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THE GEOGRAPHY OF NUCLEAR RESTRAINT IN A FRAGMENTING ORDER

Nuclear-Weapon-Free Zones
in an Unstable Security Environment

Olamide Samuel¹, Kseniia Pirnavskaia, and Valeriia Hesse



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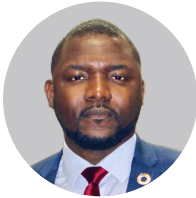
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EXECUTIVE SUMMARY

Five treaty-based nuclear-weapon-free zones (NWFZs), established through the Treaties of Tlatelolco, Rarotonga, Bangkok, Pelindaba and Semipalatinsk, together with Mongolia's internationally recognised single-state nuclear-weapon-free status, now cover more than one hundred states and most of the Southern Hemisphere. They have evolved beyond their original function as legal instruments prohibiting nuclear weapons in defined territories and now operate as practical mechanisms of regional security governance, nuclear risk reduction, and political restraint.

This report argues that NWFZs play an essential role in maintaining nuclear order and, with the erosion of arms control, are emerging as one of the last enduring treaty-based frameworks for collective nuclear restraint. NWFZs help keep nuclear competition out of regional security practice, reinforce confidence among neighbouring states, support safeguards and peaceful nuclear governance, and in some regions provide frameworks for addressing environmental harm and other nuclear legacies. While negative security assurances remain important, they represent only one part of the zones' broader security logic.

Drawing on consultations conducted by Open Nuclear Network (ONN) with representatives of all existing zones and members of the UN General Assembly's Qualified Group of Experts, the report finds that the present regime is both more valuable and more uneven than is often recognised. The zones have shown considerable durability and adaptability, but they also face unresolved protocol questions, institutional and capacity constraints, weak coordination across zones, and structural gaps affecting states that do not fit the classic regional (zonal) model. These findings have implications for future zone development, for the wider NWFZ community, and for the engagement of nuclear-weapon states (NWS) with zones as practical instruments of regional and global nuclear risk reduction.

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INTRODUCTION

NWFZs in a Changing Security Environment

The case for taking nuclear-weapon-free zones seriously is stronger now than it has been in many years. The strategic environments that produced most of these treaties have changed, and in some respects profoundly. Great-power competition has intensified, arms control architectures have weakened, and nuclear threats are now expressed more openly and more routinely than they were for much of the post-Cold War period. New military arrangements, new technologies, and new forms of strategic competition are challenging long-standing assumptions about stability and nuclear restraint. Yet across large parts of the world, states have continued to hold the line against nuclear weapons through regional rules, institutions, and habits of cooperation that have proved durable.

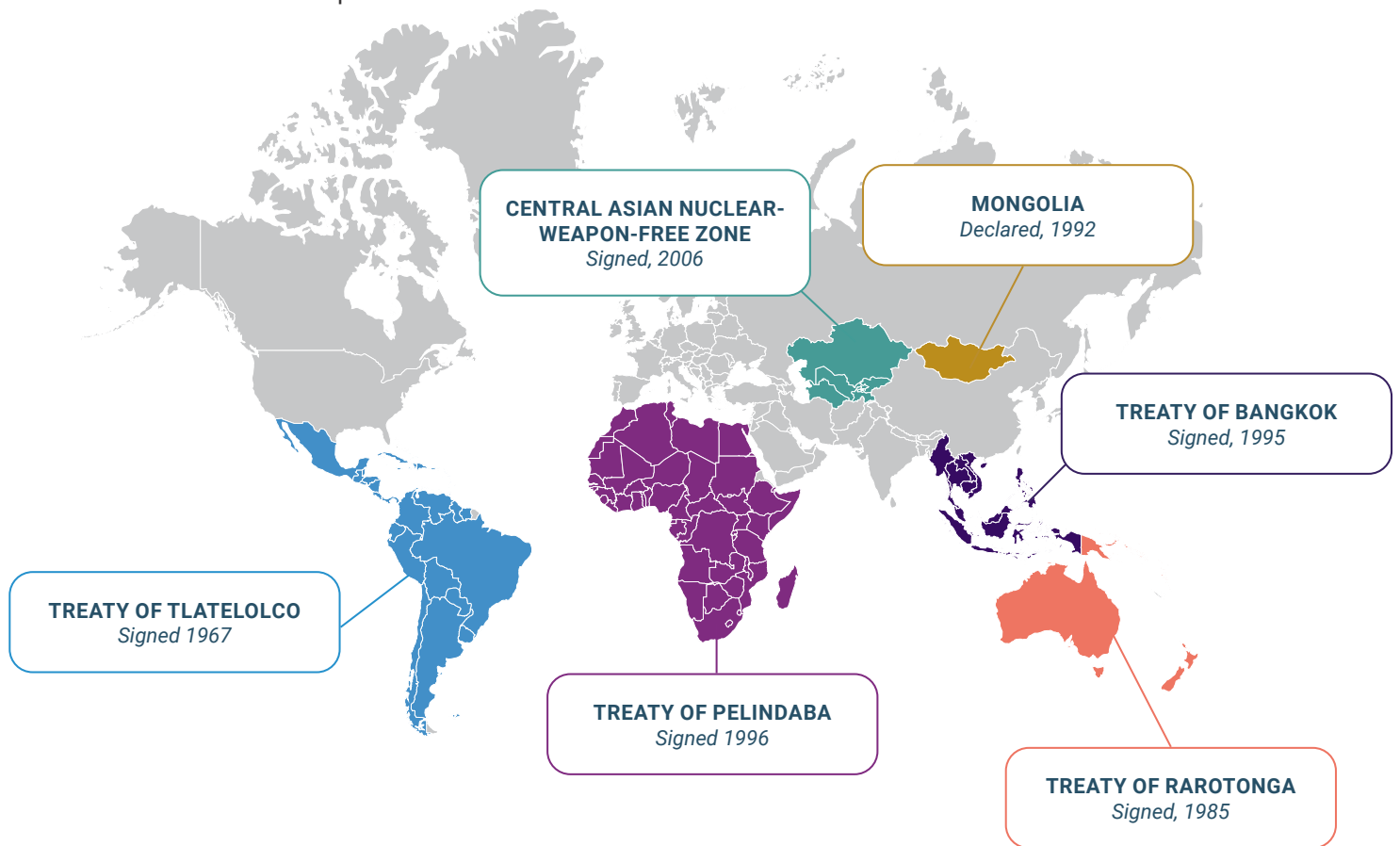
Today, five treaty-based nuclear-weapon-free zones are in force:

- the Treaty of **Tlatelolco** in Latin America and the Caribbean;
- the Treaty of **Rarotonga** in the South Pacific;
- the Treaty of **Bangkok** in Southeast Asia;
- the Treaty of **Pelindaba** in Africa;
- and the Treaty on a Nuclear-Weapon-Free Zone in Central Asia, colloquially known as the Treaty of **Semey** or **Semipalatinsk**.

