THE 0.01% SOLUTIONS

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1 The 0.01% Solutions

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Status clarification. Presentation in connection with UNCCD COP17 does not imply endorsement by the COP Presidency, the UNCCD, the United Nations, any government, or an international financial institution. The Convention on Planetary Hydrological Security and Cryosphere Stability (CPHSCS) is also proposed and has not been adopted or ratified.

Policy and scientific qualification. Quantitative targets, geographical boundaries, technical specifications, environmental claims, and financing pathways in this document are proposals requiring verification and review. They should not be represented as established scientific findings or binding international commitments.

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2 Executive Summary

The 0.01% Solutions—Flagship Implementation Programme is proposed as a globally applicable, locally implemented initiative to strengthen responsible water retention, restore degraded landscapes, support ecosystem resilience, and improve communities' capacity to manage drought and hydrological variability. It is envisioned as a distributed network of restoration and water-management initiatives operating primarily across the world's drylands, semi-arid regions, rangelands, pastoral landscapes, degraded watersheds, and other areas experiencing water insecurity or land degradation. The Programme will connect locally appropriate action through shared objectives, scientific cooperation, transparent monitoring, and the exchange of implementation experience.

The Programme will seek opportunities for participation and cooperation with interested countries that are Parties to one or more of the Rio Conventions—the United Nations Convention to Combat Desertification (UNCCD), the United Nations Framework Convention on Climate Change (UNFCCC), and the Convention on Biological Diversity (CBD)—as well as with other countries and institutions willing to cooperate through relevant United Nations, regional, national, and international frameworks. Such relationships may support synergies in land restoration, drought resilience, climate adaptation, biodiversity conservation, and sustainable land and water management. Membership in a Rio Convention or participation in the United Nations system does not, by itself, constitute endorsement of, formal participation in, or financial support for the Programme. Implementation will depend on the interest and authorization of relevant national and local institutions, applicable laws, and any necessary agreements.

The Programme begins from a central policy proposition: although the total amount of water on Earth remains broadly constant over time, freshwater availability varies significantly across locations and seasons, and usable water may become less available where and when people and ecosystems need it. Climate change, cryosphere change, land degradation, unsustainable water abstraction, pollution, and ecosystem disruption interact differently across regions. Effective responses must therefore consider catchments, soils, groundwater, vegetation, wetlands, rangelands, seasonal water flows, upstream sources, and downstream users as interconnected components of the wider water–land–ecosystem system.

Using the proposal's stated global precipitation baseline of approximately 520,000 km^3 per year, 0.01% equals approximately 52 km^3, or 52 billion m^3, per year. This is an arithmetic result based on the proposed baseline, not a verified estimate of how much water could feasibly or sustainably be captured, retained, or otherwise managed through the Programme. The baseline, operational definition of "retention," measurement methods, feasibility, and ecological limits require further validation. Precipitation already sustains ecosystems, soil moisture, infiltration, aquifer recharge, river flows, and evapotranspiration. Accordingly, the Programme's quantitative ambition must be pursued only where supported by hydrological evidence and where interventions safeguard environmental flows, water quality, downstream users, and the legitimate needs of local communities.

Implementation will follow a geographically distributed approach rather than being restricted to a single latitude belt, region, continent, or group of countries. Priority landscapes may include drylands and semi-arid regions affected by recurrent drought; pasturelands and rangelands facing degradation and pressure on water resources; degraded watersheds and headwater areas; transboundary ecological corridors; and climate-sensitive mountain and cryosphere-connected regions where changes in snow, glaciers, permafrost, or seasonal runoff may influence downstream water availability. The proposed North 43°–44° North

Latitude Belt may serve as an initial demonstration geography for developing and evaluating implementation methods, subject to scientific review, geographic verification, and consultation with relevant jurisdictions. It is a potential starting point, not the geographical limit of the Programme.

Distributed Pond Systems (DPS) are one potential intervention within a broader portfolio that may also include rainwater harvesting, soil-moisture conservation, infiltration measures, wetland and watershed restoration, rangeland rehabilitation, vegetation recovery, and other scientifically justified approaches. The Programme will not prescribe a universal technical solution or a fixed storage-capacity threshold. The design and suitability of each intervention will be determined through site-specific hydrological, ecological, engineering, social, and economic assessments, with appropriate safeguards and maintenance arrangements.

The Programme will promote global coordination, national ownership, and local participation. Countries and communities will be encouraged to identify suitable interventions according to their ecological conditions, water systems, land-use patterns, development priorities, and community needs. Cooperation may involve public institutions, scientific and academic organizations, civil-society organizations, pastoral communities, Indigenous Peoples, land users, regional bodies, and relevant international partners, as appropriate. Activities will respect national sovereignty, applicable law, legitimate land and water rights, pastoral mobility, community participation, and the need to protect ecosystems and downstream water availability.

The Programme may also generate practical experience and scientific evidence relevant to the proposed Convention on Planetary Hydrological Security and Cryosphere Stability (CPHSCS). Through demonstration projects, monitoring, and international knowledge exchange, it could help inform future approaches to the interconnected challenges of land degradation, water insecurity, ecosystem resilience, and cryosphere-related hydrological change. This relationship remains prospective: neither the Programme nor its activities imply that CPHSCS has been adopted, ratified, or endorsed by the United Nations, the Rio Convention secretariats, or participating governments.

Ultimately, the Programme seeks to connect locally appropriate restoration initiatives into a coherent global contribution to responsible water management, land recovery, biodiversity conservation, climate resilience, drought preparedness, and sustainable livelihoods. Its credibility and long-term effectiveness will depend on a verified scientific baseline, clear measurement and accounting methods, country-led implementation, meaningful community participation, ecological safeguards, transparent monitoring, independent evaluation, and evidence-based adaptation. The Programme’s geographical reach is global; its implementation is country-led, landscape-based, science-informed, and community-centred.

3 Purpose, Scope, and Intended Use

3.1 Purpose

The 0.01% Solutions—Flagship Implementation Programme seeks to translate the principle of planetary hydrological security into practical, measurable, and locally adaptable action. It aims to connect responsible water retention and conservation with land restoration, biodiversity conservation, climate adaptation, drought preparedness, sustainable livelihoods, and transboundary cooperation. Through a distributed network of locally designed initiatives, the Programme will promote context-specific interventions that improve landscape functions, strengthen ecosystem resilience, and support communities facing water insecurity and land degradation.

The Programme's purpose is not simply to increase water storage, but to improve the capacity of landscapes to retain, absorb, regulate, and sustain water in ways that are scientifically justified, ecologically appropriate, and beneficial to communities and ecosystems. Its activities will be informed by hydrological and ecological assessments, local knowledge, and measurable outcomes, with attention to the relationships among precipitation, soil moisture, groundwater recharge, surface water, vegetation, wetlands, rangelands, and seasonal water flows.

3.2 Status and Institutional Independence

The Programme is a proposed civil-society initiative and remains institutionally independent unless and until separate arrangements are established by the relevant participating organizations. It does not, by itself, create legally binding obligations, water rights, permits, regulatory powers, institutional authority, or funding commitments for any country, government, organization, community, or individual.

The Programme is not a treaty, intergovernmental mechanism, or substitute for existing national or international institutions. Its relationship with the United Nations system, the Rio Conventions, regional organizations, research institutions, and development partners will depend on the relevant parties' decisions, applicable procedures, and any formal cooperation arrangements that may subsequently be established. Participation in an international convention or institution does not automatically constitute endorsement of, participation in, or financial support for the Programme.

The Programme does not itself establish carbon credits, biodiversity credits, water credits, or other environmental assets, nor does it guarantee eligibility for grants, concessional finance, or other international funding. Any financing mechanism, environmental-credit arrangement, or formal institutional partnership would require separate assessment, applicable authorization, transparent governance, and compliance with relevant legal and technical requirements.

3.3 Scope

The Programme's proposed scope encompasses the development, implementation, evaluation, and improvement of locally appropriate water-retention and landscape-restoration initiatives. Activities may include the identification and assessment of demonstration sites; hydrological, ecological, engineering, social, and economic studies; community consultation and participation; the design and implementation of restoration measures; technical capacity-building; monitoring and data management; financing proposals; knowledge exchange; and independent evaluation.

Potential interventions may include Distributed Pond Systems, rainwater harvesting, soil-moisture conservation, infiltration measures, wetland and watershed restoration, rangeland rehabilitation, vegetation recovery, and other scientifically justified approaches suited to local conditions. The choice of intervention will depend on site-specific evidence, water availability, ecological requirements, community priorities, land-use patterns, maintenance capacity, and applicable national law. No single technical solution or fixed storage-capacity threshold will be prescribed for all locations.

The Programme is intended to operate through a geographically distributed network, with potential activities across drylands, semi-arid regions, rangelands, pastoral landscapes, degraded watersheds, water-insecure communities, and other priority landscapes identified through scientific assessment and consultation. The proposed North 43°–44° North Latitude Belt Corridor may be considered as an initial demonstration geography, subject to further scientific and geographic review, but it does not define or limit the Programme's global scope.

Implementation may involve cooperation among national and local authorities, scientific and academic institutions, civil-society organizations, local and Indigenous communities, pastoralists, land and water users, regional organizations, and interested international partners, as appropriate. All activities should respect national sovereignty, applicable law, legitimate land and water rights, community participation, pastoral mobility where relevant, environmental safeguards, and the water needs of downstream users and ecosystems.

The Programme is designed to complement existing international agreements, national legislation, policies, and institutions—not to replace them. Its potential contribution to the proposed CPHSCS is prospective: experience and evidence generated through implementation may inform future scientific cooperation and policy development, but the Programme does not imply that the proposed Convention has been adopted, ratified, or endorsed by any government or international institution.

3.4 Guiding Proposition

Harvest rainwater where it falls; retain it where ecologically appropriate; facilitate infiltration and groundwater recharge; restore degraded landscapes through distributed water-retention systems; and connect locally implemented action through shared science, transparent monitoring, and international cooperation.

The Programme is founded on the principle that rainwater harvesting, when appropriately designed and managed, can contribute to water security, land restoration, and ecosystem resilience. Rather than allowing all available rainfall to leave a landscape rapidly as surface runoff, the Programme seeks to identify opportunities to capture, retain, and manage a suitable proportion of rainwater close to where it falls. Through distributed interventions adapted to local hydrological and ecological conditions, rainfall can be used more effectively to support soil moisture, vegetation recovery, pasture productivity, groundwater recharge, and the water needs of communities, livestock, and ecosystems.

The 0.01% Solutions approach provides the Programme's central quantitative proposition: exploring the potential of harvesting and retaining a small proportion of global annual precipitation through numerous locally implemented initiatives. Using the proposed global precipitation baseline of approximately 520,000 km^3 per year, 0.01% corresponds arithmetically to approximately 52 km^3, or 52 billion m^3, annually. This figure represents a conceptual global benchmark rather than a verified or guaranteed volume of harvestable

rainwater. The practically achievable contribution must be established through hydrological assessment, accounting for rainfall distribution, seasonality, catchment characteristics, infiltration, evaporation, existing water use, environmental requirements, and the needs of downstream communities and ecosystems.

DPS constitute the Programme's principal proposed implementation mechanism for rainwater harvesting. Strategically located ponds and associated water-retention measures can help intercept suitable surface runoff, reduce uncontrolled water loss from selected landscapes, increase opportunities for infiltration, and provide temporary or longer-term water storage where technically and ecologically appropriate. The ponds may be complemented by soil-moisture conservation, contour-based water management, rainwater collection, infiltration structures, vegetation recovery, and other locally suitable measures. Their design, capacity, spacing, and distribution shall be determined through site-specific assessments rather than a universal technical standard.

The Programme gives particular consideration to drylands, semi-arid regions, rangelands, pastoral landscapes, degraded watersheds, and other areas where rainfall is limited, irregular, or poorly retained by the landscape. In these settings, distributed rainwater harvesting may help improve the availability of water during dry periods, support the recovery of native vegetation, strengthen pasture resilience, reduce soil erosion, and contribute to the gradual restoration of degraded land. Where appropriate, restored vegetation surrounding ponds may develop into interconnected green areas that support habitat recovery, soil stability, and landscape connectivity. These outcomes depend on local conditions, suitable species, adequate maintenance, and the availability of water beyond the needs of existing ecosystems and users.

The Programme is intended to be geographically adaptable and globally applicable, with implementation determined by national priorities and local circumstances. The proposed North 43°–44° North Latitude Belt Corridor may serve as an initial demonstration geography for testing, documenting, and evaluating distributed rainwater-harvesting approaches. It is not the geographical limit of the Programme, which may be extended to suitable drylands, rangelands, watersheds, and other landscapes in interested countries where rainfall harvesting is feasible and beneficial.

Implementation shall be based on scientific evidence, national ownership, and meaningful local participation. Governments, local authorities, scientific and academic institutions, civil-society organizations, pastoralists, Indigenous Peoples, and local communities may contribute to identifying suitable locations, designing interventions, implementing projects, maintaining infrastructure, and evaluating results. Activities shall respect national sovereignty, applicable law, land and water rights, pastoral mobility, community priorities, biodiversity, and the legitimate water needs of downstream users.

Rainwater harvesting shall not be treated as an automatic benefit in every location. Each intervention must account for the natural role of rainfall in sustaining soil moisture, wetlands, rivers, groundwater recharge, vegetation, and ecological flows. Water retention shall therefore be pursued only where assessments demonstrate that the proposed intervention is appropriate, sustainable, and consistent with environmental safeguards. Project evaluation shall consider not only the quantity of water collected but also its quality, persistence, accessibility, and contribution to hydrological, ecological, and social outcomes.

The Programme shall establish transparent monitoring and evaluation arrangements, using appropriate indicators such as rainfall captured, water retained, infiltration and groundwater responses, soil moisture, vegetation recovery, restored land area, pasture

condition, water availability during dry periods, and benefits to local communities. Baselines, measurement methods, and reporting procedures shall distinguish between observed results, modelled estimates, and longer-term projections. Monitoring findings shall inform adaptive management, improve technical approaches, and support the responsible replication of successful practices.

Through the 0.01% Solutions—Flagship Implementation Programme, rainwater harvesting becomes the practical entry point for a wider process of water retention, landscape recovery, and sustainable land management. Distributed ponds and complementary interventions provide the local means of implementation; scientific assessment and monitoring establish their effectiveness; and cooperation among communities, countries, and relevant institutions enables knowledge and experience to be shared and applied at greater scale.

The guiding proposition is therefore straightforward: harvest rainwater where it falls, retain and use it responsibly, restore the landscape's capacity to sustain water, and expand implementation where evidence demonstrates that it is feasible and beneficial. By connecting many locally appropriate rainwater-harvesting initiatives into a coordinated programme, the 0.01% Solutions seeks to turn rainfall into an opportunity for water security, land restoration, drought resilience, and sustainable livelihoods.

4 Global Implementation Geography and Participation Framework

The 0.01% Solutions—Flagship Implementation Programme is envisioned as a globally applicable, locally implemented initiative operating across drylands, rangelands, and other water-stressed and land-degraded landscapes around the world. Its implementation will be pursued in interested and participating countries that are Parties to one or more of the Rio Conventions, countries participating in the United Nations system, and other countries willing to cooperate through relevant international, regional, and national frameworks.

The Programme recognizes that land degradation, desertification, drought, declining soil moisture, changing precipitation patterns, and disruptions to the cryosphere–water–land system are interconnected challenges that extend across national boundaries. Accordingly, its geographical scope will not be limited to a single latitude belt, region, continent, or group of countries. Instead, it will establish a distributed global network of locally adapted restoration and water-retention initiatives, with priority given to drylands and rangelands where ecological degradation, water insecurity, and community vulnerability create a demonstrable need for action.

