practical issues which led to refining implementation methods ahead of deployment.

The schedule for technical development and testing needs to consider how much effort it will take to integrate pledge capabilities into the entire mechanism registry platform. The planned execution schedule needs sufficient time blocks for security testing in addition to user acceptance testing while including deployment phases that spread across time to avoid registry disruptions. The strategy for deployment includes a testing phase which uses restricted market participants to verify system performance using genuine transactions followed by complete release to market just like what happened during the Continuous Linked Settlement system development.

The implementation timeline must incorporate explicit review and refinement periods because the pledge system will need operational adjustments following practical implementation experience. The implementation plan should include two evaluation stages to measure system performance and evaluate technical and legal term modifications after six months and eighteen months from first deployment. The iterative method acknowledges both the innovative nature of the pledge system and the predicted improvements which will emerge from operational experience.

9. CONCLUSION

9.1. Summary of Key Legal Considerations

The implementation of pledges through the Article 6.4 mechanism registry faces multiple legal challenges because of the distinct framework established by the UNFCCC. The analysis reveals that attention to control rights instead of ownership analysis creates a practical solution which enables registry assistance for meaningful security agreements while keeping the UNFCCC secretariat away from ownership conflicts between different legal systems. Legal ownership of carbon market instruments faces jurisdictional challenges because different countries have conflicting national laws that cannot be easily settled through treaty-based mechanisms.

This proposed arbitration framework acts as a key operational component for the pledge system since it establishes an efficient dispute resolution framework that works across different jurisdictions yet restricts the registry administrator to execute authenticated decisions instead of making substantive law-based rulings. The method borrows effective dispute resolution mechanisms already utilized in other international frameworks which handle complex international disputes relating to intangible assets and financial instruments. This framework works best when qualified experts with suitable experience select arbitrators, standardized transaction-specific procedures exist and registry system operation remains clear.

The registry administrator needs adequate legal protections because the pledge system should not create unreasonable legal risks for the UNFCCC secretariat. The protection scheme should include multiple safeguards through liability constraints and good faith standards together with force majeure provisions and comprehensive indemnification measures which protect the secretariat according to its institutional role. The established legal precedent for protecting intermediaries applies directly in the context of the UNFCCC through an understanding of its specific framework requirements.

The examination of existing international registry systems provides both applicable best practices and distinct features that must be considered for designing the Article 6.4 mechanism pledge system. A treaty-based registry for security interests finds significant guidance through the International Registry of the Cape Town Convention and also draws helpful information from securities depositories and intellectual property registries regarding inter-jurisdictional intangible asset management. Operating within legally defined frameworks enables domestic carbon registry approaches to showcase benefits and technical challenges that will affect the future international mechanism due to its need to function across various jurisdictions with different legal systems and traditions.

9.2. Priority Recommendations

The implementation of the pledge system requires comprehensive terms and conditions to serve as its fundamental base. The terms must outline complete participant responsibilities alongside rights together with proper dispute settlement systems while establishing sufficient liability safety for the registry administrator. The terms must receive special focus because they need to achieve clarity which enables enforceability in multiple jurisdictions without conflicting with Paris Agreement guidelines. The system framework must use control rights definitions instead of ownership rules yet should distinguish between registry operations and legal property rights made under national law.

A prompt focus on creating suitable arbitration mechanisms requires the identification of qualified arbitral institutions as well as specialized procedural rules and distinct implementation procedures for arbitral decisions. The development of this work requires cooperation with expert arbitral institutions which should explore specialized panels and procedures for handling carbon market disputes. The arbitration framework requires design to achieve efficient and foreseeable dispute settlement services that protect all involved parties through well-functioning enforcement procedures suitable for registry operations.

Initial security arrangement implementation programs need to be created to let market participants start using them right away as developers work on more advanced system features. The implementation process should prioritize quick-rollout essential capabilities which include pledge recording and transfer limitations but detail the sequence of advanced functionality deployment. The implementation plan should involve stakeholder consultation, technical development and testing and scheduled review periods which will enable system evolution based on operational experience.

The development process for standard documentation and guidance materials should run simultaneously with system development to provide specific instructions for market participants about pledge creation and maintenance and enforcement. The documentation must provide both operational instructions for registry functionality and practical guidelines to establish powerful security arrangements under the system rules. Market participants need special training which explains the difference between registry-based control rights and broader questions of ownership to maintain appropriate understanding of pledge system limitations.

9.3. Areas for Further Legal Analysis

The analysis of pledged assets within domestic laws demands additional investigation because of its significant impact. The new approach chooses not to directly influence national law ownership determination systems yet registry-registered pledges require examination under domestic legal systems in various settings such as bankruptcy, taxation, regulatory requirements and contractual disputes beyond the registry realm. Future investigations need to study how courts from main jurisdictions would analyze registry-based pledges and determine additional steps to boost legal clarity between jurisdictions.

The examination of how Article 6.2 cooperative approaches link to the pledge system and other registries requires additional study. The evolving international carbon market needs more interconnection between registry systems to enable pledged A6.4ER exchange between registries and establish multiple registry security interests. Additional research should explore pledging information exchanges between registries and create system-wide methods for handling security interests while developing solutions for registry rule conflicts.

The application of newly emerging regulatory frameworks for A6.4ERs and their corresponding security interests requires continuous evaluation and assessment. Rapid changes in financial market regulations and anti-money laundering requirements alongside climate-related disclosure obligations across different jurisdictions affect how promises of pledge are structured recorded and enforced. Studies should monitor emerging regulations to determine how this information can help improve the pledge system according to changes in major carbon market jurisdictions.

An analysis of future governance strategies for the pledge system should be conducted to guarantee sustainability throughout the evolving carbon market. The assessment must determine how the system will respond to market transformations and new technologies as well as regulation changes without disrupting existing agreements. System governance must establish standards regarding stakeholder involvement in development along with the right equilibrium between system stability and flexibility and processes to transfer operational knowledge into system enhancements. A forward-thinking analysis will improve the current implementation needs by maintaining system effectiveness and applicability to the crucial upcoming decades of climate action.

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