In addition, Mongolia's 1992 declaration of single-state nuclear-weapon-free status has, since 2000, been recognised through United Nations General Assembly resolution 55/33S.² Together, these arrangements cover most of the Southern Hemisphere and a large part of the wider non-nuclear world. Mongolia's status sits outside the classic treaty model but remains relevant to any contemporary discussion of NWFZs, due to its potential to serve as a scalable single-state framework for other countries.

NWFZs have generally been understood as complementary regional expressions of the wider non-proliferation regime, enabling states in defined regions to codify and verify a commitment to the total absence of nuclear weapons from their territories. However, the sustained contribution of NWFZs to international security is currently underexplored, especially at a time when the wider nuclear order is under visible strain. The last comprehensive UN study on the subject was undertaken in the 1970s, at a time when only one populated regional zone existed and when many of the legal, institutional, and geopolitical questions that now surround the regime had not yet emerged. In the decades that followed, the number of zones increased, and their institutional forms diversified. Meanwhile, the role of protocols and negative security assurances (NSAs) became more contested. New questions also emerged regarding maritime scope, environmental harm, peaceful nuclear development, single-state arrangements, and the relationship between regional and global forms of nuclear restraint.

FIGURE 1: NWFZ maps



It was against this background that UN Member States decided a more systematic and up-to-date assessment was needed. By resolution 79/241, adopted on 24 December 2024, the United Nations General Assembly mandated the preparation of a new Comprehensive Study on nuclear-weapon-free zones and authorised a Qualified Group of Experts (QGE) to carry out that work.³ The QGE is tasked with assessing the scope, application, and contribution of existing and potential zones. In support of that process, Open Nuclear Network conducted consultations with representatives of all existing zones and related regional bodies, as well as members of the QGE. These consultations were intended to help ensure that regional perspectives were reflected in the wider UN study, to strengthen cooperation among the zones themselves, and to facilitate more constructive dialogue between the zones and the nuclear-weapon states (NWS).

This report draws on these consultations to offer a renewed assessment of what nuclear-weapon-free zones now do in practice. Our argument is that the zones should primarily be understood as arrangements of regional security governance through which states have sought to keep nuclear weapons out of regional politics, out of regional planning, and out of the set of options available to future policymakers under pressure. We do not claim that NWFZs have solved the central problems of the nuclear age, nor do we imply that NWFZs can replace progress by the NWS themselves. We argue, rather, that NWFZs are among the most durable yet under-recognised mechanisms through which non-nuclear states organise restraint and preserve a measure of order under increasingly unstable conditions.

This report proceeds from that premise:

- It begins by reconsidering the security functions of NWFZs beyond a treaty-centred reading, examining how they operate as instruments of nuclear risk reduction, regional order, and political restraint.
- It then turns to the regional record, tracing how different zones have developed through distinct historical and institutional pathways and what those pathways reveal about their present strengths and vulnerabilities.
- From there, it draws out a set of cross-cutting findings on institutional continuity, the role and limits of negative security assurances, and the structural incompleteness of the current regime.
- The final sections translate those findings into forward-looking implications for future zone development, for the wider NWFZ community, and for the engagement of NWS with zones as practical mechanisms of risk reduction in an increasingly turbulent international environment.

Methods and Mandate

This report draws on multi-stakeholder consultations conducted by Open Nuclear Network in support of broader efforts to improve understanding of nuclear-weapon-free zones and their contemporary relevance. The consultations included officials and representatives from all existing nuclear-weapon-free zones, members of the United Nations General Assembly's Qualified Group of Experts, independent experts from across the zones, diplomats and officials from relevant states, and United Nations officials.

The report is intended as an analytical contribution. It does not represent the official position of any state, institution, or participant consulted in the course of this work. Its purpose is to strengthen understanding of how nuclear-weapon-free zones function in practice, to identify lessons and implementation challenges across regions, and to support efforts to reduce nuclear risk. It is not intended to prescribe a single political position or advocate a uniform policy line.

How nuclear-weapon-free zones function in practice

Nuclear-weapon-free zones are long-established features of the international nuclear order. Taken together, these arrangements cover most of the Southern Hemisphere, and extend into Central Asia. Zones give legal and political form to the decision by 120⁴ of the 195 widely recognised independent countries to exclude nuclear weapons from their territories and regional security arrangements. At their core, the treaties establishing the zones prohibit the acquisition, possession, development, placement, testing, and use of nuclear weapons within the territories to which they apply. They do so as regional instruments that reinforce Article VII of the NPT, which preserves the right of groups of states to conclude treaties ensuring the total absence of nuclear weapons in their respective territories.⁵ Each treaty is accompanied by protocols directed at the five legally recognised NWS⁶, through which those states are invited to undertake legally binding commitments to respect the status of the zone and not to use or threaten to use nuclear weapons against its parties. The degree of protocol ratification varies across the zones, but the wider point remains that NWFZs are not simply internal agreements among non-nuclear weapon states (NNWS). They are regional security instruments designed both to structure conduct within a region and to shape the terms on which NWS relate to it.

Strategic restraint as nuclear risk reduction

NWFZs have not solved the central problems of the nuclear age, nor can they substitute for progress by the NWS themselves. Instead, NWFZs reduce nuclear risk because they close off destabilising nuclear pathways before these can become embedded in regional security practice. This contribution is easy to understate because it is expressed through absence. Where a zone functions well, nuclear weapons are not developed, not stationed, not normalised, and not drawn into the local logic of competition. The region is therefore less likely to drift into hedging behaviour, less likely to be drawn into forward deployment or basing arrangements, and less likely to see its conventional rivalries acquire a nuclear dimension over time. Zones do not eliminate the effects of great-power nuclear rivalry, and do not protect states from every form of nuclear coercion or strategic spillover. However, zones continue to curtail potential regional expressions of nuclear deterrence, and that is already a major form of risk reduction.