4.1 Participation through the Rio Conventions and the United Nations system

The Programme will seek opportunities for cooperation with countries that are Parties to the three Rio Conventions:

1) UNCCD: to support land restoration, drought resilience, sustainable land management, and efforts to combat desertification.
2) UNFCCC: to identify synergies with climate adaptation, resilience, and appropriate mitigation measures, where scientifically justified.
3) CBD: to promote ecosystem restoration, biodiversity conservation, and the protection of ecological connectivity.

Cooperation may also involve other relevant United Nations instruments, programmes, specialized agencies, regional organizations, research institutions, and development partners, depending on the objectives and conditions of each participating country.

Membership in a Rio Convention or participation in the United Nations system will provide a potential institutional basis for engagement; it will not, by itself, constitute formal participation in, endorsement of, or financial support for the Programme. Implementation will depend on the interest and authorization of the relevant national and local institutions, applicable national law, and any necessary agreements.

4.2 Global geographical scope and priority landscapes

The Programme will be implemented through a geographically distributed approach, allowing each participating country to identify suitable landscapes according to its ecological conditions, water systems, land-use patterns, development priorities, and community needs.

Priority areas may include:

- Drylands and semi-arid regions experiencing recurrent drought, declining soil moisture, desertification, or limited water availability.

- Rangelands and pastoral landscapes where land degradation, vegetation loss, and pressure on water resources threaten ecological productivity and pastoral livelihoods.
- Degraded watersheds and headwater landscapes where restoration can improve infiltration, soil-water retention, catchment function, and the condition of connected freshwater systems.
- Transboundary ecological corridors where coordinated action between neighbouring countries may generate shared benefits for land restoration, water security, and ecosystem connectivity.
- Climate-sensitive mountain and cryosphere-connected regions where changes in snow, glaciers, permafrost, seasonal runoff, or other cryosphere processes influence downstream water availability.
- Communities facing recurrent water insecurity where locally appropriate, affordable, and maintainable interventions can improve resilience while safeguarding water rights and environmental flows.

The selection of priority landscapes will be evidence-based. National and local assessments will consider ecological suitability, hydrological conditions, degradation severity, community priorities, technical feasibility, potential environmental and social impacts, and long-term maintenance requirements.

4.3 A distributed global network with locally determined implementation

The Programme will not prescribe a single technical solution for every country. Instead, it will promote a portfolio of complementary interventions adapted to local conditions. These may include distributed pond systems, rainwater harvesting, soil-moisture conservation, wetland and watershed restoration, infiltration measures, rangeland rehabilitation, vegetation recovery, and other scientifically justified approaches.

Each participating country will determine which interventions are appropriate within its own legal, ecological, and institutional context. Measures involving surface water, groundwater, river flows, wetlands, or transboundary water systems will require the relevant technical assessments, permits, safeguards, and coordination arrangements.

The proposed 43°–44° North Latitude Belt Corridor may serve as an initial demonstration geography for developing and testing implementation methods. It will not define the limits of the Programme. Other suitable landscapes in both hemispheres will be eligible for participation, subject to the same evidence-based selection and safeguards.

4.4 National ownership and international cooperation

Implementation will follow a principle of global coordination, national ownership, and local participation. Countries may establish national focal arrangements or implementation partnerships involving relevant ministries, local authorities, scientific institutions, universities, civil-society organizations, pastoral communities, Indigenous Peoples, land users, and other stakeholders, as appropriate.

The Programme will encourage the exchange of scientific knowledge, technical methods, implementation experience, and monitoring results between participating landscapes. Where appropriate, regional cooperation may support shared learning across ecological corridors and transboundary dryland systems.

All activities will respect national sovereignty, applicable law, legitimate land and water rights, pastoral mobility, community participation, and the need to maintain adequate

water availability for ecosystems and downstream users. The Programme will seek to complement existing national strategies and international commitments rather than duplicate or replace them.

4.5 Relationship with CPHSCS

The 0.01% Solutions—Flagship Implementation Programme is the implementation mechanism of the proposed CPHSCS. It is designed to translate the Convention's overarching objectives into practical, science-informed, measurable, and scalable action through rainwater harvesting, distributed water-retention systems, landscape restoration, ecosystem recovery, and measures that strengthen resilience to hydrological variability and cryosphere-related risks.

Through country-led demonstration projects, scientific assessment and monitoring, community participation, and cooperation among participating countries and institutions, the Programme provides a practical framework for testing, documenting, evaluating, and scaling appropriate implementation approaches. Its principal focus is to harvest and retain rainwater where it falls, where hydrologically and ecologically appropriate, and to improve the capacity of landscapes to retain water, support infiltration and groundwater recharge, sustain vegetation, and strengthen the resilience of communities and ecosystems. Distributed Pond Systems and complementary rainwater-harvesting and water-retention measures may serve as key implementation instruments, subject to local conditions, scientific assessment, applicable law, and environmental safeguards.

The Programme also provides a potential evidence base for the progressive development of CPHSCS implementation priorities, technical guidance, monitoring approaches, and international cooperation. Its findings may inform the identification of effective practices, limitations, risks, and opportunities for replication across different climatic, ecological, and hydrological settings. In this way, the Programme connects the proposed Convention's planetary hydrological security objectives with practical action at local, national, regional, and international levels.

The Programme's designation as the implementation mechanism of the proposed CPHSCS describes its intended institutional and functional relationship; it does not imply that the Convention has already entered into force or that any government or international organization has formally accepted this relationship. CPHSCS remains a proposed international legal instrument, and the Programme does not substitute for the applicable processes of negotiation, adoption, signature, ratification, accession, or entry into force. Neither the Programme nor its activities should be interpreted as evidence of endorsement by the United Nations, the Rio Convention secretariats, or any government unless such endorsement has been formally established.

4.6 Implementation Principle

The central implementation principle of the 0.01% Solutions—Flagship Implementation Programme is that every United Nations Member State is invited to contribute to a shared global effort by aiming to harvest and retain a quantity of water equivalent to 0.01% of its annual rainfall, using ponds, artificial lakes, and other suitable on-the-ground water-retention systems, where hydrologically, ecologically, technically, and socially appropriate. The proposed contribution is to be assessed in relation to each country's annual rainfall and implemented according to its geographical conditions, water availability, land characteristics, environmental requirements, and national priorities.

The Programme seeks to translate this shared quantitative ambition into locally appropriate action. Through distributed pond systems, artificial lakes, and complementary rainwater-harvesting and water-retention measures, participating countries can work to retain rainfall that might otherwise rapidly run off, support infiltration and groundwater recharge where suitable, improve soil moisture, restore degraded landscapes, sustain vegetation and rangelands, and strengthen resilience to drought and hydrological variability. The location, design, capacity, and distribution of water-retention structures must be determined through scientific assessment and appropriate safeguards, taking account of existing water uses, ecological requirements, downstream flows, and the needs of local communities.

This common implementation principle is intended to promote the mutually reinforcing objectives of the three Rio Conventions: the UNCCD, through land restoration, drought resilience, and the prevention of land degradation; the UNFCCC, through climate adaptation, resilience, and, where demonstrated, relevant mitigation co-benefits; and the CBD, through ecosystem recovery, habitat protection, and the conservation of biodiversity. The Programme offers a practical approach through which appropriately designed rainwater harvesting and water-retention initiatives may contribute to these objectives while recognizing the distinct mandates and obligations of each Convention.

Rather than requiring all countries to adopt identical measures, the Programme establishes a common global ambition supported by nationally determined approaches, locally appropriate implementation, shared scientific principles, transparent monitoring, and the exchange of verified results. Each participating country may identify suitable landscapes, establish national implementation priorities, and determine the appropriate combination of ponds, artificial lakes, and complementary measures in accordance with its circumstances and applicable laws.

The Programme’s geographical reach is global; its implementation is country-led, landscape-based, science-informed, and community-centred. Its defining ambition is to connect practical national and local initiatives into a coherent global contribution to water retention, land restoration, climate resilience, biodiversity conservation, and sustainable livelihoods. The proposed 0.01% target serves as a common planning benchmark; its feasibility and contribution must be evaluated against country-specific rainfall data, hydrological conditions, environmental safeguards, and measurable outcomes.

5 Policy Context: The Water–Land–Cryosphere Nexus

Water stress is often a problem of availability, timing, quality, access, and governance rather than a literal disappearance of water from the planet. Glacier retreat and changing snowpack can alter seasonal runoff; permafrost thaw can affect drainage and ground stability; land degradation can increase erosion and reduce infiltration; groundwater abstraction can exceed recharge; and pollution can make available water unsafe or unusable. The relative importance of these processes varies by region and should be established through scientific evidence, hydrological assessment, and local monitoring.

The cryosphere—glaciers, ice sheets, sea ice, snow, and permafrost—influences climate, water storage, hazards, ecosystems, and human activities. Changes in cryospheric conditions can affect the timing, quantity, and reliability of water supplies, particularly in catchments dependent on glacier melt and seasonal snow. However, not every water-stressed region is glacier-dependent, and not every restoration intervention directly affects cryosphere stability. The Programme therefore distinguishes between protecting and monitoring the cryosphere, managing land and water in cryosphere-dependent catchments, and strengthening water retention and drought resilience in other drylands and rangelands. These complementary approaches contribute to the broader objective of planetary hydrological security.

Land degradation can increase wind erosion and dust emissions; in some settings, deposited dust reduces the reflectivity of snow and ice and can contribute to enhanced melting. Changes in runoff can affect vegetation and soil moisture, while degraded vegetation and soils can intensify erosion and reduce the landscape's capacity to retain water. These relationships are context-dependent and should not be assumed to operate uniformly. Programme design must rely on local measurements, established scientific evidence, and site-specific assessments rather than presume a universal feedback pathway.

Within this context, the 0.01% Solutions—Flagship Implementation Programme, as the implementation mechanism of the proposed CPHSCS, seeks to translate the interconnected water–land–cryosphere challenge into practical, measurable, and scalable action. Its principal operational focus is rainwater harvesting: retaining a suitable proportion of rainfall where it falls, using ponds, artificial lakes, Distributed Pond Systems, and other appropriate on-the-ground water-retention measures. The Programme's guiding quantitative ambition invites every United Nations Member State to work towards harvesting and retaining a volume equivalent to 0.01% of its annual rainfall, subject to national circumstances, scientific assessment, ecological requirements, technical feasibility, and applicable law. This is a shared planning benchmark, not an assumption that all rainfall is harvestable or that every location is suitable for a pond or artificial lake.

Appropriately designed water-retention systems may help reduce rapid surface runoff, improve soil moisture, support infiltration and groundwater recharge where conditions permit, sustain vegetation and rangelands, and strengthen resilience during dry periods. Their location, capacity, spacing, and design must be determined according to rainfall patterns, catchment characteristics, soil and geological conditions, evaporation, groundwater dynamics, existing water uses, environmental flows, downstream needs, and community priorities. Rainwater harvesting must not compromise wetlands, rivers, natural drainage systems, biodiversity, pastoral livelihoods, or the water rights and needs of other users. Where ponds or artificial lakes are unsuitable, other approaches—such as soil-moisture conservation, contour-based water management, infiltration structures, and vegetation recovery—may be more appropriate.

The Programme is intended to support the mutually reinforcing objectives of the three Rio Conventions through practical, country-led implementation. Under the UNCCD, rainwater harvesting and landscape restoration may contribute to addressing land degradation, desertification, and drought. Under the UNFCCC and the Paris Agreement, appropriate interventions may strengthen adaptation and climate resilience and, where demonstrated, deliver relevant mitigation co-benefits. Under the CBD, well-designed interventions may support ecosystem recovery and biodiversity conservation, provided that natural habitats and ecological processes are protected. Contributions must be assessed against the distinct mandates, commitments, and monitoring frameworks of each Convention; participation in the Programme does not itself establish compliance with any international obligation.

Existing international frameworks provide important foundations for this work. The UNFCCC and Paris Agreement address climate change; the CBD and Kunming–Montreal Global Biodiversity Framework address biodiversity; the UNCCD addresses desertification, land degradation, and drought; the Ramsar Convention supports wetland conservation and wise use; and relevant international water agreements provide principles for cooperation over shared water resources. The proposed CPHSCS could explore additional coherence between cryosphere stability, rainwater harvesting, landscape water retention, and planetary hydrological security, subject to scientific evaluation, legal analysis, and demonstration of its added value. It should complement, rather than duplicate or undermine, existing instruments.

The Programme's geographical reach is global, while implementation is country-led, landscape-based, science-informed, and community-centred. Each participating country may identify suitable landscapes and establish national priorities, implementation plans, and appropriate measures in accordance with its hydrological and ecological circumstances. Cooperation across countries can be supported by common scientific principles, transparent monitoring, the exchange of practical experience, and independent evaluation. Relevant indicators may include rainfall harvested and retained, water losses, soil moisture, infiltration and groundwater response, vegetation recovery, land condition, drought-period water availability, biodiversity outcomes, and benefits to communities and livelihoods. Measured results must be distinguished from estimates and projections.

The overarching policy rationale is that planetary hydrological security requires coordinated attention to water, land, and the cryosphere while recognizing the different conditions and responsibilities of individual countries. By connecting a shared 0.01% annual-rainfall benchmark with locally appropriate rainwater harvesting, responsible water retention, landscape restoration, and evidence-based international cooperation, the Programme aims to create a practical contribution to the objectives of the Rio Conventions and to the further development of the proposed CPHSCS. Its success will depend not on the uniform construction of water infrastructure, but on the demonstrated ability of suitable interventions to retain water responsibly, restore landscape functions, strengthen resilience, and produce measurable ecological and social benefits.

6 Objectives and Expected Outcomes

6.1 Strategic objective

Strengthen the resilience of water-stressed and degraded landscapes through scientifically assessed, locally appropriate water-retention, water-conservation, and ecosystem-restoration measures, supported by community participation, transparent monitoring, and cooperation.

6.2 Specific objectives

- Prioritize landscapes where interventions are hydrologically feasible, environmentally sound, socially supported, and proportionate in cost.
- Pilot DPS and alternative measures only where assessment demonstrates suitability.
- Monitor soil moisture, infiltration, vegetation, habitat, erosion, and other indicators relevant to each intervention.
- Support drought preparedness, rangeland resilience, and community livelihoods without undermining customary rights, pastoral mobility, or downstream needs.
- Establish baselines and evaluation methods that distinguish outputs from outcomes and impacts.
- Facilitate scientific cooperation and knowledge exchange among communities, research institutions, public authorities, and development partners.
- Explore financing consistent with existing funds' mandates, eligibility criteria, and safeguards.
- Generate evidence for future policy development, including further consideration of the proposed CPHSCS.

6.3 Expected Outcomes

The 0.01% Solutions—Flagship Implementation Programme is intended to generate measurable, locally appropriate outcomes by advancing rainwater harvesting, responsible water retention, and landscape restoration. Through the implementation mechanism of the proposed CPHSCS, the Programme seeks to connect practical national and local initiatives with the broader objectives of planetary hydrological security and the three Rio Conventions.

Expected outcomes may include:

1) Improved rainwater harvesting and local water retention: Increased capacity to capture and retain a suitable proportion of annual rainfall through ponds, artificial lakes, Distributed Pond Systems, and other appropriate water-retention measures, where technically and ecologically feasible.
2) Enhanced water availability and drought preparedness: Improved local access to retained water during dry periods for appropriate community, livestock, vegetation, and ecosystem needs, subject to water quality, seasonal availability, and competing uses.
3) Improved infiltration and groundwater knowledge: Better understanding of how water-retention interventions affect infiltration, soil moisture, groundwater recharge, and local hydrological conditions, without presuming that groundwater recharge will occur at every site.

