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**MEMORANDUM ON THE SCOPE AND DIRECTION OF THE TOKENISATION
ANNEXE**

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I. PURPOSE OF THIS MEMORANDUM

1. This memorandum lays out the analytical framework that will guide the drafting of the Tokenisation Annexe to the UNIDROIT Principles on the Legal Nature of Verified Carbon Credits (the “Principles”). It is presented to the Working Group as a basis for discussion, with a view to reaching working consensus on the scope, structure and policy orientation of the Annexe before drafting commences in earnest.

2. The central submission of this memorandum is that “tokenisation” is not a term of art with a settled legal meaning, and that the Annexe cannot be responsibly drafted without first identifying and differentiating among the distinct phenomena that the term may describe; four such scenarios are identified and analysed below.

II. PRELIMINARY OBSERVATION: THE PRINCIPLES ARE TECHNOLOGY-NEUTRAL

3. The Principles are drafted to be technology-neutral. They do not prescribe the medium by which a VCC registry is maintained, the format in which registry entries are stored, or the mechanism by which account instructions are given and executed. This neutrality is deliberate and valuable. It allows the Principles to accommodate a range of technological implementations, from a paper ledger maintained manually, to a database stored on conventional servers, to a system operating on distributed ledger technology, without requiring amendment as technology evolves.

4. The task of the Annexe is therefore not to make a technology choice on behalf of the market, but to ensure that the legal framework remains coherent and effective across the range of technological arrangements that the market may adopt.

III. TOKENISATION, LINKED ASSETS AND THE LIMITS OF PRIVATE ORDERING

1. What Tokenisation Means in Functional Terms

5. In the context of the voluntary carbon market, “tokenisation” refers to the practice of creating a digital asset (a token) that is linked to a VCC, with the intention that dealings with the token should affect rights in the underlying VCC. Depending on the arrangement, the intended effect may be that a transfer of the token transfers rights in the VCC, that the cancellation of the token retires the VCC, or that the holder of the token acquires a right to claim the VCC from the person who issued the token.

6. The term is used broadly in industry practice, and different market participants may use it to describe arrangements that are, in legal substance, quite different from one another. The purpose of this Section is to explain why those differences matter, and to identify a structural constraint of property law that shapes the legal analysis of every tokenisation arrangement the Annexe will consider.

2. The UNIDROIT Framework: Digital Assets and Linked Assets

7. The relationship between a digital asset and another asset to which it is linked is already recognised in the UNIDROIT system. Principle 4 of the UNIDROIT Principles on Digital Assets and Private Law (DAPL) addresses what it terms “linked assets”: digital assets that are linked to another asset, whether tangible or intangible. DAPL applies to the digital asset itself, including its creation, transfer, control and the protection of innocent acquirers, but it takes a deliberately neutral stance on the legal effect of the link between the digital asset and the other asset. That question is left entirely to “other law”: the law governing the other asset.

8. The neutrality of DAPL on this point reflects a considered policy choice. As the Commentary to Principle 4 explains, the parties who issue or transact with a digital asset cannot confer any greater legal effect on the link than the other law of the State would allow. A change in the recorded holding of a digital asset is, in itself, legally neutral in relation to the other asset unless some rule of other law makes the link between them legally effective. The Commentary illustrates this through a series of examples: a token linked to gold, to copyrights, to debt securities, to real estate. In each case, whether a transfer of the token operates to transfer rights in the linked asset depends not on what the parties intend or declare, but on what the applicable law provides for those assets.

9. The implication for the present Annexe is direct. If a person purports to link a token to a VCC, DAPL governs the token as a digital asset, but whether the purported link has any legal effect on rights in the VCC is a question for the law governing VCCs. That law is the Principles, and the Principles, as currently drafted, say nothing on such matters. The result is a gap: DAPL refers to VCC law, and VCC law is silent. This is not a criticism of either instrument; it reflects their respective fields of application. It does, however, confirm that the Annexe is the appropriate vehicle through which this gap might be addressed, if the Working Group determines that it should be.

3. The Structural Constraint: Why Private Ordering Cannot Bridge the Gap

10. The gap identified above is not accidental, and it cannot be closed by private agreement alone. It reflects a structural feature of property law that is common to virtually all legal systems.

11. The law of contract and the law of property serve different functions and operate under different constraints. Contracting parties enjoy broad freedom to create obligations that bind each other. They may agree that a token entitles its holder to demand delivery of a VCC, to compel its retirement, or to receive a payment linked to its value. These are contractual rights; they bind the parties to the agreement and, subject to the applicable law of contract, they may be transferred to third parties by assignment or novation.