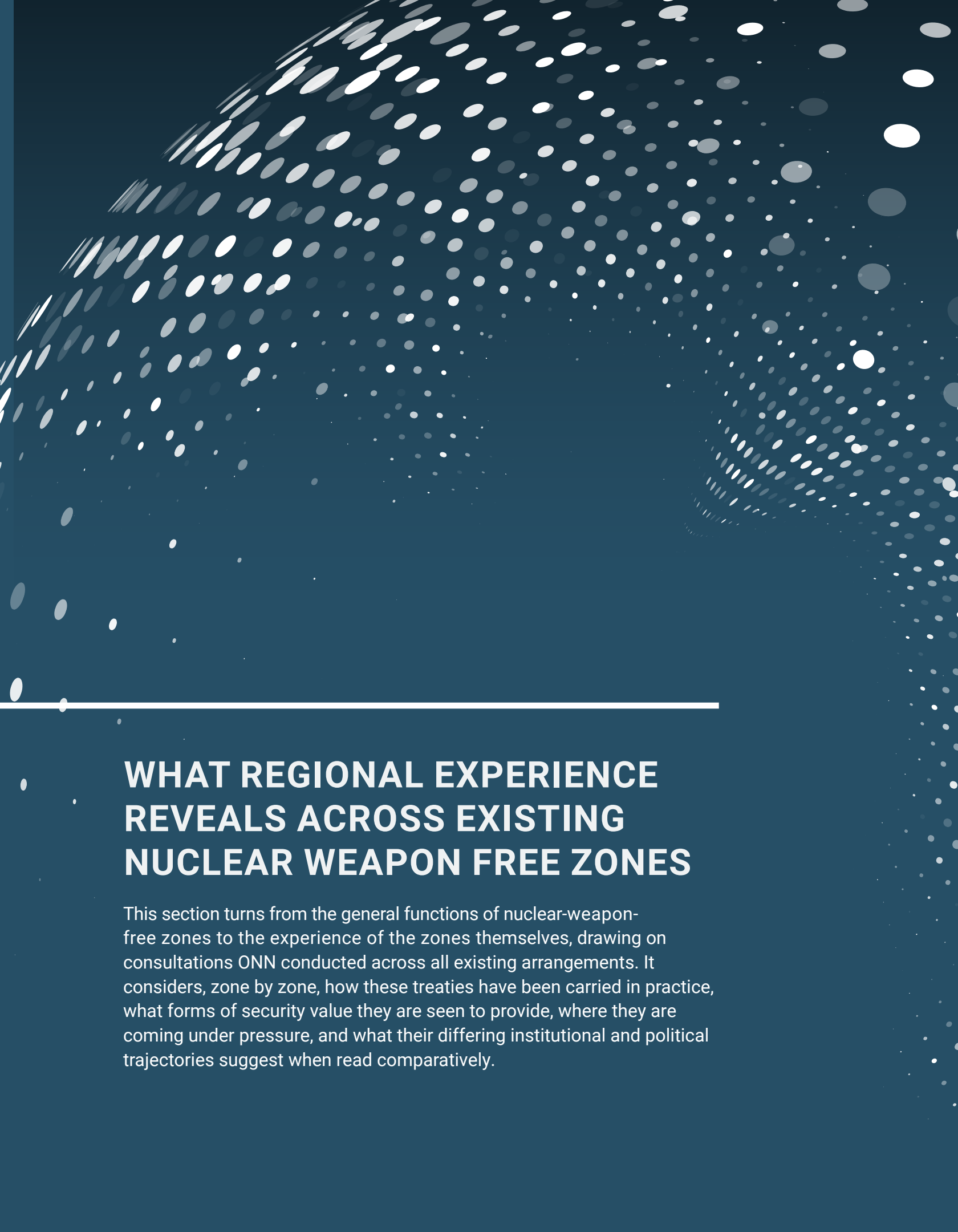
The importance of this denial function increases as the wider system weakens. The political and legal barriers established by NWFZs are becoming increasingly valuable, as non-proliferation norms continue to erode, as extended deterrence relationships expand and become more contested, and as the language of nuclear use becomes more permissive and more entangled with conventional conflict. In this emerging environment, NWFZs increasingly become a crucial part of the remaining architecture of nuclear restraint.

Institutional variation across nuclear-weapon-free zones

The NWFZ regime is not a single institutional model repeated across different regions. Instead, it is a patchwork of arrangements that share a common purpose but differ in legal design, institutional depth, and political setting. Tlatelolco is supported by OPANAL, a standing regional body with its own organs and regular meetings and remains the clearest example of institutional continuity within the regime. Rarotonga is administered through the Pacific Islands Forum, where the treaty remains tied to wider regional discussion of nuclear testing legacies, environmental harm, and transboundary risk. Bangkok sits within ASEAN structures and is overseen by the SEANWFZ Commission, supported by an Executive Committee, a Working Group, and a wider framework of regional cooperation on safety, safeguards, and peaceful uses. Pelindaba is implemented through AFCONE, which provides a mechanism for reporting, consultation, review, and cooperation in peaceful nuclear science and technology. Central Asia has no permanent institutional body but instead relies on annual rotating consultative meetings among its parties, with verification carried out by the IAEA through comprehensive safeguards agreements (CSAs), and uniquely among NWFZ treaties, a requirement for all parties to conclude an Additional Protocol (AP). Mongolia is distinct, as its status has been built through national legislation, repeated UN General Assembly engagement, and political assurances from the five NWS, even though it does not yet rest on the same treaty form as the five regional zones. All zones, however, rest on the same basic proposition, that the absence of nuclear weapons from a region needs to be organised, codified, and sustained through regional commitments and supporting mechanisms.

Additionally, zones do not only prohibit nuclear weapons. They also facilitate peaceful nuclear cooperation, safeguards implementation, and, in some regions, responses to environmental and historical harm caused by nuclear detonations. This is particularly clear in zones (such as Rarotonga, Semipalatinsk and Pelindaba) where implementation has become tied to wider work on safety, security, technical cooperation, or the legacy of past nuclear activity. In these cases, zones provide a framework within which states also address how peaceful nuclear activity is to be governed, how confidence is to be maintained, and how regional concerns are to be managed before they become sources of deeper political strain.

The consultations therefore support a clearer conceptual shift. Nuclear-weapon-free zones are part of the practical security infrastructure through which restraint has been organised, preserved, and, in some cases, institutionalised across large parts of the world. That has mattered in periods of relative strategic stability, and it matters more now. Without these zones, the geography of nuclear restraint would be markedly thinner, the burden on the wider non-proliferation regime would be more significant, and several regions would be more exposed than they already are to the possibility that nuclear weapons use might occur in their region. That is why the zones merit analysis not only as treaties, but as working elements of the wider non-proliferation architecture.