4) Reduced erosion and improved land condition: Reduced surface runoff and erosion at selected sites where interventions are suitable, alongside improvements in soil condition, vegetation recovery, and the capacity of degraded landscapes to retain water.
5) Stronger rangeland and ecosystem resilience: Improved conditions for vegetation and rangelands, and potential benefits for biodiversity and ecosystem recovery where interventions are appropriately designed and natural habitats and ecological processes are safeguarded.
6) Improved catchment and hydrological knowledge: More comprehensive information on rainfall patterns, runoff, water retention, evaporation, infiltration, groundwater response, and the interactions between land condition and water availability.
7) A stronger evidence base for cryosphere-related hydrological risks: Improved understanding of the relationship between water-retention and land-restoration measures and hydrological conditions in relevant snow-, glacier-, and permafrost-influenced catchments, where applicable and supported by scientific monitoring.
8) Contributions to the objectives of the three Rio Conventions: Practical evidence on how suitable rainwater-harvesting and landscape-restoration measures may support the UNCCD's objectives concerning land degradation and drought, the UNFCCC and Paris Agreement's adaptation and resilience objectives, and the CBD's biodiversity objectives. The nature and extent of each contribution must be assessed against the relevant framework and verified evidence.
9) Stronger community participation and national ownership: More meaningful involvement of local communities, pastoralists, land users, researchers, public institutions, and other relevant stakeholders in site selection, planning, implementation, monitoring, and evaluation.
10) Improved environmental information and transparency: Greater public access to relevant information on project locations, design, water-retention performance, environmental safeguards, expenditure where applicable, monitoring results, and lessons learned.
11) A replicable, evidence-based implementation model: Practical guidance and comparative evidence to help participating countries determine which approaches are effective, where they are appropriate, what limitations they present, and whether they can be responsibly adapted or scaled up.
12) A practical foundation for CPHSCS implementation: Scientific findings, implementation experience, and monitoring methods that may inform the further development of the proposed Convention's priorities, technical guidance, cooperation arrangements, and approaches to evaluating progress.

These outcomes are intended rather than guaranteed. Each pilot project must establish baseline conditions, measurable indicators, monitoring methods, responsibilities, and evaluation criteria before implementation. Targets should be proportionate to local conditions and should distinguish between activities completed, outputs delivered, outcomes observed, and longer-term impacts. Results must be reported transparently, with measured findings distinguished from estimates and projections.

The Programme's success should be assessed not simply by the number of ponds or artificial lakes constructed or the volume of water nominally targeted, but by the quantity of rainfall actually harvested and retained, the durability and responsible use of that water, the

resulting changes in land and ecosystem condition, the protection of existing water systems and downstream needs, and demonstrable benefits for communities and ecological resilience. Where monitoring shows that an intervention is ineffective, unsuitable, or harmful, its design should be revised, its scale limited, or the intervention discontinued.

Through this approach, the Programme aims to transform the shared ambition of harvesting and retaining a quantity equivalent to 0.01% of each participating country's annual rainfall into a scientifically assessed, environmentally responsible, and measurable contribution to water security, land restoration, drought resilience, and international cooperation.

7 The 0.01% Target: Definition and Limitations

7.1 Arithmetic Basis

The 0.01% Solutions—Flagship Implementation Programme establishes a shared quantitative ambition for participating countries to harvest and retain a volume of water equivalent to 0.01% of their respective annual rainfall, using ponds, artificial lakes, Distributed Pond Systems, and other suitable rainwater-harvesting and water-retention measures, subject to national circumstances, scientific assessment, and ecological limits.

The Programme proposes to establish a global network of at least 1,000,000 and up to 1,300,000 ponds under Distributed Pond Systems. These ponds are intended to capture and retain rainwater where hydrologically and ecologically appropriate, supporting water security, land restoration, drought resilience, vegetation recovery, and biodiversity.

For an illustrative global calculation, the Programme uses an annual precipitation baseline of 520,000 cubic kilometres. Under this estimate, 0.01% of global annual precipitation is equivalent to 52 cubic kilometres, or 52 billion cubic metres of water per year. This is a conceptual global benchmark, and the source, reference period, and comparability of the 520,000 cubic-kilometre estimate with authoritative global water-cycle estimates must be verified before publication.

To illustrate the relationship between the proposed rainfall-retention target and the pond network, if the entire annual target of 52 billion cubic metres were to be retained through the ponds, a network of 1,000,000 ponds would require an average annual retention of approximately 52,000 cubic metres per pond. A network of 1,300,000 ponds would require an average annual retention of approximately 40,000 cubic metres per pond. These figures represent average annual water-retention volumes, not the physical storage capacity required for each pond. They are mathematical illustrations rather than verified engineering specifications or proof that the full target is achievable.

Actual water retention will depend on local rainfall, catchment size, pond dimensions, seasonal conditions, evaporation, seepage, overflow, water use, and environmental requirements. The number and design of ponds, together with any complementary rainwater-harvesting measures, must therefore be determined through country-level planning and site-specific hydrological and ecological assessments. The Programme must distinguish the volume of water captured, the volume retained over a defined period, and the net additional retention attributable to each intervention.

For national implementation, each participating country should calculate its indicative 0.01% target using a documented estimate of its annual precipitation. The calculation should specify the geographical boundary, reference period, data source, and method used to estimate rainfall. National targets should then be translated into feasible implementation plans that identify suitable locations, proposed pond numbers and designs, expected water-retention performance, environmental safeguards, and monitoring arrangements.

The global pond-development ambition and the 0.01% annual-rainfall target are complementary but distinct planning parameters. The proposed network of 1,000,000–1,300,000 ponds does not, by itself, establish that 52 billion cubic metres of water can be harvested sustainably each year. Actual performance must be demonstrated through transparent monitoring and evaluation. The global benchmark must not be treated as a uniform quota for every country or as evidence that the same proportion of rainfall can be recovered in every landscape.

7.1.1 Calculation for the Distributed Pond Systems Network

The Programme proposes to establish a global network of at least 1,000,000 and up to 1,300,000 ponds under Distributed Pond Systems. To illustrate the relationship between this pond network and the proposed annual rainfall-retention benchmark, the following calculation assumes a total annual target of 52 billion cubic metres of water, based on the illustrative global precipitation estimate discussed above.

Calculation	Minimum network	Maximum network
Total illustrative annual retention target	52 billion m³	52 billion m³
Number of ponds	1,000,000	1,300,000
Average annual water retention per pond	52,000 m³	40,000 m³
Equivalent annual volume per pond	52 million litres	40 million litres

Minimum network: 1,000,000 ponds

Dividing 52 billion cubic metres by 1 million ponds gives an average of 52,000 cubic metres of water per pond per year, equivalent to 52 million litres.

Maximum network: 1,300,000 ponds

Dividing 52 billion cubic metres by 1.3 million ponds gives an average of 40,000 cubic metres of water per pond per year, equivalent to 40 million litres.

Under this illustrative scenario, the minimum network would need to retain an average of 52,000 m³ per pond annually, while the maximum network would need to retain an average of 40,000 m³ per pond annually to reach the same aggregate annual benchmark of 52 billion m³.

These figures describe average annual water-retention volumes, not the physical storage capacity required for each pond. Actual pond dimensions and storage capacities must be determined according to local rainfall, catchment area, inflow, seasonal distribution, evaporation, seepage, overflow, and the number of times water can be captured during a year. The network may contain ponds of different sizes, with different catchment areas and annual retention rates; consequently, individual ponds will not necessarily retain equal volumes.

The calculation also assumes that the entire illustrative 52-billion-m³ annual target is achieved through the pond network. If complementary rainwater-harvesting measures contribute to the target, the volume required from the ponds would be lower. Conversely, the construction of 1–1.3 million ponds does not by itself establish that the full target is technically or ecologically achievable.

The relationship between the 0.01% annual-rainfall ambition and the proposed pond network must therefore be established through country-level precipitation calculations, site-specific hydrological and ecological assessments, and transparent monitoring of actual water captured and retained. The Programme must report verified results separately from planning estimates and projections.

The ultimate objective is to establish a globally coordinated but locally appropriate Distributed Pond Systems network that harvests rainwater responsibly, strengthens landscape water retention, and delivers measurable contributions to water security, land restoration, drought resilience, biodiversity, and sustainable livelihoods.

7.2 Operational Definition

Before project results can be aggregated towards the Programme's national and global ambitions, the Programme must establish a clear operational definition of what constitutes water "harvested" and "retained." Depending on the intervention and local conditions, relevant categories may include water captured and temporarily stored in ponds or artificial lakes; rainwater retained in soil; additional groundwater recharge attributable to an intervention; and runoff whose movement is delayed or modified by appropriate water-retention measures.

These categories must be recorded separately. Water may move from surface storage into the soil and subsequently contribute to groundwater recharge or downstream flows. Such movement must not result in the same volume being counted multiple times as separate achievements. The Programme should therefore distinguish between water captured, water stored at a specified time, water infiltrated, additional groundwater recharge where demonstrable, and water remaining available for specified uses or ecological functions.

Accounting methods should estimate additional retention against a clearly defined baseline and distinguish gross storage capacity from the actual volume of rainfall captured and from net additional water retention attributable to an intervention. They should account for seasonal and interannual rainfall variability, evaporation, seepage, withdrawals, overflow, and other relevant water losses and movements. Methods should document uncertainty and use consistent measurement periods and reporting rules.

The operational framework should also consider water quality, duration of retention, the timing and location of storage, environmental flows, downstream impacts, and the needs of communities and ecosystems. Where reliable measurement is not feasible, estimates must be identified as estimates, with their methods and limitations disclosed. Independent review and transparent reporting should support the credibility and comparability of results across participating countries.

7.3 Ecological and Hydrological Limits

The 0.01% ambition must not be imposed uniformly on every landscape or interpreted as a requirement to capture rainfall regardless of ecological consequences. Its implementation is conditional on scientific evidence, hydrological feasibility, environmental safeguards, applicable law, and the rights and needs of affected communities.

Ponds, artificial lakes, Distributed Pond Systems, and other water-retention structures may improve local water availability, support infiltration, reduce erosion, and help sustain vegetation in suitable locations. However, they may also increase evaporation, interrupt natural drainage and seasonal flows, affect wetlands and aquatic habitats, alter groundwater dynamics, change sediment movement, or create water-quality problems. Cumulative effects across a catchment may differ from the effects of an individual structure and must be assessed where relevant.

Site selection and design should therefore consider rainfall distribution and seasonality, catchment size, soil and geological conditions, existing surface-water and groundwater systems, evaporation rates, environmental flows, downstream users, biodiversity, land use, and local livelihoods. The assessment should determine whether a proposed intervention is appropriate, what volume of water may responsibly be retained, and whether alternative approaches would produce better outcomes. In some locations, soil-moisture conservation, contour-based water management, infiltration measures, or vegetation recovery may be preferable to constructing ponds or artificial lakes.

Rainwater harvesting must not be pursued at the expense of essential ecological functions or the legitimate water needs of other users. Where a proposed intervention is found to be unsuitable or harmful, its design must be revised, its scale reduced, an alternative approach adopted, or the intervention discontinued.

7.4 Relationship between the Target and Programme Outcomes

The 0.01% target is a common planning ambition intended to mobilize country-led action, not a standalone measure of success. Progress must be assessed by combining transparent water accounting with evidence of practical, environmental, and social outcomes.

The Programme should evaluate not only the volume of rainfall harvested and retained, but also the duration and quality of storage, the effects on soil moisture and groundwater where measurable, changes in erosion and land condition, vegetation and biodiversity outcomes, drought-period water availability, and benefits to communities and livelihoods. Results should be distinguished between implementation outputs, measured outcomes, and longer-term impacts.

The Programme is intended to support the objectives of the three Rio Conventions: the UNCCD, the UNFCCC and the Paris Agreement, and the CBD. Contributions to these objectives must be demonstrated through appropriate evidence and assessed in accordance with the distinct mandates and frameworks of the respective instruments.

As the implementation mechanism of the proposed Convention on Planetary Hydrological Security and Cryosphere Stability, the Programme may also generate scientific evidence and practical experience relevant to the further development of international cooperation on hydrological security and cryosphere stability. This intended relationship does not imply that CPHSCS has been adopted, ratified, or endorsed by the United Nations or any government.

The governing principle is therefore to calculate the 0.01% ambition consistently, implement it according to local hydrological and ecological conditions, account for retained water transparently, and evaluate success through demonstrated benefits rather than numerical targets alone.

8 Implementation Geography

8.1 Global Drylands

Drylands constitute a priority context for the 0.01% Solutions—Flagship Implementation Programme because rainfall may be limited, seasonal, or highly variable, while land degradation can intensify vulnerability to drought, soil erosion, vegetation loss, and declining water availability. Implementation should focus on restoring the capacity of landscapes to retain, absorb, and regulate water while maintaining the ecological processes and livelihoods that depend on it.

Potential measures include soil and water conservation, vegetation recovery, sustainable rangeland management, wetland and watershed restoration, infiltration enhancement, rainwater harvesting, and appropriately designed water-retention structures. The selection and combination of measures must be determined through site-specific hydrological, ecological, engineering, and socioeconomic assessments. Drylands are not a uniform ecological zone, and interventions must reflect local rainfall patterns, soil conditions, topography, vegetation, water systems, land-use practices, and community priorities.

The Programme's global approach should connect suitable initiatives across different dryland regions through shared scientific methods, compatible monitoring indicators, knowledge exchange, and transparent evaluation. The objective is not to impose a standardized technical model, but to identify, test, and improve locally appropriate solutions that contribute to land restoration, water security, ecosystem resilience, and sustainable livelihoods.

8.2 Pasturelands and Rangelands

Implementation in pasturelands and rangelands must be designed in cooperation with pastoralists, Indigenous Peoples where relevant, and other affected land users and communities. Planning should recognize pastoral mobility, customary tenure, seasonal access to land and water, traditional ecological knowledge, grazing patterns, and existing community governance arrangements.

Water-retention and restoration measures must be assessed for their potential effects on livestock distribution, vegetation recovery, soil condition, wildlife, and the availability of water for people and ecosystems. Projects should avoid unintentionally restricting pastoral movement, concentrating livestock around scarce water points, increasing localized overgrazing, disrupting customary access, or transferring benefits away from the communities whose lands and livelihoods sustain the intervention.

Potential activities may include rotational or otherwise locally appropriate grazing management, restoration of degraded pasture, recovery of native vegetation, soil-moisture conservation, protection of springs and wetlands, and carefully located water-retention measures. Any intervention that changes water availability or livestock access should be evaluated for its wider ecological and social consequences.

"Green Ring" vegetation concepts, where appropriate, should be developed as site-specific restoration zones rather than uniform belts of planted vegetation. Species selection, spatial arrangement, establishment methods, and long-term management must reflect local ecological conditions, water availability, biodiversity requirements, and community needs. Restoration should prioritize ecologically suitable species and functioning landscapes rather than vegetation cover alone.

8.3 North 43°–44°N Latitude Belt Corridor

The North 43°–44° North Latitude Belt Corridor is proposed as a transcontinental demonstration and scientific-cooperation geography within the globally applicable 0.01% Solutions—Flagship Implementation Programme. It provides a geographic framework for exploring water-retention, land-restoration, and ecosystem-resilience approaches across selected steppe, dryland, mountain, temperate, and cold-climate landscapes. Through cooperation among interested countries, scientific institutions, and local communities, the corridor can support comparative research, coordinated monitoring, knowledge exchange, and the development of locally appropriate solutions to water insecurity, land degradation, and drought.