12. Property rights are different. A proprietary right in an asset is not merely a right against a specific counterparty; it is a right in rem, a right that binds the world. It follows that the creation of a new category of proprietary right imposes obligations on every person, including those who never consented to the arrangement. For this reason, every developed legal system limits the categories of proprietary right that may exist to those recognised by law (the *numerus clausus* principle). In civil law jurisdictions, this principle is typically expressed

through the enumeration in the civil code of a closed list of property rights. In common law jurisdictions, the same result is achieved through judicial refusal to recognise novel proprietary forms that fall outside the established categories.

13. The practical consequence is that private parties cannot, by agreement among themselves, create a new form of proprietary right that the law does not recognise. They may agree between themselves that a token “represents” or “embodies” ownership of a VCC; but unless the law provides that a transfer of the token operates to transfer proprietary rights in the VCC, the agreement cannot produce that effect as against third parties. A transferee of the token may acquire contractual rights against the person who issued it, but the transferee does not, by virtue of acquiring the token, acquire a proprietary interest in the underlying VCC that is enforceable against the world. The distinction is of particular consequence in insolvency: a token holder who possesses only contractual rights against the issuer will rank as an unsecured creditor in the issuer’s insolvency, whereas a token holder who holds a proprietary interest in the underlying VCC could assert that interest ahead of the issuer’s creditors.

14. This constraint has direct implications for the Annexe. The history of commercial law offers many examples of instruments that embody proprietary rights in underlying assets (bills of lading, warehouse receipts, negotiable instruments, share certificates) but in every case, the proprietary effect of those instruments was established by law, whether through judicial development over centuries or through legislative enactment. The technological capacity to create a token and to link it to a VCC does not, in itself, supply the legal rule that would give that link proprietary effect.

4. The Task Before the Annexe

15. The analysis above frames the central question that the Annexe must address. The voluntary carbon market is experimenting with a range of tokenisation practices, and participants may reasonably expect the Principles to provide guidance on how those practices interact with the legal framework. The Annexe must do so with precision. Some tokenisation arrangements operate comfortably within the existing Principles; others raise primarily contractual issues that fall largely outside their scope; and others still would require the creation of new proprietary rules that only the Principles, as the “other law” to which DAPL defers, can supply.

16. The four scenarios that follow are organised according to this analysis. They move from the arrangement that is most straightforwardly accommodated by the Principles as currently drafted, to the arrangement that would require the most significant extension of the legal framework.

IV. SCENARIO ONE: PERMISSIONED DLT AS REGISTRY INFRASTRUCTURE

1. Description

17. The first and narrowest scenario broadly describes a class of arrangements in which a VCC registry operator elects to build and operate its registry infrastructure on a permissioned distributed ledger system. Under arrangements of this type, the ledger constitutes the registry’s

operational infrastructure. Data entries (i.e. tokens) are the technical form that registry entries take; they document the existence of VCCs and transactions involving these assets within the system. Public/private key pairs serve as the functional equivalent of customer accounts, giving registered holders the means to authenticate and execute instructions to the registry operator.

2. Legal Significance

18. Understood in this way, Scenario One is a technology substitution. The tokens are purely evidentiary in character. They record the state of the registry; they do not embody anything. A VCC recorded in a permissioned DLT registry remains a pure intangible, as defined in Principle 2(3) and as contemplated by Commentary 2.7, in precisely the same way that a VCC recorded in a conventional electronic database is a pure intangible. The token has no greater legal significance than a written entry in a paper register or a record in a cloud-based electronic system.

19. Critically, the token is neither a bearer instrument nor a document of title. No proprietary interest in a VCC is acquired, transferred, or extinguished solely by virtue of controlling or transferring the token itself. The legal effects of creation under Principle 5, transfer under Principle 6, retirement under Principle 11, reversal under Principle 9, and revocation under Principle 10 are produced by the occurrence of legally relevant events and by the actions of parties exercising their rights and obligations as registered holders and registry operators. Registry operations record and evidence those events and actions; they constitute the authoritative record, maintained at the behest of the parties who hold proprietary rights in the VCCs concerned.

3. Possible Treatment in the Annexe

20. Scenario One would not require new principles. It might, however, warrant a focused discursive analysis for two reasons.

21. First, the Annexe could provide a technically grounded description of how a permissioned DLT registry operates, pitched at a level of precision sufficient for a legally trained reader who may be unfamiliar with the technology.