WHAT REGIONAL EXPERIENCE REVEALS ACROSS EXISTING NUCLEAR WEAPON FREE ZONES

This section turns from the general functions of nuclear-weapon-free zones to the experience of the zones themselves, drawing on consultations ONN conducted across all existing arrangements. It considers, zone by zone, how these treaties have been carried in practice, what forms of security value they are seen to provide, where they are coming under pressure, and what their differing institutional and political trajectories suggest when read comparatively.



Latin America and the Caribbean

FIGURE 2: Treaty of Tlatelolco (1967)



The Latin American and Caribbean experience shows most clearly that a NWFZ can evolve from a treaty prohibition to an enduring and functional regional arrangement. Established in 1969 under the Treaty of Tlatelolco, and bringing together all 33 states parties, OPANAL has provided a permanent institutional setting in which treaty obligations can be carried forward, interpreted, and defended over time.⁷ Latin America and the Caribbean developed a dedicated agency with a continuing mandate to hold meetings, maintain oversight, and keep the treaty politically present in regional diplomacy. The Treaty's institutional design, centred on a General Conference of all members, a Council, and a permanent Secretariat, has given the zone a degree of continuity that remains unusual across the wider NWFZ landscape.

That continuity was presented in our consultations as one of the principal reasons why Tlatelolco has remained effective. OPANAL has not been confined to a narrow custodial role, and officials described an institution that has been able to adapt its work to changing circumstances, including by incorporating disarmament education and related activities beyond the treaty's original core functions. That flexibility has allowed the zone to remain politically relevant, and it offers one of the clearest examples of an NWFZ institution evolving in method and emphasis while preserving the integrity of its legal foundation.

Respondents also stressed OPANAL's value as a confidence-building mechanism. Any member state may raise concerns through its regular meetings, and urgent matters can be raised quickly where circumstances require. That regular possibility of consultation has helped create a regional expectation that nuclear-related concerns will be addressed collectively rather than allowed to harden into mistrust. In practice, this has meant that OPANAL is often treated as the first regional venue to which states can turn when a nuclear issue arises. The significance of that should not be understated, as the confidence generated by routine consultation is one reason Latin America and the Caribbean have been able to sustain a particularly strong consensus on non-proliferation and disarmament across a region that is otherwise politically diverse.

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The benefits described by respondents were both tangible and political. The most immediate is security itself. States in the region do not rely on nuclear weapons for deterrence and do not have to plan on the assumption that their neighbours may seek them in future. The treaties and protocols establishing the zone have instead created a regional setting in which security is derived from the absence of nuclear weapons rather than from their possession. OPANAL officials described this as a form of normative security, with practical benefits. In closing off nuclear weapons as instruments of regional rivalry, the Treaty of Tlatelolco has reduced the risk of proliferation and removed an entire category of strategic competition from the inter-American space. That has in turn allowed states to direct political attention and national resources elsewhere.

Closely connected to this is the degree of regional trust that the zone has helped to consolidate. Over time, Latin American and Caribbean states have developed a pattern of speaking collectively on nuclear disarmament questions, including through joint declarations on key issues in multilateral disarmament fora. This has reinforced a sense that the zone is also a common regional position and has given the region a weight in multilateral diplomacy that no single member state could exercise alone. Respondents were clear that any (extra-zonal) state seeking to advance a major initiative in nuclear disarmament diplomacy now must take the views of this 33-state grouping seriously. In this regard, membership in the zone yields reassurance at home, and collective influence abroad.

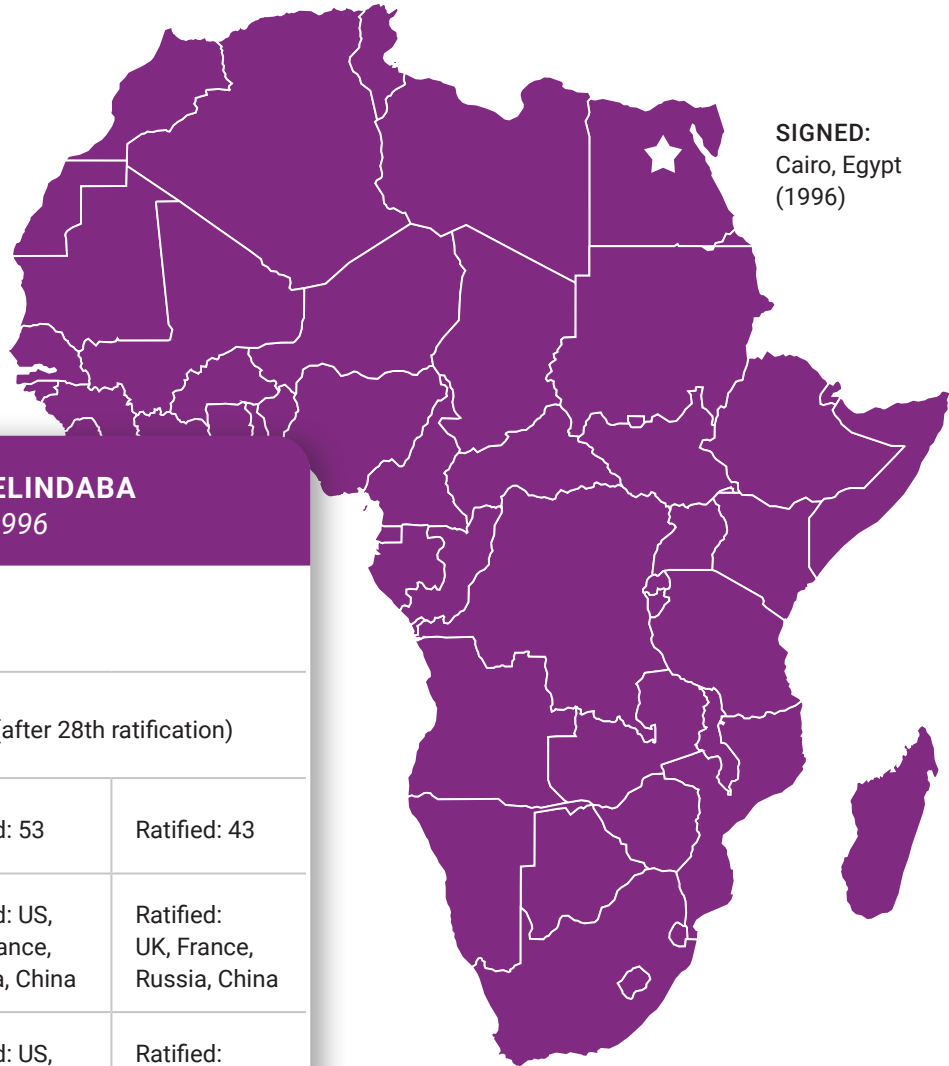
That wider diplomatic role forms part of the region's identity. Latin America and the Caribbean remain conscious of having pioneered the first populated regional zone and of having done so before the NPT entered into force. In our consultations, this identity was presented as a continuing source of authority in global debates on non-proliferation and disarmament. Respondents noted that ideas first articulated through Tlatelolco later informed wider treaty practice, including in relation to peaceful uses and the long-term objective of complete nuclear disarmament. The same historical line was drawn forward to the Treaty on the Prohibition of Nuclear Weapons, where Latin American states again played an important role. In that sense, the region's NWFZ experience has repeatedly fed into the wider development of nuclear norms.