The corridor is conceived as a geographically connected reference belt for international cooperation, while recognizing that ecological and hydrological systems do not follow latitude lines alone. Its implementation framework should therefore integrate latitude-based geographic analysis with watershed boundaries, ecological zones, topography, climate patterns, land-use systems, and the movement of water across landscapes. Geographic information system (GIS) analysis, scientific assessment, and consultation with relevant national and local authorities and affected communities will help identify priority landscapes, candidate demonstration sites, and opportunities for practical cooperation.

8.3.1 The 18 Countries of the Proposed Corridor

The Programme's original concept identifies the following 18 countries as the proposed geographic and international cooperation framework for the North 43°–44° North Latitude Belt Corridor:

1. France
2. Italy
3. Croatia
4. Bosnia and Herzegovina
5. Montenegro
6. Serbia
7. Kosovo
8. Bulgaria
9. Romania
10. Georgia
11. Russia
12. Kazakhstan
13. Uzbekistan
14. Kyrgyzstan
15. Mongolia
16. China
17. Japan
18. United States

Together, these countries form the proposed country framework for developing the corridor concept, examining relevant landscapes, and exploring opportunities for scientific exchange and voluntary cooperation. The list preserves the original proposal and provides a basis for preparing a coordinated geographic assessment, mapping potential demonstration areas, and identifying interested national institutions and research partners.

Detailed geographic analysis can establish how the 43°–44° North band relates to each country's territory, relevant watersheds, ecological regions, and potential implementation sites. This analysis will strengthen the corridor's scientific foundation and support accurate maps, country-specific profiles, and future cooperation proposals. The corridor's geographic definition and country framework should be documented clearly so that latitude-based intersections, associated landscapes, and broader cooperation opportunities can be distinguished consistently.

8.3.2 Proposed Activities and Demonstration Priorities

Subject to scientific assessment, national authorization, and appropriate local participation, activities within selected demonstration areas may include:

- Baseline hydrological and ecological surveys, including assessments of precipitation, surface water, soil moisture, groundwater interactions, and seasonal water availability.
- Pilot water-retention and landscape-restoration projects adapted to local conditions.
- Soil-moisture conservation, vegetation recovery, and rangeland rehabilitation.
- DPS and other suitable water-retention measures where supported by hydrological, ecological, engineering, and socioeconomic assessments.
- Community-led monitoring, compatible data collection, and the exchange of scientific and implementation experience.
- Drought preparedness, early-warning cooperation, and evaluation of landscape resilience.
- Collaborative research, technical capacity-building, and the identification of opportunities to expand successful approaches.

The corridor should encourage a portfolio of interventions rather than prescribe one uniform technical model. Each project should be designed according to local hydrology, climate, soils, ecosystems, land-use practices, community needs, maintenance capacity, and applicable law. Water-retention measures must protect environmental flows, downstream users, water quality, biodiversity, and the legitimate needs of local communities.

8.3.3 Participation, Cooperation, and Global Replication

Participation in corridor activities should be voluntary and based on relevant national and local authorization, applicable law, meaningful engagement with affected communities, and appropriate environmental and social safeguards. The proposed framework can bring together public institutions, universities, research organizations, civil-society groups, pastoral communities, and interested international partners to advance shared scientific understanding and practical implementation.

The corridor may serve as an initial platform for testing methods, comparing results, and generating evidence that can inform restoration and water-security initiatives elsewhere. Lessons learned may be adapted to other drylands, rangelands, watersheds, mountain regions, and climate-sensitive landscapes worldwide. The corridor is therefore a potential starting point for international cooperation, not a geographic limit on the 0.01% Solutions — Flagship Implementation Programme.

The guiding principle is to connect countries through a shared geographic reference and common scientific objectives while allowing implementation to remain nationally authorized, locally appropriate, ecologically responsible, and globally replicable.

8.4 Global Replication and Adaptation

Replication should follow a staged, evidence-based process: preliminary assessment, pilot design, baseline measurement, implementation, monitoring, independent evaluation, adaptation, and only then a decision on possible scale-up. Progression between stages should depend on demonstrated results, ecological safeguards, community acceptance, maintenance capacity, financial viability, and compliance with applicable law.

Approaches tested through the proposed North 43°–44° North Latitude Belt Corridor or other initial demonstration sites may inform future initiatives in Central Asia, the Himalayas, the Andes, the Sahel, the Middle East, North Africa, and other regions experiencing land degradation, drought, or water insecurity. These regions are examples of potential areas for cooperation, not a predetermined list of participating territories.

Replication must not mean mechanically copying infrastructure, planting schemes, storage targets, or management arrangements from one landscape to another. Each initiative should be adapted to local hydrology, climate, geology, ecosystems, land tenure, cultural practices, water demand, and governance systems. Particular attention should be given to environmental flows, groundwater recharge, downstream water availability, biodiversity, and the risk that an intervention could shift hydrological or social costs elsewhere.

The Programme should connect successful local initiatives through the Green Web: a proposed distributed network for scientific cooperation, transparent monitoring, knowledge exchange, and coordination among participating communities, institutions, and countries. The Green Web should support comparison and learning while allowing each participating location to retain responsibility for its own implementation decisions.

The governing principle is that global replication should scale evidence and cooperation, not impose uniform solutions. The Programme’s geographical reach remains global, while implementation is country-led, landscape-based, science-informed, and community-centred.

9 Distributed Pond Systems and Complementary Measures

9.1 Definition

DPS are proposed networks of decentralized water-retention structures designed and managed according to site-specific hydrological, geological, ecological, engineering, safety, social, and community criteria. They are intended to form one component of the 0.01% Solutions — Flagship Implementation Programme's broader portfolio of water-retention and landscape-restoration measures, rather than serve as a universal technological solution.

DPS may be appropriate where scientific assessment demonstrates that appropriately designed structures can contribute to water availability, landscape restoration, ecosystem resilience, or community needs without causing unacceptable harm to downstream water users, groundwater systems, biodiversity, or local livelihoods. Their suitability will depend on local conditions, including catchment characteristics, precipitation patterns, soil permeability, evaporation, seasonal runoff, ecological requirements, land use, and the intended use of retained water.

The defining characteristics of DPS are:

Characteristic	Description
Distributed	Structures or retention measures are located across suitable parts of a landscape or catchment rather than relying exclusively on a single large storage facility.
Locally adapted	Design, dimensions, location, materials, and operating arrangements reflect local hydrology, geology, soils, topography, climate, ecosystems, and community needs.
Appropriately scaled	Each structure is sized according to documented technical requirements, ecological limits, safety considerations, and intended use. No universal capacity threshold is prescribed.
Nature-based where appropriate	Preference is given to measures that work with natural landscape processes where they are feasible, safe, and ecologically suitable. Engineered solutions may be considered when justified by assessment.
Community-participatory	Affected communities and land users participate meaningfully in planning, decision-making, implementation, and long-term management, with applicable rights and consent requirements respected.
Ecologically safeguarded	Design and operation protect environmental flows, water quality, groundwater-dependent ecosystems, biodiversity, and the legitimate needs of downstream users.
Monitored and adaptive	Performance is assessed through documented monitoring, periodic evaluation, and adjustments to design or operation when required.
Maintainable and safe	Construction proceeds only when responsibilities, maintenance capacity, funding, inspection arrangements, and appropriate safety

	measures have been established.

DPS is not a universal solution. In some landscapes, another intervention—or no new structure—may be the scientifically and ecologically appropriate decision. The purpose is not to maximize the number of ponds or structures constructed, but to improve the capacity of landscapes to retain, absorb, regulate, and sustain water in ways that are ecologically responsible, socially equitable, technically sound, and financially sustainable.

The Programme will distinguish between gross storage capacity, actual water retained over time, additional retention attributable to an intervention, and water that can be made available for an identified purpose without unacceptable ecological or social consequences. These quantities are not interchangeable. Monitoring and reporting must avoid double-counting water, treating existing natural retention as newly created retention, or assuming that all stored water represents a net gain in basin-scale water availability.

9.2 Alternatives and Complementary Measures

The appropriate intervention will vary according to local conditions. In some locations, the main constraint may be inadequate soil moisture, degraded vegetation, disrupted natural drainage, or declining infiltration rather than a lack of surface-water storage. The 0.01% Solutions therefore treats DPS as one component of a broader portfolio of water-retention, ecosystem-restoration, and sustainable land-management measures.

Measure	Description	When Appropriate
Soil-moisture conservation	Mulching, cover cropping, reduced tillage, and organic-matter management.	Where soil moisture is a limiting factor and the proposed practices are suitable for the local land-use system.
Contour measures	Contour bunds, swales, terraces, and other measures designed to slow runoff and support infiltration.	On suitable sloping land where site assessment confirms that runoff management will not increase erosion or create other hazards.
Infiltration basins	Shallow excavated or natural basins designed to encourage infiltration of suitable runoff.	Where soil and geological conditions, groundwater depth, water quality, and drainage characteristics are appropriate.
Managed aquifer recharge (MAR)	Deliberate recharge of aquifers using suitable water sources under a defined technical and management framework.	Where hydrogeological investigations, water-quality safeguards, applicable permits, and water rights support the intervention.
Wetland and floodplain restoration	Restoration of natural wetlands and, where feasible, reconnection of rivers with floodplains.	Where restoration can recover ecological and hydrological functions without creating unacceptable risks to people or infrastructure.
Riparian buffers	Vegetated zones along rivers, streams, and seasonal watercourses that support bank stability, runoff filtration, and habitat.	Along suitable watercourses where native or locally appropriate vegetation can be maintained.
Native vegetation	Assisted natural regeneration,	Where vegetation loss contributes to

recovery	direct seeding, and planting of ecologically appropriate native species.	land degradation and site conditions support recovery without excessive water demand.
Improved grazing management	Locally appropriate grazing arrangements, rest periods, carrying-capacity assessment, and pasture recovery.	On pasturelands and rangelands where grazing pressure, vegetation condition, and land-use patterns warrant intervention.
Rainwater harvesting	Roof catchment, surface catchment, and suitable small-scale storage for household, livestock, or community use.	Where rainfall, catchment area, storage requirements, water quality, and maintenance arrangements make harvesting appropriate.
Erosion control	Suitable check structures, gully stabilization, revegetation, and other measures to reduce active erosion.	Where erosion is degrading land, infrastructure, habitats, or water quality and the intervention will not transfer erosion or flood risks elsewhere.
Restoration of natural drainage	Removal or modification of barriers, restoration of meanders, and reconnection of channels where appropriate.	Where artificial drainage alteration has disrupted ecological or hydrological functions and restoration is technically feasible.
Water-demand management	Reduction of avoidable losses, improved irrigation practices, water reuse where safe, and locally appropriate demand-management measures.	Where unsustainable demand, leakage, inefficient use, or competing water needs contribute to water insecurity.

The selection of measures should consider how interventions interact across a landscape. A combination of soil-moisture conservation, vegetation recovery, wetland restoration, and carefully located retention structures may be more effective than a pond-based approach alone. In other cases, protecting an existing wetland, restoring a natural drainage pathway, or improving water management may offer greater benefits than constructing new infrastructure.

In some locations, the appropriate decision may be not to construct a new water-retention structure. This may be necessary where:

- Hydrological conditions cannot support reliable or sustainable filling.
- The intervention would unacceptably reduce downstream water availability or environmental flows.
- Groundwater supplies or groundwater-dependent ecosystems could be adversely affected.
- Water quality could deteriorate or contamination risks cannot be adequately controlled.
- Protected habitats, biodiversity, cultural heritage, or other sensitive features could be harmed.
- Land tenure, customary use, water rights, or required community consent remain unresolved.
- Construction, inspection, maintenance, or decommissioning cannot be adequately funded or managed.
- The cumulative effects of existing and proposed interventions would exceed acceptable ecological, social, or safety limits.

The 0.01% Solutions is therefore not a pond-construction target. It is a framework for restoring the capacity of landscapes to retain and regulate water through whichever combination of interventions is scientifically justified, ecologically appropriate, socially legitimate, and legally permissible.

9.3 Site Screening and Maintenance

9.3.1 Site Screening

Every proposed DPS site and other material water-retention intervention must undergo appropriate screening before a decision to proceed. The depth and complexity of the assessment should be proportionate to the intervention's scale, risk, location, potential impacts, and applicable legal requirements.

Screening should address, at minimum, the following categories:

Screening Category	Key Questions
Catchment hydrology	What are the catchment area, rainfall regime, runoff characteristics, seasonal variability, and expected inflows? Is the proposed water supply sufficiently reliable, and what are the implications for downstream flows?
Geology and soils	What are the soil properties, permeability, depth to bedrock, and risks of erosion, instability, seepage, or subsidence? Are liners or other engineered measures necessary and appropriate?
Groundwater dependence	What is known about groundwater depth, recharge, discharge, abstraction, and groundwater-dependent ecosystems? Could the intervention affect drinking-water supplies or other groundwater users?
Evaporation and water balance	What are the expected evaporation and seepage losses, and how do they affect the net quantity of water retained over time? Are proposed loss-reduction measures technically and ecologically suitable?
Sedimentation	What are the likely sediment sources and accumulation rates? How will sediment be managed, and what are the expected maintenance requirements and costs?
Water quality	Could upstream land use, livestock, agriculture, waste, or other sources contaminate the water? What water-quality standards, treatment measures, and monitoring arrangements are necessary?
Biodiversity and ecosystems	Are protected species, sensitive habitats, wetlands, migration routes, or ecological corridors present? Could the intervention improve or damage ecosystem functions?
Environmental flows	Would the intervention alter the timing, volume, or quality of downstream flows in ways that conflict with ecological requirements or applicable law?
Land tenure and rights	Who owns, occupies, manages, or customarily uses the land? Have legitimate land and water rights, access arrangements, and applicable consent requirements been identified and respected?
Cultural heritage	Are sacred places, archaeological resources, burial sites, or culturally significant landscapes present? Can potential impacts be avoided?
Downstream uses	Which communities, ecosystems, farms, livestock systems, industries, or public services depend on downstream water? How could their needs be affected?
Community	Have affected communities and land users received accessible

participation	information and meaningful opportunities to participate? Have applicable consent and consultation requirements been met?
Safety and engineering	What are the risks of overtopping, erosion, structural failure, flooding, or injury? Are engineering review, inspection, warning, and emergency arrangements necessary?
Climate resilience	How might changes in precipitation, drought, extreme rainfall, snowmelt, or other relevant climate conditions affect performance and safety over the structure's expected lifetime?
Cumulative impacts	How would the proposed intervention interact with existing and planned structures and other water uses throughout the relevant catchment?
Operational feasibility	Are responsible operators, maintenance resources, technical capacity, monitoring arrangements, and long-term funding available?

Screening results should be documented, including assumptions, uncertainties, anticipated benefits, risks, mitigation measures, and the reasons for the decision to proceed, redesign, defer, or reject the proposal. Documentation should be made available for independent review where appropriate and consistent with applicable law, privacy requirements, and legitimate community interests.

A site that fails a critical screening requirement must not proceed until the issue has been resolved and the revised proposal has been reassessed. Where impacts cannot be acceptably mitigated, the intervention should be rejected in favour of a more suitable alternative or no intervention.

9.3.2 Maintenance and Operations

Every approved site requires a designated operator and a funded maintenance and operations plan established before construction begins. Responsibilities must be clear, realistic, and consistent with local capacity and applicable law.