22. Second, the Annexe might identify points of friction between the technical characteristics of permissioned DLT systems and the substantive requirements of the Principles. Technology neutrality means that a registry may be implemented on any technological platform; it does not follow that all implementations are automatically compliant with the legal framework the Principles establish. Specific questions could arise, for example, in relation to the finality and irreversibility of on-chain operations versus the requirements for reversal and revocation under Principles 9 and 10; the governance structures of permissioned ledgers and their compatibility with the functions assigned to registry operators under Principle 13; and the treatment of smart contract-executed instructions in the context of the creation rule in Principle 5, which Commentary 2.13 already contemplates in passing.

V. SCENARIO TWO: A TOKEN REPRESENTING CONTRACTUAL RIGHTS CONNECTED TO A VCC

1. Description

23. Scenario Two is materially and legally distinct from Scenario One. Here, a token, being a data entry in a distributed ledger system whether permissioned or public, is created not as a technological choice for recording registry information, but for the distinct purpose of representing rights connected to an underlying VCC. The VCC continues to exist as a pure intangible satisfying the requirements of the Principles. The token is a separate asset, and the question is what legal significance, if any, is to be accorded to the relationship between the two.

24. Under this scenario, the token is created to entitle its holder to contractual rights against the person who issued or minted it. The issuer might be the registry operator, a registered holder, or a third party. Where the issuer is the registry operator, those rights might run directly against the registry, entitling the token holder to compel it to transfer the underlying VCC into a designated account, to retire it on the holder's instructions, or to take other specified steps in relation to the VCC recorded in the registry. Where the issuer is a registered holder or a third party, the contractual rights would run against that person and would be governed by the terms of the agreement between them.

2. Possible Treatment in the Annexe

25. The Annexe might explain how arrangements of this kind operate in practice and how they could interact with the structure of rights and obligations the Principles establish. It would then be appropriate to observe that Scenario Two gives rise primarily to contractual issues, governed by the law applicable to the agreement between the token holder and the issuer, and as such falls largely outside the scope of the Principles, which focus on proprietary rights in VCCs.

26. It may also be worth noting that many existing arrangements in which tokens are marketed as representing carbon credits are, in legal substance, contractual arrangements of this type. This is not a deficiency in their design; it is a consequence of the structural constraint identified in Section III. In the absence of a proprietary rule that gives legal effect to the link between the token and the underlying VCC, the most that private ordering can achieve is a contractual obligation running between the parties. The prevalence of Scenario Two arrangements in the current market underscores both the demand for tokenisation and the legal limits within which that demand is presently met.

VI. SCENARIO THREE: A TOKEN EMBODYING PROPRIETARY RIGHTS IN A VCC

1. Description

27. Scenario Three is materially and legally distinct from both Scenarios One and Two. Here, a token, being a data entry in a distributed ledger system whether permissioned or public, is

created to embody proprietary rights in an underlying VCC. The token, on this view, is the vehicle by which proprietary rights in the VCC are transferred.

28. As Section III explains, Scenario Three would require the construction of a new property rule: a rule that establishes a legally operative link between a digital asset (the token) and a separate intangible asset (the VCC), and that provides that a transfer of the token effects a transfer of the proprietary interest in the VCC. Such a rule would also need to address the conditions under which the token may be used to effect the retirement of the underlying VCC. This is not something that private parties can achieve by agreement alone; it requires the support of law.

29. Comparative law offers useful points of reference. In common law systems, an analogous mechanism was developed in cases such as *Lickbarrow v Mason* (1787-1790), where the courts recognised that a bill of lading could embody rights to goods aboard a ship, and that endorsement and transfer of that instrument could operate to transfer property in those goods. In the statutory sphere, Article 7 of the United States Uniform Commercial Code provides a comprehensive regime governing documents of title and the proprietary effects of their transfer, and Article 3 of the same code does so for negotiable instruments. Civil law jurisdictions have addressed the problem through codified provisions on order instruments and bearer instruments, as illustrated by the regimes in the German Civil Code and Commercial Code (BGB and HGB) and their counterparts in other civil law systems. What these examples share is not only the recognition that a documentary or digital instrument can embody proprietary rights in, or claims referable to, another asset, but also a supporting set of rules governing the formal and substantive requirements for such embodiment, the legal regime applicable to the transfer of the instrument, the conditions for the protection of innocent acquirers, and the relationship between the instrument and the underlying asset in cases of conflict or discrepancy. The Annexe would need to grapple with each of these dimensions in the context of tokenised VCCs.

2. Possible Treatment in the Annexe

30. Scenario Three could not be addressed by a discursive explanation of how the existing Principles apply in the tokenisation context. It would require substantive policy engagement and, potentially, new principles.

31. The antecedent policy question for the Working Group is whether it is desirable to allow a token to embody proprietary rights in a VCC, to serve as the instrument by which those rights are transferred, and to serve potentially as the instrument by which the underlying VCC is retired or otherwise cancelled. This question has significant implications for registry integrity, market transparency, environmental accounting, and the coherence of the cancellation framework under Principles 8 to 11.