Our consultations also pointed to a more technical, though no less important, benefit. Membership in the zone has helped legitimise peaceful nuclear development. All states parties have accepted comprehensive IAEA safeguards,⁸ and some of the region's most advanced nuclear programmes have operated within that framework while strengthening their international credibility through the additional obligations associated with Tlatelolco. The example of Argentina and Brazil was raised repeatedly in this regard. Their bilateral safeguards arrangement through the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC)⁹ has become one of the region's most important confidence-building mechanisms, including a quadripartite agreement that sits comfortably alongside the wider zone.¹⁰ Respondents highlighted that being doubly bound by the NPT and Tlatelolco has not constrained peaceful nuclear ambition in the region. Instead, membership has made that ambition easier to defend internationally because the absence of weapons intent is more firmly established.

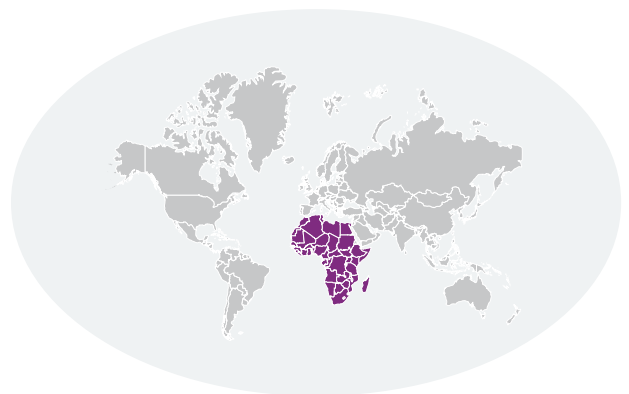
In sum, the Latin American and Caribbean experience points to a model in which institutional continuity and norm consolidation have reinforced one another over time. The Treaty of Tlatelolco established the legal framework, but it is the continued work of OPANAL, the routine habits of consultation among states, and the region's willingness to act collectively in wider disarmament diplomacy that have given the zone much of its present strength. That combination has allowed the region to maintain a nuclear-weapon-free status, and to convert that status into political influence, technical credibility, and a durable regional identity organised around nuclear restraint.

Africa

FIGURE 3: Treaty of Pelindaba (1996)



TREATY OF PELINDABA <i>Signed 1996</i>		
Region	Africa	
Entered into Force	2009 (after 28th ratification)	
Members	Signed: 53	Ratified: 43
Protocol I	Signed: US, UK, France, Russia, China	Ratified: UK, France, Russia, China
Protocol II	Signed: US, UK, France, China, Russia	Ratified: UK, France, Russia, China
Protocol III	Signed: France	Ratified: France
Implementing Body	African Commission on Nuclear Energy (AFCONe)	



The African experience is marked by a strong normative ambition that long pre-dated the entry into force of the Pelindaba Treaty. African states began calling for the denuclearisation of the continent in the early post-colonial period, and the 1964 OAU Declaration on the Denuclearization of Africa established an early and unusually clear political position: African states were prepared to renounce nuclear weapons and to formalise that renunciation through treaty.¹¹ That position was tied to a wider view that security, sovereignty, and development in post-colonial Africa would be weakened, not strengthened, by the spread of nuclear weapons. It was also shaped by immediate security concerns, including French nuclear testing in the Algerian Sahara and the possibility that African territory might be drawn into the strategic competition of external powers.¹² The later emergence of South Africa's clandestine nuclear weapons programme demonstrated the urgency of this commitment.¹³ By the time the Pelindaba Treaty opened for signature in 1996, after apartheid had ended and South Africa had dismantled its arsenal, the treaty was understood as an urgent means of locking in a continent-wide settlement against any future return of nuclear weapons to Africa.¹⁴

Africa's broader nuclear and developmental ambitions are reflected in the treaty itself. Pelindaba goes beyond prohibiting the research, development, manufacture, acquisition, testing, possession, control, or stationing of nuclear weapons. It also prohibits the dumping of radioactive waste, requires high standards of physical protection for nuclear material and facilities, and explicitly links denuclearisation to the right of African states to pursue nuclear science and technology for peaceful purposes under safeguards. It is also the only treaty that prohibits attacks on nuclear installations by states (in the zone).¹⁵ Respondents were clear that Pelindaba has substantive value. It anchors an African position against nuclear weapons while preserving a strong claim to peaceful nuclear development under safeguards. It provides a framework within which security, development, and nuclear governance can be discussed together rather than in isolation. Its breadth is part of its importance. The treaty speaks not only to nuclear weapons prohibition, but also to physical protection, safeguards, attacks on nuclear installations, and cooperation in peaceful nuclear science and technology. That makes it especially relevant to current debates in which peaceful uses, safety, and safeguards are all under increasing pressure from capacity shortfalls and wider geopolitical strain. In these respects, Pelindaba is a more expansive regional settlement that connects non-proliferation, peaceful uses, security, and development in a single framework. That breadth gives the treaty much of its political force. It also makes implementation more demanding than a simpler prohibition regime would be.

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Our consultations suggested that implementation issues are the central pressure points in the African case. The normative and political ambition of the zone is clear, and respondents were consistent in presenting Pelindaba as an important expression of African agency in nuclear politics. At the same time, the institutional means available to carry that ambition forward remain constrained. AFCONE, the treaty's implementing body, exists and has a substantive mandate, but it is still a relatively young institution. The secretariat was established only in 2015, with operations taking clearer shape from 2018 onward, and

several respondents described 2022 as the point at which more systematic information-gathering and closer integration with the treaty mandate began in practice.¹⁶ AFCONE's mandate is broad. It covers non-proliferation, disarmament, and peaceful nuclear applications. It is also intended to support compliance, collect information, arrange consultations, review peaceful nuclear activities under safeguards, operate a complaints procedure, and encourage cooperation on peaceful uses. In practice, however, respondents pointed to a persistent shortage of staff, continuing administrative strain, and an uneven reporting system that does not yet produce the quality or consistency of information that implementation requires.¹⁷ State points of contact are drawn from a wide variety of institutions, including foreign ministries, regulators, science ministries, and universities. The result is that reports are often inconsistent in focus and quality. Even when reports are submitted, AFCONE requires additional resources to verify them independently on the ground. Respondents also described a more basic problem of institutional recognition. Many states parties, and not only non-members, still have a limited understanding of what AFCONE is supposed to do. Awareness meetings are held, but their reach and effect remain uncertain. This matters because a commission cannot function as a regional focal point if it is not widely understood by the governments it is meant to support. In the African case, institutional pressure therefore shows up not only in staffing and finance, but in political visibility. A treaty can generate authority on paper. However, it takes longer to build an institution that regional states instinctively turn to when questions arise.