Requirement	Description
Designated operator	An identified individual, community organization, committee, public institution, or other authorized entity responsible for operation and oversight.
Funded maintenance plan	A costed plan covering routine inspection, sediment management, repairs, replacement of components, and eventual decommissioning, with identified and credible funding sources.
Inspection schedule	Risk-based inspections at defined intervals, with additional checks following relevant extreme weather events or incidents.
Repair arrangements	Procedures, technical support, and resources for addressing erosion, settlement, structural deterioration, vegetation problems, or other damage.
Emergency procedures	Appropriate arrangements for flooding, overtopping, structural failure, contamination, or other foreseeable emergencies.
Monitoring protocol	Consistent observation of agreed indicators, which may include rainfall, inflows, water levels, soil moisture, vegetation, water quality, and downstream conditions.
Record-keeping	Records of inspections, repairs, operational decisions, monitoring results, water use, incidents, and relevant maintenance expenditure.
Adaptive management	Periodic assessment of performance and adjustment of design, operation, or management when evidence indicates that changes are

	necessary.
Decommissioning provisions	A documented plan for safely removing, modifying, or repurposing the structure if it becomes unnecessary, unsafe, ecologically harmful, or financially unsustainable.

Maintenance capacity must be assessed and secured before construction. Where the proposed operator lacks the necessary skills or resources, the project must establish credible support arrangements before proceeding.

A structure that cannot be safely operated and maintained over its intended service life should not be built.

9.3.3 Community Participation

Community participation is a substantive condition of legitimacy, effectiveness, and long-term sustainability—not merely a procedural requirement. Projects must recognize the rights, knowledge, needs, and interests of the people who live in, use, or depend on the landscapes and water systems concerned.

Principle	Description
Rights and consent	Identify and respect applicable land, water, customary, and community rights. Obtain free, prior, and informed consent where required by applicable international standards and legal frameworks, particularly in relation to Indigenous Peoples.
Inclusive decision-making	Provide meaningful opportunities for women, young people, pastoralists, persons with disabilities, and other potentially marginalized groups to participate in decisions that affect them.
Traditional and local knowledge	Document and integrate relevant community knowledge of rainfall, soils, vegetation, seasonal water availability, grazing, and landscape change, with appropriate recognition and respect for knowledge holders.
Access to information	Provide accessible information about proposed activities, expected benefits, risks, water-use arrangements, responsibilities, and monitoring results.
Benefit-sharing	Establish transparent and equitable arrangements for sharing benefits, including improved landscape functions, water access where sustainable, restoration opportunities, and relevant livelihood benefits.
Grievance mechanism	Provide an accessible process for raising concerns, resolving disputes, seeking remedies, and reporting adverse impacts without retaliation.
Community-defined priorities	Ensure that interventions respond to locally identified needs and do not impose unnecessary restrictions on customary land use, pastoral mobility, or access to resources.
Long-term stewardship	Support local technical capacity, institutional continuity, and realistic management arrangements where communities choose to participate in long-term stewardship.

Community participation must continue beyond initial consultation. Affected communities should have appropriate opportunities to review monitoring results, raise concerns, contribute to adaptive management, and participate in decisions about changes to or discontinuation of an intervention.

9.3.4 Cumulative and Downstream Impact Assessment

Individual structures may be relatively small, but multiple interventions within a catchment can collectively alter runoff, groundwater recharge and discharge, seasonal flows, sediment transport, water quality, and ecosystem functions. Cumulative impact assessment must therefore consider the relevant watershed or hydrological system rather than examining each site in isolation.

The assessment should address:

- The combined storage capacity and actual water-retention performance of existing and proposed interventions.
- Changes in the timing, volume, and variability of downstream flows, particularly during dry periods.
- Effects on groundwater recharge, discharge, abstraction, and groundwater-dependent ecosystems.
- Implications for downstream communities, pastoral systems, agriculture, hydropower, public water supplies, and other legitimate water uses.
- Cumulative effects on wetlands, riverine habitats, biodiversity, sediment movement, and water quality.
- Interactions with existing infrastructure, planned developments, land-use change, and other water-management activities.
- Potential transboundary implications where water systems cross national boundaries.
- Uncertainty in hydrological estimates and the ability to monitor and respond to unexpected effects.

Where the combined effects of proposed interventions would exceed acceptable ecological, social, legal, or safety limits, the Programme should reduce the number or scale of structures, change their location or operation, adopt alternative measures, or reject the proposed interventions.

Water-retention accounting should distinguish between water captured at individual sites and net changes at the wider catchment scale. The same water must not be counted repeatedly as it moves through multiple structures or landscape components. Monitoring should also distinguish water temporarily stored from water that remains available after evaporation, seepage, environmental requirements, and other relevant losses and uses are accounted for.

Where significant uncertainty remains, phased implementation and monitoring may be appropriate, provided that the intervention is safe, legally authorized, and does not expose communities or ecosystems to unacceptable risks.

9.3.5 Decision Rule

The decision rule for any proposed DPS or complementary measure is:

Proceed only where the intervention is hydrologically justified, technically sound, ecologically responsible, socially legitimate, consistent with applicable law, financially sustainable, and safe—and where cumulative impacts and effects on downstream users are acceptable.

Where these conditions cannot be met, the intervention must be redesigned, deferred, replaced by a more appropriate measure, or rejected.

The Programme’s performance must not be measured solely by the number of structures constructed or their nominal storage capacity. Evaluation should consider verified additional water retention, water quality, ecological outcomes, landscape recovery, effects on downstream flows, community benefits, operational reliability, maintenance costs, and long-term sustainability. Indicators and accounting methods should be defined before implementation, documented transparently, and reviewed as evidence accumulates.

The governing objective is to restore and strengthen the ability of landscapes to retain and regulate water while protecting the ecological and social systems that depend on it. Distributed Pond Systems are one possible means of advancing that objective, not an end in themselves.

10 Relationship with International Frameworks

The 0.01% Solutions — Flagship Implementation Programme is designed to operate in alignment with relevant international environmental, climate, biodiversity, land-restoration, and water-governance frameworks while respecting national sovereignty, applicable law, and the mandates of existing institutions. Its purpose is to support practical, measurable, and locally appropriate implementation of shared objectives—not to establish a parallel international regime, assume powers belonging to States or treaty bodies, or create obligations that have not been formally agreed.

The Programme may provide a practical platform for connecting landscape restoration, water-retention measures, drought preparedness, biodiversity recovery, scientific research, community participation, and monitoring. Its contribution should be assessed according to the objectives and rules of each relevant framework, with clear distinctions between proposed activities, completed outputs, verified environmental outcomes, and longer-term impacts. Alignment with an international framework does not, by itself, establish official endorsement, financial eligibility, legal compliance, or a right to claim environmental benefits.

10.1 UNCCD and CBD

10.1.1 United Nations Convention to Combat Desertification

The Programme may contribute to the objectives of the United Nations Convention to Combat Desertification, particularly in relation to land degradation, desertification, drought resilience, sustainable land management, and the pursuit of Land Degradation Neutrality (LDN), where its activities are consistent with applicable UNCCD guidance, national commitments, and the priorities of participating countries.

Potential activities include restoring degraded land, improving soil structure and water infiltration, reducing erosion, rehabilitating degraded rangelands, restoring wetlands and riparian areas, conserving soil moisture, supporting locally appropriate vegetation recovery, and strengthening community-based drought preparedness. Depending on local conditions, the Programme may also support integrated approaches that connect water management with land restoration, livelihood resilience, and the sustainable use of natural resources.

The Programme should seek to complement relevant national land-restoration plans, drought-management strategies, National Action Programmes under the UNCCD, and other applicable planning instruments. Participating institutions should identify the specific national objectives to which a project is intended to contribute and establish a baseline against which progress can be assessed.

Land Degradation Neutrality must not be interpreted as a simple count of restoration activities or infrastructure. Where LDN contributions are claimed, the assessment should follow the applicable national methodology and relevant UNCCD guidance, including appropriate consideration of land cover, land productivity, and soil organic carbon, as well as the timing, location, and durability of degradation and restoration outcomes. The Programme should avoid presenting gross areas treated as equivalent to verified net improvements in land condition.

Drought resilience should likewise be assessed through relevant evidence, which may include soil moisture, vegetation condition, water availability, rangeland productivity, ecosystem function, household or livelihood vulnerability, and the reliability of water

supplies during dry periods. Indicators should reflect local ecological and socioeconomic conditions rather than impose a uniform measurement system on all landscapes.

10.1.2 Convention on Biological Diversity

The Programme may support the objectives of the Convention on Biological Diversity where its interventions demonstrably contribute to biodiversity conservation, the sustainable use of biodiversity, and the fair and equitable sharing of benefits arising from the use of genetic resources, as applicable.

Water-retention infrastructure, vegetation planting, or land-restoration activities must not automatically be described as biodiversity gains. Their effects depend on site selection, ecological condition, design, species choice, connectivity, management, and the consequences for existing habitats and water-dependent ecosystems. An intervention that improves local water availability may be beneficial in one setting but could alter natural flows, habitat conditions, or species composition in another.

Biodiversity-related projects should therefore identify relevant ecological objectives and establish indicators appropriate to the site. These may include habitat condition and extent, native-species composition, species presence or abundance, ecological connectivity, wetland condition, invasive-species pressures, and the maintenance of ecological flows. Monitoring should be proportionate to the intervention and sufficiently robust to distinguish actual ecological improvements from assumptions based on the presence of infrastructure or planted vegetation.

Where relevant, the Programme should take account of national biodiversity strategies and action plans, protected-area requirements, ecosystem-restoration priorities, and applicable CBD decisions and guidance. Activities should avoid damage to intact ecosystems and should not justify converting natural habitats into artificial landscapes in the name of restoration. Restoration should be based on the ecological characteristics and historical or scientifically supported reference conditions of the site, taking account of changing climatic conditions.

The Programme should also recognize the knowledge, rights, participation, and interests of Indigenous Peoples and local communities, consistent with applicable national law and international obligations. Traditional and community knowledge should be incorporated only through appropriate engagement, consent where required, protection against unauthorized disclosure or exploitation, and fair arrangements for sharing benefits.

10.1.3 Coordination between land restoration and biodiversity objectives

The UNCCD and CBD provide complementary but distinct policy frameworks. The Programme can help connect land restoration and drought-resilience measures with biodiversity objectives at the project level, but the indicators and safeguards applicable to each objective must remain explicit.

A project should not assume that progress under one framework establishes progress under the other. For example, an increase in vegetation cover may contribute to land-restoration objectives, but biodiversity benefits depend on the type, condition, and ecological function of that vegetation. Similarly, improved water retention does not necessarily demonstrate improved ecosystem integrity or reduced land degradation.

Each project should therefore identify its principal objective, any additional expected benefits, the evidence required to verify them, and the potential trade-offs or adverse impacts.

This approach will help the Programme support integrated implementation without overstating the results.

10.2 UNFCCC and the Paris Agreement

10.2.1 Climate adaptation

The Programme may contribute to climate-change adaptation under the United Nations Framework Convention on Climate Change and the Paris Agreement where interventions respond to identified climate risks and demonstrate relevant outcomes.

Potential adaptation activities include restoring degraded landscapes to improve resilience to drought and intense rainfall, protecting or rehabilitating wetlands and floodplains, improving soil-water retention, restoring natural drainage, supporting climate-resilient rangeland management, and strengthening locally appropriate water-management practices. Depending on the location, such activities may help reduce exposure or vulnerability to water scarcity, soil erosion, ecosystem degradation, or climate-related livelihood disruption.

Adaptation claims should be grounded in a documented assessment of climate hazards, exposure, vulnerability, and the capacity of affected communities and ecosystems to respond. Project design should distinguish between general environmental improvement and an adaptation benefit that addresses a specific climate risk. Monitoring may include changes in water availability during dry periods, soil moisture, ecosystem condition, recovery following drought, the reliability of essential water supplies, or the resilience of livelihoods, provided that the selected indicators are relevant to the project and supported by an appropriate baseline.

The Programme should recognize that climate adaptation is context-dependent. An intervention that is effective in one ecological zone may be unsuitable in another. Project planning should therefore account for projected climate conditions, uncertainty, local hydrology, maintenance requirements, water demand, downstream effects, and the risk that an intervention may transfer vulnerability from one community or ecosystem to another.

Where appropriate, projects may contribute information or implementation experience to national adaptation planning, including National Adaptation Plans and relevant national climate strategies. Any formal reporting or recognition of such contributions remains subject to the procedures and decisions of the relevant country and institutions.

10.2.2 Climate mitigation and greenhouse-gas accounting

Some Programme activities may also produce climate-mitigation benefits. For example, restoration may increase carbon stocks in soils or vegetation, while certain land-management practices may reduce greenhouse-gas emissions. However, these outcomes cannot be assumed merely because a project restores land, retains water, or plants vegetation.

Any mitigation claim should use an appropriate and recognized methodology, where available, and establish a credible baseline, a defensible estimate of additional emissions reductions or removals, relevant monitoring procedures, and safeguards against double-counting. The assessment should consider permanence, leakage, uncertainty, reversals, and other risks relevant to the activity and the methodology applied. Where carbon stocks are expected to change, the project should distinguish measured or estimated changes from broader claims about climate benefits.

The Programme itself does not issue carbon credits, certify emissions reductions, guarantee eligibility for a carbon market, or establish ownership of any resulting environmental asset. Any such outcome would depend on the applicable standard, methodology, registry, legal arrangements, verification process, and decisions of the relevant authorities or market institutions.

10.2.3 Article 6 of the Paris Agreement

Participation in cooperative approaches under Article 6 of the Paris Agreement is a separate process and is not an automatic feature of the Programme. A project seeking to participate in Article 6 would need to meet the applicable rules and requirements, including those relating to authorization, environmental integrity, accounting, reporting, and the prevention of double-counting, as relevant to the specific Article 6 mechanism and activity.

Any required authorization or corresponding adjustment would be governed by the applicable Paris Agreement rules and the decisions of the participating countries. The Programme cannot authorize a country to transfer mitigation outcomes, make commitments on behalf of a Party, or guarantee that a particular activity will qualify.

Projects should therefore treat Article 6 participation as a possible pathway to be assessed separately, not as a presumed financing source or a guaranteed result of restoration. The decision to pursue such a pathway should follow a transparent evaluation of legal requirements, costs, safeguards, accounting implications, and the interests of participating communities and States.

10.2.4 Adaptation, mitigation, and water-related safeguards

Adaptation and mitigation objectives may overlap, but they should be assessed separately. A project may improve drought resilience without producing measurable net greenhouse-gas reductions, or it may increase carbon stocks while having limited relevance to a particular climate vulnerability.

Water-retention and landscape-restoration activities should also be evaluated for unintended climate and ecological effects. These may include methane emissions from certain waterlogged environments, changes in natural hydrological regimes, increased water consumption by inappropriate vegetation, or adverse effects on downstream ecosystems. The relevance of each risk depends on local conditions and should be assessed proportionately.

The Programme should prioritize durable environmental and social benefits over unsupported climate claims. Where evidence is incomplete, results should be reported with appropriate qualifications, and claims should be revised when monitoring identifies unexpected effects.

10.3 Water Frameworks and the Proposed CPHSCS

10.3.1 Existing international and regional water frameworks

The Programme may draw on relevant international, regional, and bilateral water arrangements when planning activities involving shared watercourses, transboundary aquifers, wetlands, or connected ecosystems. The applicable framework will depend on the States concerned, the geographic setting, the nature of the water resource, and the legal instruments to which the relevant States are parties.

For projects involving shared water resources, planning should take account of applicable agreements and principles, including relevant requirements concerning cooperation, information exchange, notification, environmental protection, and the prevention or management of significant transboundary impacts. These requirements must be assessed in their proper legal context; the Programme cannot presume that a particular agreement applies to every participating country or water system.