32. If the Working Group were to determine that Scenario Three is desirable and should be supported by the Principles, the Annexe might need to contain new substantive principles addressing, among other things: the conditions under which a token may be said to embody proprietary rights in an underlying VCC and the formal requirements for such embodiment; the legal regime governing the transfer of the token as a means of transferring proprietary rights in the VCC, including the treatment of innocent acquirers; the relationship between the token and

the registry record in cases of discrepancy or conflict; and the conditions under which the transfer or cancellation of the token operates to retire, reverse or revoke the underlying VCC. This list is illustrative rather than exhaustive. It would be of the first importance for the Annexe to proceed on the basis of a clear and precise mandate from the Working Group as to the policy objectives that any such new principles should serve.

VII. SCENARIO FOUR: VCCS CREATED OR MANAGED OUTSIDE THE INTERMEDIATED STRUCTURE OF THE PRINCIPLES

1. Description

33. The fourth scenario envisions an architecture in which VCCs are natively created as tokens on a decentralised public distributed ledger, such as Ethereum or a comparable platform, and their entire lifecycle (creation, transfer, retirement, reversal and revocation) is carried out on-chain. However, the functions that the Principles assign to registry operators and crediting bodies are instead performed by smart contracts or automated software protocols. These protocols may operate autonomously, with no identifiable person holding the authority to modify or override them, or they may be subject to decentralised governance by token holders or a decentralised autonomous organisation. In either case, the defining characteristic of Scenario Four is not the choice of technological platform. A VCC registry could, in principle, be operated on a public distributed ledger and yet remain fully within the intermediated structure of the Principles, provided that an identifiable person continues to perform the functions of registry operator as the Principles define them. What distinguishes Scenario Four, and what places it outside the scope of the Principles, is the absence of the intermediaries upon which the Principles rely, or the substitution of a fundamentally different intermediary structure.

2. Incompatibility with the Existing Framework

34. Scenario Four is not a variation within the framework of the Principles that could be addressed by adaptation or commentary; it is structurally incompatible with the framework as presently construed and conceived.

35. The Principles assign to the registry and to the registry operator functions that are foundational to the private law regime they establish. Creation of a VCC under Principle 5 requires registration in a VCC Registry as defined in Principle 12(1). Transfer under Principle 6 is effected through the registry system. Retirement under Principle 11 requires a registry instruction. Reversal under Principle 9 and revocation under Principle 10 each require the registry operator to take affirmative steps on the instruction of the relevant authority. Each of these functions presupposes a registry operated by an identifiable person who is subject to legal obligations, exercises discretion, and can be held accountable.

36. A genuinely disintermediated architecture, in which no party exercises centralised control and no identifiable person functions as registry operator in any legally meaningful sense, cannot perform these functions as the Principles conceive them. Scenario Four accordingly falls outside the scope of the Annexe as currently envisioned. It may nonetheless be appropriate to acknowledge in the Annexe that this model is technologically sophisticated and may present

genuine opportunities for future market design; the incompatibility is with the intermediated structure of the Principles as presently drafted, not with the underlying aspiration.

VIII. SUMMARY AND PROPOSED STRUCTURE OF THE ANNEXE

37. The four scenarios, and their proposed treatment, may be summarised as follows:

Scenario	Description	Proposed Treatment
One	Permissioned DLT as registry infrastructure; tokens as evidentiary data entries	Discursive analysis; no new principles; possible identification of implementation pressure points
Two	Token representing contractual rights against the issuer or registry	Explanation of how such arrangements operate; observation that they fall primarily outside the scope of the Principles
Three	Token embodying and transferring proprietary rights in a VCC	Requires prior policy decision and clear mandate from the Working Group; potentially new principles
Four	VCCs created or managed outside the intermediated structure of the Principles	Outside scope; brief structural explanation; acknowledgment of future potential

38. The proposed structure of the Annexe would follow the order of these scenarios, preceded by an introduction addressing the technology-neutral character of the Principles, the concept of linked assets, and the structural limits of private ordering in the domain of property law.

IX. QUESTIONS FOR THE WORKING GROUP

39. The following questions are proposed for discussion during the working group session:

1. Does the Working Group recognise the four scenarios described above as accurately reflecting the range of tokenisation practices currently present in or contemplated by the voluntary carbon market?
2. Are there additional tokenisation models that the Annexe should address?

40. *This memorandum is a working document presented to the Working Group on the Legal Nature of Verified Carbon Credits for discussion purposes. It does not represent a final or agreed position of the Working Group.*