The difficulties become sharper when the issue moves beyond the region's internal reporting and peaceful-use agenda to questions involving extraterritorial actors. AFCONE does not yet have a clear protocol or established avenue for engaging external states on issues that impinge on the integrity of the zone. Diego Garcia is the clearest example.¹⁸ The treaty's territorial politics have long been complicated by the status of the Chagos Archipelago. Yet respondents indicated that AFCONE still needs to develop a practice for reviewing extraterritorial conduct in a systematic way. This was not presented as a legal vacuum so much as an institutional one. The need identified in the consultations was for a clearer protocol of engagement, both for non-compliance concerns and for questions involving external stakeholders. This is particularly important because Pelindaba was always meant to do more than regulate African states alone. Like the other zone treaties, it also depends on meaningful engagement by NWS through its protocols. Here too, the African experience remains incomplete. The fact that the United States has not ratified Protocols I and II still matters politically, not least because it weakens the reciprocal logic on which protocol practice depends. Spain, meanwhile, has neither signed nor ratified Protocol III.¹⁹ ²⁰ Respondents noted ongoing efforts to secure wider African ratification through the African Union and AFCONE outreach to the remaining non-ratifying states. Progress appears possible on the internal front, while engagement with the external protocol states has proved more difficult. While our consultations did not point to a settled engagement strategy for moving this question forward, recent engagement around NWFZ issues suggests that there may be scope for more flexible forms of interaction between NWS and zone actors. For example, regional workshops in Africa attended by NWS representatives, including the UK, have illustrated how informal, expert-level dialogue can complement formal protocol processes. Such formats may offer a practical avenue for building trust and sustaining engagement between the zone and NWS.

To be clear, the African zone should not be read only through its implementation problems. Pelindaba remains a forward-looking treaty, and its implementing machinery is developing. The African model is defined by high political ambition and emerging institutional consolidation. The continent succeeded in turning a long-standing anti-nuclear commitment into a legally and politically significant regional treaty. It also secured a framework that ties denuclearisation to development and peaceful use in a way

that remains distinct. The harder task has been to build an institution capable of matching the treaty's breadth. AFCONE has a real mandate and an important representative role, but it needs more resources. This especially important now, while it is in the process of defining how it should respond to external challenges as well as internal implementation gaps. Africa's experience is therefore instructive in two ways. It shows what a nuclear-weapon-free zone can look like when it is driven by strong normative purpose. It also shows that normative purpose by itself does not remove the long-term need for institutional depth, technical capacity, and clear procedures of engagement.

The South Pacific

FIGURE 4: Treaty of Rarotonga (1985)



TREATY OF RAROTONGA <i>Signed 1985</i>		
Region	South Pacific	
Entered into Force	1986 (after 8th ratification)	
Members	Signed: 14	Ratified: 14
Protocol I	Signed: US, UK, France	Ratified: UK, France
Protocol II	Signed: US, UK, France, China, Russia	Ratified: UK, France, Russia, China
Protocol III	Signed: US, UK, France, China, Russia	Ratified: UK, France, Russia, China
Implementing Body	Pacific Islands Forum (PIF) Secretariat	

SIGNED:
Rarotonga, Cook Islands
(1985)
Not shown on map

In the South Pacific, the zone remains shaped by the fact that nuclear harm was a direct regional experience. The Treaty of Rarotonga emerged from a political setting in which nuclear testing, radioactive contamination, and the long afterlife of both had already marked regional thinking in a lasting way. That remains important to how the treaty is understood today. In our consultations, the South Pacific case was presented as a framework through which Pacific states continue to respond to a lived nuclear history, and to protect the region against both older and newer forms of nuclear risk.

That history helps explain why the treaty took the form it did. The Treaty of Rarotonga opened for signature in 1985 and entered into force in 1986,²¹ and it was the second nuclear-weapon-free zone to enter into force in a populated region and was explicitly shaped by the South Pacific's direct experience of nuclear testing. The treaty reinforces the regional commitment not to manufacture, possess, acquire, or control nuclear weapons and not to permit their placement within the zone, while also placing distinct emphasis on preventing nuclear testing, and on keeping the region free from environmental pollution by radioactive wastes and other radioactive matter. That wider environmental dimension was central in the consultations and remains one of the most distinctive features of the South Pacific model.

Implementation has followed a hybrid path. Unlike Tlatelolco and Pelindaba, the South Pacific zone does not have a dedicated treaty-specific agency. Support is instead provided through the Pacific Islands Forum and the treaty's own consultative machinery, and the PIF Secretary General serves as depositary. The Forum Secretariat supports coordination, while treaty operation is carried through the Forum's wider political process, including ministerial and leaders' level engagement.²² The result is a dual-track arrangement in which the treaty mechanism and the Forum system work alongside one another. In practice, that has allowed member states to connect treaty implementation to wider regional priorities, including environmental protection, human security, and the broader strategic agenda now expressed through the Blue Pacific framing.²³ It has also meant that the treaty has remained embedded in regional politics even without a separate institutional body of its own.

The consultations suggested that this model has both advantages and limits. Its strength lies in political reach. Because the treaty is carried through the Forum system, nuclear issues are not isolated from the region's broader diplomatic agenda. Legacy questions, environmental concerns, and contemporary security anxieties can be discussed in a single political setting rather than through separate technical channels. That has made it easier for Pacific states to treat the nuclear question as part of a wider regional conversation about sovereignty, development, transboundary harm, and NWS conduct. At the same time, the absence of a dedicated agency places obvious limits on continuity, institutional memory, and follow-through. Several respondents pointed to the need for more structured mechanisms if the treaty is to respond more consistently to emerging challenges and not only to the political moment of the day.