The Ramsar Convention on Wetlands may be relevant to activities affecting wetlands and their ecological character, particularly where designated Ramsar sites or applicable national commitments are involved. Project design should consider wetland conservation and wise use, the maintenance of ecological character, and the potential effects of changes to water flows, sediment movement, groundwater conditions, or surrounding land use.

Other relevant instruments, regional arrangements, national water laws, basin plans, and environmental assessment procedures may also inform project design. The Programme should identify the legal and institutional framework applicable to each project rather than assume that a single international water instrument governs all activities.

Where a project may affect transboundary water resources, downstream users, or connected ecosystems, it should undergo an appropriate assessment before implementation. The assessment should consider cumulative impacts, seasonal variability, existing water uses, environmental flows, climate-related changes, and the potential for one intervention to reduce water availability or increase risk elsewhere. Where required, the relevant authorities and affected stakeholders should be consulted through the applicable procedures.

10.3.2 Water retention, hydrological connectivity, and ecological limits

The Programme’s water-retention approach should be understood as a landscape-level objective rather than a universal instruction to capture or store the maximum possible quantity of water. Depending on the setting, improved hydrological function may be achieved through soil restoration, infiltration measures, natural drainage recovery, floodplain reconnection, wetland rehabilitation, vegetation management, rainwater harvesting, managed aquifer recharge, or appropriately designed water-storage structures.

No intervention should be presumed suitable solely because it increases local storage. Water must remain available for essential human needs, existing lawful uses, ecological functions, and downstream requirements. Project assessments should also consider evaporation, groundwater recharge and discharge, water quality, sedimentation, flood risks, and the long-term operation and maintenance of structures.

The Programme’s illustrative global water-retention ambition must not be treated as a mandate to divert, capture, or impound a fixed proportion of precipitation in every basin. Precipitation is spatially and seasonally uneven, and water that appears available at one location may sustain ecosystems or communities elsewhere. Targets should therefore be translated into locally appropriate objectives only after hydrological assessment and consultation.

Where the Green Web connects projects across catchments or national boundaries, its role should be to improve the coherence of evidence, learning, and coordination—not to override basin governance, national authority, or community decision-making. Data sharing should follow agreed protocols, respect applicable law, and protect sensitive ecological and community information.

10.3.3 Proposed Convention on Planetary Hydrological Security and Cryosphere Stability

The CPHSCS is a proposed international legal instrument. Unless and until it is formally negotiated, adopted, opened for signature as applicable, and enters into force under the relevant legal procedures, it has no independent treaty authority and creates no binding international obligations.

The Programme may support scientific research, policy dialogue, stakeholder consultation, and the identification of potential gaps in existing arrangements relevant to planetary hydrological security and cryosphere stability. This work may help clarify how glacier and snow dynamics, permafrost, seasonal water storage, atmospheric and terrestrial hydrological processes, land degradation, and downstream water security interact across regions. The scope and relevance of these relationships should be established through scientific evidence and appropriately qualified analysis.

The proposed Convention's added value should be assessed through a structured legal and institutional gap analysis. Such an assessment should identify the issues that may not be adequately addressed by existing instruments, the functions already performed by current institutions, the potential for duplication or conflict, and the areas in which additional coordination or a new legal mechanism might be justified. It should also consider scientific uncertainty, implementation capacity, the interests of affected countries and communities, and the feasibility of any proposed international arrangements.

The Programme should not present the proposed CPHSCS as an existing legal obligation, an official UN instrument, an adopted COP outcome, or a substitute for current international agreements. Any future development would require appropriate scientific review, consultation with relevant States and institutions, consideration of existing mandates, and the applicable processes for international legal negotiation.

10.3.41.3.4 Complementarity and institutional coordination

The Programme should apply a principle of complementarity: existing international and national frameworks remain the primary reference points for their respective mandates, while the Programme provides a practical means of connecting relevant local activities, scientific evidence, implementation experience, and monitoring.

This approach can help identify opportunities for cooperation among land restoration, biodiversity conservation, climate adaptation, water management, and cryosphere-related research without merging distinct legal obligations or reporting systems. Where different frameworks use different definitions, indicators, or reporting cycles, the Programme should document those differences and avoid implying equivalence where none has been established.

Coordination may include exchanging publicly available information, developing compatible indicators where appropriate, supporting joint research, facilitating technical dialogue, and documenting lessons from demonstration projects. Formal participation by governments, treaty bodies, international organizations, or other institutions must be based on their own decisions and applicable procedures.

10.4 Finance

10.4.1 Financing principles and eligibility

The Programme may explore financing from the Global Environment Facility (GEF), climate and biodiversity funds, multilateral development institutions, regional financing mechanisms, national budgets, philanthropic organizations, responsible private investment, and other appropriate sources. Each potential source must be assessed against its own mandate, eligibility rules, programming priorities, safeguards, application procedures, and governing decisions.

The Programme does not create an entitlement to funding, establish new financial obligations for States or international institutions, or guarantee that any project will be approved. References to a potential financing mechanism indicate an avenue for exploration only and must not be presented as evidence of an existing commitment, allocation, partnership, or endorsement.

Where a financing mechanism operates through eligible countries, accredited entities, designated authorities, implementing agencies, or other prescribed arrangements, project development must follow those requirements. The Programme may help participating institutions prepare project concepts, organize supporting evidence, establish monitoring plans, or identify potential partners, but these activities do not replace the relevant approval and due-diligence processes.

10.4.2 Matching projects to financing instruments

Financing proposals should be matched to the actual purpose and expected results of each project. For example, a project primarily addressing land degradation may be considered under an appropriate land-restoration or sustainable-land-management mechanism; a project focused on climate vulnerability may be relevant to an adaptation-finance pathway; and an intervention with demonstrable biodiversity outcomes may be considered under an eligible biodiversity-financing framework.

Some projects may contribute to several objectives, but multi-benefit claims should be supported by distinct evidence and aligned with the eligibility requirements of each financing instrument. The Programme should avoid presenting a single activity as automatically eligible for multiple funding sources or counting the same expenditure, output, or environmental benefit more than once.

A project financing plan should identify its proposed funding sources, eligible activities, counterpart contributions where required, operating and maintenance costs, monitoring and verification costs, and arrangements for financial accountability. It should also explain how the project will remain functional after initial grant or investment support ends.

10.4.3 Financial integrity and safeguards

All financing arrangements should follow applicable financial, procurement, environmental, social, and anti-corruption requirements. Project proposals should identify material risks, including land and water rights, community consent, biodiversity impacts, transboundary effects, financial sustainability, and the risk that expected benefits will not be achieved.

The Programme should distinguish between grants, concessional finance, loans, private investment, payments for ecosystem services, and any potential revenue from verified environmental assets. These instruments have different obligations, risks, and implications for participating communities and public authorities. No financing model should be assumed appropriate for every country or project.

Where projects involve carbon markets or other environmental-credit mechanisms, the relevant legal rights, methodologies, verification requirements, ownership arrangements, benefit-sharing provisions, and risks of double-counting must be assessed separately. The Programme itself does not confer title to land, water, carbon, biodiversity, or other environmental assets.

10.4.41.4.4 Coordinating existing finance and avoiding duplication

The Programme's financial role should be to improve the coherence of project preparation and implementation, connect suitable activities with potentially relevant financing opportunities, and support transparent reporting of results. It should not create a parallel funding system or suggest that participation in the Programme guarantees access to international finance.

Where appropriate, the Programme may help prepare a portfolio of locally designed projects that share common safeguards, evidence standards, and reporting principles while retaining site-specific designs and national ownership. Such a portfolio could make it easier for prospective funders to understand the relationship between individual activities and broader restoration objectives. Any financing decision, however, remains with the relevant funder and authorized institutions.

The Programme should maintain clear records of funding sources, expenditures, co-financing, outputs, and reported results. It should disclose financial relationships and conflicts of interest in accordance with applicable requirements, and ensure that claims about funding, institutional partnerships, and implementation status are accurate and verifiable.

The overarching principle is that international frameworks provide distinct mandates, legal rules, and opportunities for cooperation, while the 0.01% Solutions — Flagship Implementation Programme offers a proposed implementation platform for connecting locally appropriate restoration and water-management activities with measurable evidence. Its credibility will depend on demonstrated results, scientific integrity, respect for national and community rights, and transparent recognition of the limits of its authority.

11 Governance, Participation, and Safeguards

11.1 Proposed Governance

The Programme should adopt a voluntary, transparent, and accountable governance model that supports cooperation among civil-society organizations, scientific and technical institutions, participating authorities, local communities, and implementation partners while respecting national sovereignty and institutional independence. During the design phase, a civil-society coordination team may oversee programme development, stakeholder engagement, partnership coordination, and documentation. An independent scientific and technical advisory group may provide evidence-based guidance on hydrology, land restoration, biodiversity, climate resilience, ecological safeguards, and monitoring methodologies. National or regional focal points may be established where relevant authorities agree to participate, while local implementation partnerships may coordinate activities according to local needs, applicable law, and community priorities.

The responsibilities and limits of each participating body should be clearly documented, including its mandate, decision-making powers, reporting obligations, and relationship with other participants. Governance arrangements should establish procedures for managing conflicts of interest, maintaining scientific independence, administering funds, documenting decisions, disclosing relevant information, and addressing complaints. Independent monitoring and evaluation should assess implementation quality, environmental and social outcomes, financial accountability, and compliance with applicable safeguards. Participation in the proposed governance model should not imply formal government or international institutional endorsement, and no coordination body should exercise authority beyond the powers expressly granted to it.

11.2 Community Participation

Affected communities should participate meaningfully throughout the project cycle, including problem definition, site selection, design, implementation, maintenance planning, monitoring, benefit-sharing, and evaluation. Participation should begin early enough to influence decisions and should continue throughout implementation and operation. Community knowledge, local experience, and customary resource-management practices should inform project design alongside scientific and technical evidence.

Particular attention should be given to Indigenous Peoples, pastoralists, women, youth, persons with disabilities, and other groups whose livelihoods, rights, or access to land and water may be affected. Engagement methods should be accessible, culturally appropriate, inclusive, and adapted to local circumstances. Projects should consider customary land use, seasonal grazing and mobility, shared water sources, cultural heritage, and the potential distribution of benefits and burdens among different groups.

Communities should receive clear information about proposed activities, expected benefits, potential risks, available alternatives, responsibilities for maintenance, and procedures for raising concerns. Benefit-sharing arrangements should be transparent, equitable, and documented where applicable. The collection and use of community knowledge and data should respect privacy, applicable rights, and agreed conditions. Consultation does not replace consent where consent is legally or ethically required, including free, prior and informed consent where applicable. Participation should strengthen local capacity and decision-making rather than create unrealistic expectations or impose disproportionate costs on community members.

11.3 Safeguards and Grievance Mechanisms

All projects should undergo proportionate environmental and social screening before implementation. Screening should identify potential effects on legal and customary land rights, access to water, livelihoods, displacement, unequal distribution of benefits, biodiversity, ecosystem integrity, downstream communities, cultural heritage, worker and public safety, and the failure or inadequate maintenance of infrastructure. Assessments should also consider cumulative impacts, climate-related hazards, water quality, ecological flows, and the possibility that an intervention may transfer risks from one location or group to another.

Projects should avoid adverse impacts wherever possible and establish appropriate mitigation, monitoring, and corrective measures for risks that cannot be avoided. Site selection and design should reflect local ecological and hydrological conditions, applicable legal requirements, community priorities, and long-term maintenance capacity. Where significant risks cannot be adequately managed, the project should be redesigned, relocated, suspended, or not undertaken.

Each project should provide accessible and transparent grievance procedures through which affected people can raise concerns, submit complaints, seek clarification, and request corrective action without retaliation. Procedures should be communicated in appropriate languages and formats and should account for barriers related to disability, literacy, distance, or access to digital services. Complaints should be acknowledged, assessed, and addressed within reasonable timeframes, with urgent attention given to threats to life, public safety, water access, or environmental integrity. Records should be maintained while protecting confidentiality and personal information.

Grievance mechanisms should not prevent affected people from accessing courts, competent authorities, customary dispute-resolution processes, or other lawful remedies. Material incidents, unresolved safeguard concerns, and corrective actions should be documented and reviewed. Monitoring and evaluation should determine whether safeguards are effective in practice, whether benefits and risks are distributed fairly, and whether changes are needed to protect affected people and ecosystems. Where serious deficiencies remain uncorrected, continuation of the relevant activity should not be presumed.

12 Financing Strategy

The 0.01% Solutions—Flagship Implementation Programme should pursue a diversified, transparent, and financially sustainable financing strategy rather than assume that any single fund, institution, or market mechanism will support all activities. Financing should be matched to the purpose, scale, location, implementation stage, and expected outcomes of each project. Potential sources may include national and local public budgets, international development cooperation, multilateral and bilateral grants, philanthropic contributions, research funding, responsible private investment, and suitable results-based financing mechanisms. Eligibility, availability, and conditions must be assessed individually, in accordance with each funder's mandate, applicable law, environmental and social safeguards, and the priorities of participating countries and communities.

The financing strategy should distinguish between resources required for programme coordination and project preparation, capital investment, implementation, long-term operation and maintenance, monitoring and evaluation, and independent verification. These costs should be identified early so that projects do not proceed on the basis of construction funding alone while leaving future maintenance, monitoring, or community responsibilities unfunded. Financing plans should also consider the possibility of cost increases, delays, changes in environmental conditions, and the need to adapt or discontinue activities where evidence demonstrates that the original approach is unsuitable.

The Programme should prioritize financial arrangements that strengthen national ownership, local implementation capacity, scientific integrity, and long-term environmental outcomes. It should not create an assumption that participation guarantees funding, that proposed financing sources have committed resources, or that all restoration activities can generate commercial returns. Public benefits such as drought resilience, ecosystem recovery, improved water security, and reduced land degradation may justify public or concessional support even when they do not generate direct financial revenue.

12.1 Project Preparation

Early-stage financing should prioritize the technical, scientific, environmental, social, and institutional work necessary to determine whether a proposed intervention is appropriate, feasible, and sustainable. Depending on the project, eligible preparation activities may include baseline studies, hydrological and ecological assessments, land and water-use analysis, community engagement, feasibility studies, site surveys, engineering review, legal and regulatory assessment, environmental and social safeguards, cost estimation, risk analysis, and the design of monitoring and evaluation systems.

Baseline studies should establish the conditions against which future changes will be assessed. Relevant information may include rainfall and runoff patterns, soil condition, groundwater interactions, water quality, vegetation and habitat condition, land use, existing water demand, seasonal variability, climate-related risks, and the needs of affected communities. The scope of data collection should be proportionate to the proposed intervention, with uncertainties and information gaps explicitly documented.

Feasibility studies should compare reasonable alternatives, including nature-based measures, soil and landscape restoration, infiltration improvements, wetland or floodplain rehabilitation, rainwater harvesting, managed aquifer recharge, appropriately designed water-retention structures, and demand-management measures. In some locations, the most appropriate option may be to restore natural processes without constructing infrastructure. Selection should be based on site-specific evidence, ecological suitability, community

priorities, cost-effectiveness, maintenance capacity, and potential effects on downstream users and ecosystems.

Community engagement and safeguards should be incorporated into project preparation rather than postponed until construction is imminent. Relevant land and customary rights, water access, potential displacement, distribution of benefits, cultural heritage, biodiversity impacts, worker safety, and grievance arrangements should be assessed before decisions become difficult to reverse. Where consent or statutory authorization is required, the applicable process should be completed before the relevant activity begins.