That is one reason the Consultative Committee established under Article 10 has become more important.²⁴ Respondents described it as the most realistic pathway for strengthening operationalisation without creating a wholly separate agency. The Committee provides a treaty-based platform for coordination among states parties, and recent work has focused on making it function more effectively through updated procedures and clearer rules, with practical implications. A more regularised consultative process could help sustain institutional memory, carry issues forward across staffing and political change, and provide a more stable mechanism for addressing concerns that do not fit neatly within routine Forum diplomacy. The Pacific approach is therefore not moving toward institutional duplication. It is moving, more cautiously, toward a better balance between political flexibility and treaty-specific continuity.

The substance of Pacific concern also remains distinct. Respondents consistently treated nuclear legacy issues as a present implementation challenge rather than as a historical grievance. The long history of testing in the wider Pacific region continues to shape public health concerns, environmental anxieties, and political expectations of the treaty system. The Runit Dome in the Marshall Islands was raised as a clear example.²⁵ Its deterioration, and the reported risk of radiological leakage associated with environmental exposure and structural degradation, were discussed as a contemporary issue with wider regional relevance. There was support for a more structured regional approach, including updated scientific assessment, stronger health surveillance, and more consistent environmental monitoring.

Our respondents also made clear that the Pacific does not separate legacy issues from newer nuclear-related concerns. Respondents referred to growing regional discussion of Japan's treated water discharge,²⁶ renewed interest in nuclear energy, and the implications of nuclear-powered submarines. Whether these questions fall strictly within the treaty's original frame or not, they are now part of the political environment in which the treaty operates. That reinforces the value of the Forum-linked model, since it allows states to connect formal treaty obligations with wider regional governance concerns. It also explains why Pacific leaders have continued to call for the treaty's provisions to be operationalised more actively.

External protocol adherence remains part of that picture. According to the treaty record discussed in the consultations, all five recognised NWS have signed the relevant protocols, but adherence is still incomplete in practical terms because the United States signed in 1996 and has still not ratified.²⁷ That continued non-ratification retains political significance in the region. It is one of the clearest indications that support for NWFZs can remain partial even where the strategic cost of ratification is limited.²⁸ The consultations also referred to reservations attached by other NWS, including on questions of transit, self-defence, and the consequences of treaty violation. These reservations do not weaken the treaty, but they do qualify the strength of external recognition and reinforce the sense that protocol politics remain unfinished. The South Pacific case therefore illustrates both the value and the fragility of the protocol system. A zone can still be functioning and politically important even where full external adherence is partially achieved.

What was striking in the consultations, however, was the caution with which the Forum appears to approach adherence to its protocols. Respondents did not suggest that the Pacific Islands Forum lacked interest in stronger protocol adherence. They suggested rather that the present diplomatic environment offers limited incentive to prioritise the issue, especially where doing so might attract unhelpful friction with the United States.²⁹ That posture could be better understood as strategic restraint rather than acquiescence. The Pacific position remains clear, but timing and method are shaped by wider geopolitical judgement. This is consistent with the region's broader style of diplomacy, which often seeks to preserve room for engagement rather than convert every unresolved issue into an overt confrontation.

This same political judgement can also be seen in the treatment of universalisation. The consultations pointed to continuing interest in accession by the remaining observer members, including Palau and the Federated States of Micronesia, and to the significance of the Marshall Islands' accession in March 2025.³⁰ That accession was described as carrying both symbolic and political weight, and it matters because Marshallese identity and diplomacy are inseparable from the legacy of United States nuclear testing. One respondent indicated that it also matters because, for many years, some North Pacific states felt only partially reflected in a treaty framed as South Pacific in name and origin.³¹ The Marshall

Islands' decision to join therefore strengthens the reach of the regional nuclear-free norm while also reinforcing the legitimacy of Pacific advocacy on nuclear harm. At the same time, respondents noted that the Marshall Islands' position under the Compact of Free Association with the United States continues to shape the constraints within which it conducts its external diplomacy.³² The South Pacific zone thus remains entangled with wider questions of dependency, external security relationships, and uneven room for manoeuvre among Pacific states.

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In sum, the South Pacific experience points to a model in which the continuing force of the zone remains durable because it is carried by a wider regional system that still treats nuclear issues as central to Pacific security, identity, and environmental protection. That has allowed the zone to remain relevant across several distinct agendas at once: non-proliferation, legacy remediation, external protocol diplomacy, and newer debates about transboundary nuclear risk. The trade-off is that this hybrid model can struggle with continuity and formalisation as it depends heavily on political attention, and less on standing institutional depth when compared to some other zones. Even so, the consultations suggest that this should be understood as a functioning regional adaptation rather than as institutional deficiency alone. In the Pacific, the treaty continues to matter because the region still experiences the nuclear question as unfinished.

Southeast Asia

FIGURE 5: Treaty of Bangkok (1995)



TREATY OF BANGKOK <i>Signed 1995</i>		
Region	Southeast Asia	
Entered into Force	1997 (after 7th ratification)	
Members	Signed: 11	Ratified: 11
Protocol	Signed:	Ratified:
Implementing Body	SEANWFZ Commission, comprised of ASEAN Foreign Ministers	



The Southeast Asian experience is distinct because the zone has been consolidated internally to a greater degree than it has been recognised externally. The Treaty of Bangkok was concluded in 1995 and entered into force in 1997, but its political origins lie earlier in ASEAN's longstanding effort to define Southeast Asia as a region insulated from major-power rivalry.³³ In the consultations, this history remained important. The treaty was described as part of a wider regional project linked to ASEAN cohesion, the Zone of Peace, Freedom and Neutrality (ZOPFAN)³⁴ concept, and the collective desire to keep Southeast Asia free from both nuclear weapons and the strategic pressures that accompany them. This helps explain why the treaty has retained political weight within ASEAN even though the external protocol question remains unresolved.

That internal political function should not be underestimated. At the time of its adoption, the Bangkok Treaty was the first legally binding treaty signed collectively by the ten Southeast Asian states.³⁵ More recently in October 2025, Timor-Leste officially joined the ranks of ASEAN states, becoming their 11th member.³⁶ Respondents presented it as part of a broader process of regional integration, not as an isolated disarmament text.³⁷ The treaty therefore helped do two things at once. It reinforced commitments already embedded in the NPT. It also gave those commitments a specifically Southeast Asian form, tied to the region's own institutions and to a wider effort to build trust among neighbours with varied political systems, security ties, and strategic outlooks. In that sense, the zone has served as a marker of ASEAN's political evolution.