Engineering review should establish whether the proposed design is appropriate to local conditions and whether it can be constructed, operated, inspected, repaired, and safely decommissioned where necessary. Cost estimates should include not only initial construction but also land preparation, materials, labour, transport, community engagement, environmental mitigation, monitoring, maintenance, and contingency provisions.

Project preparation should produce a documented decision on whether to proceed, revise the proposal, undertake further investigation, select an alternative, or reject the intervention. Construction should not begin until the necessary assessments, permissions, safeguards, financing arrangements, and implementation responsibilities are in place. A positive feasibility finding should not be treated as a guarantee of environmental success; projects should retain appropriate monitoring, review, and adaptive-management provisions throughout implementation.

12.2 Results-Based Finance

Results-based finance may be explored where suitable mechanisms exist to support measurable and independently verifiable restoration, water-quality improvement, biodiversity conservation, climate adaptation, or other agreed environmental and social outcomes. Its use should depend on the availability of a credible methodology, a clear baseline, appropriate indicators, reliable monitoring, and an agreed process for determining whether the specified results have been achieved.

Financing arrangements should distinguish between inputs, activities, outputs, outcomes, and longer-term impacts. Expenditure on equipment or construction is an input; completed restoration works are an output; measurable improvements in soil condition, water quality, or habitat condition may constitute outcomes; and broader reductions in drought vulnerability or regional land degradation may require longer-term evidence and analysis. Payments should be linked only to the results defined in the relevant financing agreement and verified according to its requirements.

12.3 Accountability

Funds should be managed through documented financial controls, transparent procurement, conflict-of-interest safeguards, accurate financial and results reporting, and proportionate independent audit. Project agreements should clearly establish responsibilities for expenditure, asset ownership, operation, maintenance, and long-term financial sustainability. Funding commitments and verified results must be distinguished from proposals and anticipated benefits, with material risks, deviations, and corrective actions reported transparently.

13 Monitoring, Evaluation, and Learning

The Programme should establish a systematic monitoring, evaluation, and learning framework to assess implementation quality, measure environmental and social outcomes, identify risks, and improve decision-making over time. Baseline data should be collected before implementation, and monitoring methods, indicators, sampling procedures, data sources, and reporting intervals should be documented. Indicators should be proportionate to each project's objectives, scale, ecosystem, hydrological conditions, and potential impacts. Where possible, standardized methods should support comparison across sites while allowing justified adaptation to local circumstances. Monitoring should cover the following areas, as relevant to each intervention:

- Hydrology: rainfall, runoff timing and volume, surface-water storage, infiltration, soil-water retention, groundwater response, seasonal persistence, water availability, and water quality. Measurements should distinguish water temporarily stored from water infiltrated, reused, or retained for longer periods, and should consider environmental flows and downstream water needs.
- Land condition: soil moisture, erosion, soil structure and condition, vegetation cover, land productivity, and appropriate land-degradation indicators. Monitoring should assess whether changes are sustained and whether restoration measures improve the land's capacity to retain water, support vegetation, and resist erosion.
- Ecosystems: habitat condition, native species, ecological connectivity, wetland condition, vegetation composition, and unintended ecological effects. Assessments should identify potential damage to sensitive habitats, changes in species distribution, invasive species, and other effects that may arise from altered water availability or land management.
- Climate and hazards: drought exposure, flood and erosion risk, heat and other climate-related pressures relevant to the project. Indicators should reflect the intervention's stated purpose and local hazard profile. Monitoring should not assume that a site-level intervention reduces regional climate risks without supporting evidence.
- Livelihoods and equity: access to water, forage availability, livelihood effects, community participation, employment where relevant, and the distribution of benefits and burdens. Monitoring should consider impacts on Indigenous Peoples, pastoralists, women, persons with disabilities, and other potentially affected groups, as appropriate. Grievances, responses, and corrective actions should be recorded and reviewed.
- Implementation and operational performance: project costs, delivery against plans, maintenance frequency, infrastructure reliability, safety incidents, equipment performance, data quality, community satisfaction, and long-term operating capacity. Projects should assess whether local institutions and communities have the resources, skills, and agreed responsibilities required to maintain interventions after initial funding ends.

Observed changes may reflect rainfall variability, land-use change, climate trends, upstream activities, or other factors. Where feasible, evaluation should use comparison sites, repeated measurements, modelling, or other suitable methods to estimate an intervention's contribution. Results should report uncertainty and avoid attributing regional or global change to individual sites without sufficient evidence. Monitoring must inform decisions. If an intervention causes adverse effects, fails to meet objectives, or becomes unsuitable, managers should modify, pause, or discontinue it. Lessons should be shared with communities and participating institutions.

14 Principal Risks and Risk Management

The Green Web and the 0.01% Solutions aim to restore landscapes, improve water retention, and strengthen resilience. Their credibility depends on identifying risks transparently, applying appropriate safeguards, and avoiding interventions where risks cannot be reduced to acceptable levels or affected rights cannot be protected.

Risk management should be integrated throughout the project cycle, from site selection and design to implementation, operation, maintenance, and, where necessary, suspension or decommissioning.

14.1 Principal Risks

The principal risks include inadequate hydrological assumptions, evaporation losses, groundwater impacts, disruption of environmental flows, unsuitable sites, structural failure, sedimentation, and water-quality deterioration. Environmental risks include habitat damage, biodiversity loss, and unintended changes to natural drainage. Social risks include land and water disputes, unequal distribution of benefits, inadequate community participation, and unclear maintenance responsibilities. Data-related risks include unreliable monitoring and unsupported claims about restoration, climate adaptation, or carbon benefits.

These risks should be assessed in relation to local conditions, cumulative impacts, downstream users, ecological requirements, public safety, and the rights and livelihoods of affected communities.

14.2 Risk Management Measures

Risk management should be continuous and proportionate to each project's scale and potential impacts.

1) Independent Technical Review

Qualified, sufficiently independent professionals should review relevant designs, hydrological assumptions, engineering safety, environmental safeguards, and maintenance requirements. Identified deficiencies must be addressed before construction.

2) Staged Implementation

Pilot projects should test assumptions, identify unintended effects, and evaluate performance and costs before expansion. Scaling should occur only where evidence demonstrates that risks can be managed and long-term operation is feasible.

3) Environmental and Social Screening

Every site should be assessed for hydrology, geology, groundwater, water quality, biodiversity, environmental flows, land and water rights, cultural heritage, safety, downstream uses, and cumulative impacts. Where risks cannot be adequately mitigated or applicable rights protected, the site should be redesigned, relocated, or rejected.

4) Emergency Planning

Where structural failure could cause harm, appropriate emergency plans should identify exposed populations and infrastructure, warning procedures, evacuation arrangements, emergency contacts, and responsible authorities. Plans should be reviewed and tested where necessary.

5) Clear Maintenance Responsibility

Every approved site should have a designated operator and a funded maintenance plan, supported by written responsibilities, appropriate training, and necessary resources. Infrastructure should not be built where safe and reliable maintenance cannot be secured.

6) Monitoring of Downstream Effects

Monitoring should assess relevant changes in downstream flows, groundwater, water quality, ecosystems, and water access. Cumulative effects should be considered at the watershed scale. Adverse findings should trigger corrective action and, where necessary, modification or suspension.

7) Accessible Grievance Procedures

Each project should provide accessible procedures for affected people to raise concerns and seek corrective action without retaliation. Complaints should be documented and addressed promptly, without restricting access to competent authorities or other lawful remedies.

8) Transparent Reporting of Adverse Outcomes

Reports should distinguish activities, outputs, outcomes, and impacts, disclose uncertainty, and document adverse results and corrective actions. Unsupported claims must be avoided. The Green Web should prioritize evidence, accountability, and learning over promotional reporting.

14.3 The Threshold for Proceeding

Every intervention should proceed only where its hydrological basis is sound, ecological benefits are reasonably supported by evidence, applicable legal requirements and consent obligations are met, affected rights are protected, safety risks are acceptable, and financing and maintenance arrangements are credible. Cumulative and downstream impacts must also be considered.

Where these conditions are not met, the intervention should be redesigned, deferred, or rejected. Projects should not proceed where risks cannot be reduced to acceptable levels or affected rights cannot be adequately protected.

14.4 Risk Management as a Continuous Process

Risk management should remain an integral part of Green Web governance. A documented risk register should record identified risks, mitigation measures, responsible parties, review dates, and outstanding actions. Monitoring results, incidents, grievances, and community feedback should inform regular reviews and improvements.

The Programme's credibility depends on acknowledging uncertainty, reporting failures honestly, protecting people and ecosystems, and modifying or discontinuing interventions when necessary.

15 Implementation Roadmap

The Green Web and the 0.01% Solutions should follow a staged, evidence-based implementation process. Large-scale rollout should occur only after the design has been validated, baselines established, pilot projects completed, and results evaluated. The five phases below provide a logical sequence, with progression dependent on meeting defined objectives, managing risks, and protecting affected rights.

The roadmap is a flexible framework rather than a fixed timetable. Activities may be adapted to local conditions, but unresolved risks, inadequate safeguards, or insufficient evidence should prevent progression to the next phase.

15.1 Phase I — Design and Validation

Objective: Establish the programme's governance, scientific foundations, and legal status.

Activities should include establishing a transparent coordination structure with scientific and community participation; confirming that the Convention on Planetary Hydrological Security and Cryosphere Stability, the Green Web, and the 0.01% Solutions remain proposed initiatives; verifying the global precipitation baseline and assumptions underlying the illustrative 0.01% target; identifying candidate landscapes; reviewing the proposed 43°–44° North demonstration corridor; preparing safeguards, data protocols, and monitoring standards; and initiating community consultation.

Decision point: Proceed only when governance arrangements, baseline assumptions, candidate areas, safeguards, and initial consultation are sufficiently established.

15.2 Phase II — Baseline and Feasibility

Objective: Determine the scientific, technical, ecological, social, and economic suitability of each candidate landscape.

Activities should include hydrological and ecological assessments, analysis of groundwater and environmental flows, social and land-use assessments, engineering and economic feasibility studies, and evaluation of maintenance capacity. Each site should be assessed to determine whether DPS, complementary restoration measures, or no intervention is appropriate. Monitoring indicators and evaluation methods should be established, while necessary permits, agreements, consent requirements, ownership arrangements, and maintenance responsibilities are clarified.

Decision point: Proceed only where feasibility is demonstrated, applicable permissions and agreements are secured, and safeguards, community rights, and long-term maintenance arrangements are adequately addressed.

15.3 Phase III — Demonstration Pilots

Objective: Test approved interventions under real-world conditions and generate reliable evidence.

A limited number of pilot projects should implement selected DPS and complementary measures under appropriate technical oversight and meaningful community participation. Baselines, methods, and relevant data should be documented and made publicly available where appropriate. Monitoring should assess hydrological, ecological, social,

economic, and safety outcomes, including unintended effects. Designs and operating practices should be adjusted when evidence indicates that changes are necessary.

Decision point: Proceed to evaluation only when pilots have generated sufficient monitoring evidence and identified adverse effects have been addressed or placed under an effective corrective-action process.

15.4 Phase IV — Evaluation and Refinement

Objective: Assess pilot performance and improve technical guidance before considering expansion.

Evaluation should compare observed results with baselines and, where feasible, suitable comparison sites. It should assess water retention and groundwater response, ecological recovery, safety, actual costs, community benefits, maintenance performance, and governance effectiveness. Findings should distinguish measured outcomes from assumptions and projections, disclose uncertainty, and identify both successful approaches and limitations. Technical guidance, safeguards, monitoring protocols, and implementation arrangements should be revised accordingly.

Decision point: Proceed to replication only where evaluation supports credible benefits, manageable risks, adequate maintenance capacity, and effective safeguards.

15.5 Phase V — Replication and Cooperation

Objective: Expand only suitable approaches and adapt them to new contexts.

Approaches supported by credible evidence may be replicated where local hydrological, ecological, social, legal, and institutional conditions permit. Cooperation among participating communities, research institutions, authorities, and other partners should support knowledge-sharing, training, technical assistance, and continued monitoring. Replication should remain adaptive, recognizing that successful measures in one landscape may not be suitable elsewhere.

Any formal role under a future international convention will depend on the relevant legal and intergovernmental processes. The proposed initiatives do not imply existing treaty authority, formal international endorsement, or guaranteed participation by governments or institutions.

15.6 Cross-Cutting Principles

All phases should follow the principles of staged implementation, independent technical review, meaningful community participation, transparency, adaptive management, risk prevention, and compliance with applicable law. Indigenous Peoples and affected communities should have their rights respected, including free, prior and informed consent where applicable. Monitoring should report activities, outputs, outcomes, and impacts accurately, while protecting sensitive data and disclosing uncertainty. Projects should be modified, suspended, or rejected where risks cannot be reduced to acceptable levels or affected rights cannot be protected.

The implementation roadmap proceeds through five phases—design and validation, baseline and feasibility, demonstration pilots, evaluation and refinement, and replication and cooperation—with each phase building on the previous one and progression depending on credible evidence, effective risk management, legal compliance, and protection of affected rights.

16 The Two 0.01% Realities

The Two 0.01% Realities expresses the paired principles guiding the 0.01% Solutions Programme: retain what can be responsibly retained; protect what must be preserved; restore what has been degraded. Together, they connect the Programme's ambition to increase landscape water retention with its responsibility to protect the limited freshwater resources upon which people, ecosystems, and economies depend.

The two concepts serve different purposes. The First 0.01% is a quantified programme ambition, while the Second 0.01% is a communications concept emphasizing freshwater scarcity and stewardship. Neither should be presented beyond what scientific evidence supports.

16.1 The First 0.01%: Programme Ambition

The First 0.01% represents the proposed ambition to retain or beneficially manage a defined fraction of annual precipitation through locally appropriate measures. Using an illustrative global precipitation baseline of 520,000 km^3 per year, 0.01% corresponds mathematically to approximately 52 km^3, or 52 billion m^3, annually.

This calculation establishes the scale of the proposal, not the quantity of water that can feasibly or sustainably be retained. Actual outcomes depend on hydrological conditions, ecological requirements, climate, social priorities, legal frameworks, economic resources, and technical capacity. The baseline, target definition, and accounting methods must therefore be validated, with safeguards against double-counting and the misrepresentation of gross storage as additional water retention.

The First 0.01% is a global organizing objective, not a uniform obligation or target for every country or landscape. Participating regions should identify suitable interventions according to their specific conditions, which may include water-retention measures, soil-moisture conservation, wetland restoration, groundwater recharge, vegetation recovery, or other approaches. In some locations, protecting existing hydrological processes or avoiding intervention may be the most appropriate choice.

Its principal value is to establish a measurable ambition: a deliberate, scientifically informed increase in landscape water retention, directed toward appropriate ecological and hydrological priorities, can contribute to water security, land restoration, and ecosystem resilience. Implementation should generate evidence, measure actual outcomes, and refine the ambition as knowledge improves.

16.2 The Second 0.01%: Stewardship Message

The Second 0.01% is a communications concept intended to illustrate the scarcity and value of readily accessible freshwater relative to Earth's total water. It should not be presented as a precise scientific statistic unless supported by a recognized source, a clearly defined denominator, and a defensible methodology. Estimates vary according to which freshwater categories are included and how accessibility is defined.

The concept communicates a fundamental principle: freshwater available to sustain terrestrial ecosystems and human societies is limited and must be protected through responsible collective stewardship. The proportion represented by a particular figure depends on the categories and measurement methods used; therefore, the illustrative 0.01% should not be confused with a verified global measurement.

The Second 0.01% is consequently a stewardship message rather than an independently established scientific claim. Where precise figures are required for technical, educational, or policy purposes, they should be supported by authoritative scientific assessments and accompanied by the relevant definitions and limitations.

16.3 The Paired Principles

Together, the Two 0.01% Realities establish three connected principles. Retain what can be responsibly retained expresses the First 0.01% and the ambition to increase beneficial landscape water retention through appropriate measures. Protect what must be preserved expresses the Second 0.01% and the responsibility to safeguard freshwater resources, natural hydrological processes, and the ecosystems that sustain them. Restore what has been degraded connects these principles through the recovery of damaged landscapes and hydrological systems without compromising existing water users, environmental flows, or ecological integrity.

The First 0.01% asks what humanity can responsibly achieve through restoration and improved water management. The Second 0.01% asks what humanity must protect because freshwater is essential and limited. Together, they establish a policy relationship between opportunity and responsibility: increasing beneficial water retention must go hand in hand with protecting the systems that produce, store, regulate, and sustain freshwater.

16.4 The Relationship to the 0.01% Solutions

The Two 0.01% Realities provide the conceptual foundation of the 0.01% Solutions Flagship Programme, connecting global ambition with locally appropriate implementation. The First 0.01% provides the illustrative quantitative objective of approximately 52 billion m^3 per year, subject to scientific validation and practical feasibility. The Second 0.01% provides the stewardship principle that limits, guides, and safeguards the pursuit of that ambition.

Implementation may involve DPS, the Green Web, and complementary land and water restoration measures. The proposed North 43°–44° North Latitude Belt Corridor offers a potential demonstration geography involving the identified 18 countries, while Mongolia's proposed Gobi Green Zone could provide an initial demonstration setting. Earlier planning concepts include up to 100,000 ponds across the wider corridor and approximately 2,000 ponds in the Gobi Green Zone; these remain illustrative planning proposals requiring site-specific assessment, feasibility studies, and appropriate approvals rather than established commitments or verified implementation targets.

The Programme should not assume that pond construction alone will deliver the global ambition. Its contribution must be assessed through measured hydrological and ecological outcomes, including net additional water retention where demonstrable, land-condition improvements, ecosystem benefits, and effects on communities and downstream users. The Green Web can support coordination, monitoring, knowledge-sharing, and learning across participating landscapes, while respecting national sovereignty, applicable law, and local priorities.

The two concepts are complementary but not interchangeable: the First 0.01% establishes an organizing ambition, while the Second 0.01% reinforces the ethical and ecological limits within which that ambition must be pursued. Together, they define the Programme's approach to water: retain responsibly, protect collectively, and restore deliberately.

16.5 The Policy Proposition

The policy proposition is to restore land by restoring water, protect water by safeguarding the systems that produce and regulate it, and connect local action through shared science, shared responsibility, and international cooperation. This approach positions landscape restoration and hydrological security as complementary objectives, supported by measurable evidence, appropriate safeguards, and locally determined implementation.

The Two 0.01% Realities can therefore guide the proposed 0.01% Solutions Flagship Programme as it develops practical demonstrations, evaluates results, and explores potential contributions to the broader objectives of the proposed Convention on Planetary Hydrological Security and Cryosphere Stability. Any formal relationship with a future international legal instrument would depend on the relevant scientific, institutional, and intergovernmental processes.

17 Conclusion: Restoring Land, Restoring Hope, by Restoring Water

17.1 A Practical Framework for Connecting Global Goals with Local Action

The 0.01% Solutions Flagship Implementation Programme proposes a practical framework for connecting international environmental objectives with locally led action. It brings together water retention, land restoration, ecosystem resilience, drought preparedness, pastoral livelihoods, scientific monitoring, and transboundary cooperation. Rather than prescribing a single solution, it promotes a coordinated approach that recognizes the interdependence of water, land, climate, and communities.

Land degradation, water scarcity, dust emissions, biodiversity loss, and cryosphere change are interconnected challenges requiring integrated responses. Water provides a practical connection between them: retaining it where appropriate, restoring landscapes that regulate its movement, and protecting the cryosphere and other natural systems that sustain hydrological cycles.

17.2 The Conditions for Credibility

The Programme's credibility depends on scientific validation of its precipitation baseline, clear definition of the 0.01% ambition, locally appropriate design, respect for ecological limits and community rights, transparent monitoring, independent evaluation, realistic long-term financing, and honest reporting of uncertainty. These requirements should guide every phase of implementation.

The illustrative target of 52 billion m^3 per year, calculated from a global precipitation baseline of 520,000 km^3, must not be confused with a verified estimate of feasible or sustainable water retention. Actual outcomes require site-specific assessment, reliable accounting, and safeguards against double-counting. Credibility will depend on demonstrated results rather than numerical ambition alone.

17.3 Distributed Pond Systems as Part of a Wider Portfolio

Distributed Pond Systems may be appropriate in some landscapes, but they should form part of a wider portfolio of restoration and water-management measures. Depending on local conditions, alternatives may include soil-moisture conservation, infiltration basins, managed aquifer recharge, wetland restoration, riparian buffers, native vegetation recovery, improved grazing management, rainwater harvesting, erosion control, and restoration of natural drainage.

The Programme is therefore not simply a pond-construction initiative. Its purpose is to strengthen the capacity of landscapes to retain and regulate water through scientifically, ecologically, socially, and legally appropriate interventions. Success should be measured by verified hydrological, ecological, and social outcomes—not by the number of structures constructed.

17.4 The North 43°–44° North Latitude Belt as a Demonstration Framework

The proposed North 43°–44° North Latitude Belt may provide a demonstration framework, subject to geographic mapping, scientific review, stakeholder consultation, and agreement on participating jurisdictions. If validated, it could support the testing of technical

approaches, governance arrangements, financing models, monitoring methods, and community participation before wider replication.

The corridor should remain a proposed demonstration geography rather than a predetermined implementation unit. Its value will depend on whether it offers a scientifically defensible and practically useful basis for cooperation across diverse ecological, institutional, and national contexts.

17.5 The Green Web as a Connector

The Green Web is proposed as a distributed ecological and governance framework connecting restoration sites, water-retention measures, vegetation recovery, biodiversity, monitoring systems, community institutions, and research partners. It is not a single physical infrastructure project and does not require identical interventions everywhere.

Its purpose is to connect locally appropriate activities through shared principles, compatible information, scientific cooperation, and continuous learning. By linking local experience with broader evidence, the Green Web can help identify effective practices, recognize limitations, and support informed decisions across participating landscapes.

Replication Should Follow Evidence

Implementation should proceed through five phases: design and validation, baseline and feasibility, demonstration pilots, evaluation and refinement, and replication and cooperation. Expansion should occur only where evidence supports credible benefits, risks are manageable, safeguards are effective, and long-term operation can be sustained.

The Programme should prioritize learning over rapid expansion. Successful approaches should be adapted to local conditions rather than copied automatically, while unsuccessful or harmful interventions should be modified, suspended, or discontinued. Transparent evaluation and continuous improvement are essential to responsible implementation.

17.6 A Civil-Society Proposal

The 0.01% Solutions Flagship Implementation Programme is a civil-society proposal offered for consultation, scientific review, and further development. It does not imply formal endorsement by the UNCCD, the United Nations, the COP17 Presidency, any government, or the proposed CPHSCS.

The Programme may offer a practical implementation pathway relevant to the broader objectives of the proposed CPHSCS. Any formal relationship with a future international legal instrument would depend on appropriate scientific, institutional, and intergovernmental processes.

The 0.01% Solutions Flagship Implementation Programme advances a straightforward proposition: restore land by restoring water, protect water by protecting the systems that sustain it, and connect local action through science, responsibility, and cooperation.

It is a proposal, not a prescription; a pathway, not a predetermined outcome. Its contribution will depend on scientific integrity, local ownership, responsible financing, respect for rights, and evidence of lasting benefits. Through these principles, the Programme seeks to contribute to the shared effort to restore hydrological systems, strengthen ecological resilience, and protect the natural foundations upon which all life depends.

18 Annex A. Minimum Requirements for a Demonstration Site

This Annex sets out the minimum requirements that any proposed demonstration site must satisfy before it can be approved for implementation under the 0.01% Solutions Flagship Implementation Programme. The requirements are designed to ensure that every demonstration site is scientifically sound, ecologically responsible, socially just, legally compliant, financially transparent, and subject to independent evaluation.

A site that does not meet these minimum requirements should not proceed. The requirements are not aspirational. They are conditions of participation.

18.1 Minimum Requirements

Hydrological and Catchment Assessment

A documented hydrological and catchment assessment must be completed, including:

- Catchment area, boundaries, and drainage patterns
- Rainfall regime, seasonal variability, and extreme events
- Runoff coefficients and water balance calculations
- Surface water and groundwater interactions
- Downstream water requirements, including ecological flows and existing users
- Evaporation rates and estimated losses
- Sedimentation rates and management requirements
- Cumulative impacts of existing and proposed structures in the catchment

The assessment must be conducted by qualified professionals and made available for independent review.

18.2 Ecological and Biodiversity Screening

An ecological and biodiversity screening must be completed, including:

- Identification of protected areas, critical habitats, and ecological corridors
- Presence of threatened, endemic, or migratory species
- Wetlands, springs, and groundwater-dependent ecosystems
- Potential impacts on biodiversity and ecosystem services
- Invasive species risks
- Opportunities for ecological restoration and connectivity

Where significant ecological risks are identified, mitigation measures must be designed and implemented, or the site should be rejected.

18.3 Geotechnical and Engineering Assessment

A geotechnical and engineering assessment must be completed for any proposed structure, proportionate to the design and the consequences of failure. The assessment must include:

- Soil permeability, depth to bedrock, and stability
- Design specifications, including capacity, freeboard, spillway, and slope stability
- Liner requirements, if any
- Construction methods and materials

- Safety provisions, including emergency spillways and fencing
- Maintenance requirements and access arrangements

The assessment must be conducted by qualified engineers and subject to independent technical review.

18.4 Land Tenure, Rights, and Community Participation

Land tenure, customary rights, permits, community participation, and grievance arrangements must be documented, including:

- Ownership and land-use rights, including customary and informal rights
- Free, prior, and informed consent (FPIC) where Indigenous Peoples or local communities have rights or customary use
- Consultation records, including who was consulted, when, and what was discussed
- Grievance mechanism, including how grievances are submitted, investigated, and resolved
- Benefit-sharing arrangements, where applicable

Community consent must be documented before any intervention proceeds.

18.5 Environmental and Social Safeguards

Environmental and social safeguards must be established, including:

- Assessment of cumulative and transboundary effects where relevant
- Measures to avoid, minimize, and mitigate adverse impacts
- Protection of cultural heritage and sacred sites
- Labor standards and worker safety
- Community health and safety
- Biodiversity protection
- Emergency planning where relevant

Safeguards must be consistent with national law and applicable international standards.

18.6 Baseline Indicators and Monitoring Plan

Baseline indicators and a monitoring plan must be established, including:

- Baseline data for hydrology, ecology, soil, vegetation, biodiversity, and socio-economic conditions
- Indicators for monitoring, consistent with Section 11
- Data-quality procedures, including calibration, validation, and error correction
- Uncertainty procedures, including how uncertainty will be estimated and reported
- Monitoring frequency and responsibility
- Data management and governance arrangements

The monitoring plan must be proportionate to the scale and risk of the intervention.

18.7 Operator, Maintenance, and Emergency Arrangements

A named operator, funded maintenance plan, emergency procedures where relevant, and repair or decommissioning arrangements must be established, including:

- Named operator responsible for day-to-day management
- Costed maintenance plan covering routine inspection, desilting, repair, and replacement
- Inspection schedule with documented findings
- Emergency procedures for flood, overtopping, structural failure, or contamination
- Repair arrangements and resources
- Decommissioning plan for eventual removal or conversion of the structure
- A structure that cannot be maintained should not be built.

18.8 Transparent Budget, Procurement, and Financial Reporting

A transparent budget, procurement process, ownership rules, and financial reporting arrangements must be established, including:

- Detailed budget covering construction, maintenance, monitoring, and decommissioning
- Procurement rules ensuring transparency, competition, and value for money
- Ownership rules clarifying who owns the infrastructure and who is responsible for its management
- Financial reporting arrangements, including regular reporting to funders and communities
- Anti-corruption measures and grievance mechanisms for financial misconduct

18.9 Evaluation Design

An evaluation design must be established, distinguishing outputs, outcomes, and impacts, and avoiding unsupported attribution. The evaluation design must include:

- Clear definitions of activities, outputs, outcomes, and impacts
- Baseline data and, where feasible, comparison sites
- Methods for assessing attribution, including acknowledgment of uncertainty
- Independent review and peer review arrangements
- Publication of methods and results where appropriate
- Evaluation should be designed at the outset, not retrofitted after implementation.

18.10 Decision Rule

A demonstration site may proceed only where all minimum requirements have been met, documented, and independently reviewed. Where any requirement cannot be met, the site should not proceed until the deficiency is addressed—or the site should be rejected.

The credibility of the 0.01% Solutions depends on the rigor with which these minimum requirements are applied.

19 Annex B. Key Terms

1. Programme: The 0.01% Solutions—Flagship Implementation Programme.
2. 0.01% target: A proposed target to retain water equivalent to 0.01% of annual global precipitation.
3. Distributed Pond System (DPS): A network of small water-retention structures adapted to local conditions.
4. DPS network: Connected pond systems supporting distributed water retention.
5. Rainwater harvesting: Collecting and storing rainwater for suitable uses and ecological benefits.
6. Water retention: Holding water in ponds, soil, or other natural and constructed systems.
7. Additional water retention: Water retained beyond an established baseline.
8. Annual precipitation baseline: The reference estimate of precipitation received globally or within a defined area each year.
9. Annual rainfall-retention target: The planned annual volume of rainwater to be retained.
10. Artificial lake: A constructed water body designed for storage or other approved purposes.
11. Green Web: A proposed network of restoration sites, communities, institutions, and monitoring systems.
12. Restoration site: An area selected for ecological restoration and water-retention measures.
13. Demonstration corridor: A defined area for testing and evaluating Programme approaches.
14. Catchment: An area from which water drains to a common outlet.
15. Cryosphere: Earth's frozen-water systems, including glaciers, ice sheets, snow, sea ice, and permafrost.
16. Cryosphere-related hydrological risk: Water-related risks associated with changes in frozen-water systems.
17. Planetary hydrological security: The protection and sustainable management of water systems at global scale.
18. Water–Land–Cryosphere Nexus: The interconnection between water, land, and frozen-water systems.
19. Ecological safeguards: Measures protecting ecosystems, biodiversity, water flows, and affected communities.
20. National implementation plan: A country's plan for applying the Programme to its conditions and priorities.
21. Scientific monitoring: Systematic observation and measurement of Programme activities and outcomes.
22. Measured outcome: A result supported by recorded observations or measurements.
23. Three Rio Conventions: The UN conventions on climate change, biodiversity, and desertification.
24. CPHSCS: The proposed Convention on Planetary Hydrological Security and Cryosphere Stability.
25. Implementation mechanism: The arrangements through which the Programme's objectives are put into practice.
26. Country-led implementation: Implementation guided by national priorities, laws, and local conditions.

27. Global planning ambition: A proposed worldwide target subject to feasibility assessment and verification.
28. Sustainable water retention: Retaining water without unacceptable harm to ecosystems or existing users.
29. Verification and independent evaluation: Checking results through transparent methods and independent assessment.
30. Adaptive implementation: Adjusting activities in response to monitoring, evidence, and changing conditions.

THE 0.01% SOLUTIONS–GREEN WEB–CRYOSPHERE CONVENTION INITIATIVE TEAM