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That point is reflected in the way implementation has developed. The treaty does not establish a dedicated secretariat of its own. Thailand, as depositary, plays a central role, while ASEAN operates in practice as the de facto secretariat through its existing institutional machinery.³⁸ Oversight is carried through the SEANWFZ Commission, composed of ASEAN foreign ministers, supported by an Executive Committee and Working Group. Annual meetings review implementation, assess priorities, and consider how engagement with the NWS should proceed. The treaty is also implemented through successive Plans of Action, which go beyond the treaty's basic prohibitions and extend into safeguards, the Additional Protocol, nuclear security, and nuclear safety.³⁹ In our consultations, this wider implementation practice was treated as evidence that Southeast Asia has not allowed the treaty to remain static. It has instead used ASEAN structures to deepen the practical life of the zone over time.

This has produced what respondents regarded as broadly satisfactory internal results. Southeast Asia has remained a nuclear-weapon-free region since 1995, and the treaty appears to have succeeded in embedding that status as a stable regional norm. The one episode mentioned as testing that norm was the period around 2010, when concerns were raised regarding Myanmar's possible interest in nuclear capabilities.⁴⁰ Even there, the broader assessment remained that the treaty had been effective in preserving the region's nuclear-weapon-free character. What stands out in the Southeast Asian case, then, is the fact that implementation has been built through a wider regional institution rather than through a separate treaty agency.

The Bangkok Treaty is also more ambitious than some of the other zones in ways that help explain both its strength and its diplomatic difficulties. The treaty prohibits the development, manufacture, acquisition, possession, control, stationing, transport, testing, and use of nuclear weapons. It also prohibits the discharge of radioactive material or wastes at sea, into the atmosphere, or on land within the zone, and commits states parties to peaceful use under appropriate safety standards. Most significantly, its zone of application extends not only over national territory but also over continental shelves and exclusive economic zones.⁴¹ This expansive geographic scope was a deliberate political choice. It reflected the view that Southeast Asia's surrounding waters should not be left outside the region's nuclear-free ambition.⁴² It also reflected concern about the strategic significance of the South China Sea and surrounding maritime routes. Yet this same ambition has proved to be the central obstacle to external accession and recognition by NWS.

Southeast Asia remains the only existing NWFZ in which none of the NWS have provided negative security assurances through the protocol. In our consultations, this was treated as a standing and unresolved problem. The preference of ASEAN states is clear, that legally binding assurances would be better than reliance on political assurances alone. At present, however, the relationship between ASEAN and the NWS still turns on that gap. NWS have shown interest in the protocol, but have generally sought to attach reservations, and ASEAN states have not accepted those reservations.⁴³ The result has been stalemate, rather than accession.

Respondents suggested several reasons for this outcome. One is the treaty's maritime scope, especially its inclusion of EEZs and continental shelves, which has remained sensitive for NWS concerned with transit, navigation, and strategic flexibility. Another is procedural. One view expressed in our consultations was that, unlike in some other regional cases, ASEAN did not consult the NWS closely enough during the creation of the zone in 1995, and that this early omission made later protocol diplomacy more difficult.⁴⁴ Engagement with the NWS began more seriously in 2012,⁴⁵ and while partial agreement was reached on aspects of the protocol text, it has so far been insufficient to produce signature.^{46 47}

ASEAN's institutional form has also complicated its diplomacy with NWS on this issue. Responsibility for taking talks forward rests largely with the annual ASEAN Chair, and while that arrangement has strengths, continuity is not one of them.⁴⁸ The Chair's mandate is broad, tenure is short, and the protocol question must compete with many other priorities. Respondents were clear that this has limited the consistency and effectiveness of engagement with the NWS. Bilateral efforts have therefore become more important. Thailand was described by some respondents as trying to play a bridging role, including through direct engagement with the United Kingdom, China, and France, and through an effort to better understand why

the NWS continue to insist on reservations. Respondents also reported that China has pledged to sign the protocol without reservation, and the United States is rumoured to have indicated interest as well.⁴⁹ Even so, they did not suggest that signature is close. What they suggested was that progress will require a more sustained diplomatic effort than the current institutional rhythm has so far been able to provide.⁵⁰

Southeast Asia has not become passive, however. On the contrary, the treaty has continued to be carried outward through ASEAN resolutions at the United Nations,⁵¹ participation in inter-zonal meetings,⁵² cooperation with the IAEA, and the use of ASEAN-led mechanisms such as the ASEAN Regional Forum (ARF) and relevant technical networks on safeguards, safety, and peaceful uses.⁵³ In this respect, the zone's pending protocol question sits alongside a considerable degree of outward diplomatic activity. ASEAN has continued to project the treaty internationally even while the central protocol issue remains unresolved.

The Southeast Asian case therefore illustrates a particular combination of strength and incompleteness. Internally, the Bangkok Treaty has become part of ASEAN's institutional and political fabric. It has reinforced regional trust, contributed to integration, and sustained a nuclear-weapon-free identity across all member states. Externally, however, the zone remains unfinished, as the absence of protocol accession by NWS continues to leave Southeast Asia without the legally binding assurances available elsewhere.

Central Asia

FIGURE 6: Central Asian Nuclear-Weapon-Free Zone (2006)



CENTRAL ASIAN NUCLEAR-WEAPON-FREE ZONE (CANWFZ) <i>Signed 2006</i>		
Region	Central Asia	
Entered into Force	2009 (after 5th ratification)	
Members	Signed: 5	Ratified: 5
Protocol	Signed: US, UK, France, China, Russia	Ratified: UK, France, Russia, China
Implementing Body	States Parties hold annual consultative meetings of their representatives. Meetings are hosted on a rotating basis among members.	

The Central Asian zone emerged from a different strategic setting than any of the other treaty-based zones. It was established in a region that had previously hosted nuclear weapons, and in one case inherited them directly. It is the only existing zone located entirely in the northern hemisphere, the only one in a landlocked region directly bordering two NWS, and the only one in a region where nuclear weapons had been both tested and deployed in the past.⁵⁴ Those features give the Central Asian experience a particular weight. The zone was not built to keep a distant nuclear danger at bay. It was built in a region where the nuclear legacy was immediate, material, and politically impossible to ignore.

That legacy shaped both the political case for the zone and the terms in which its benefits are still understood. Kazakhstan's inheritance of a large Soviet arsenal, together with the humanitarian and environmental consequences of Semipalatinsk, gave the issue a distinct urgency. In the other Central Asian republics, respondents pointed to the environmental consequences of uranium mining and other Soviet-era nuclear activities as important drivers. The zone was therefore justified beyond the usual language of non-proliferation, as it was also understood as a means of securing the region against any return of nuclear weapons while addressing the afterlife of earlier nuclear activity. In that respect, the Central Asian case links non-proliferation, post-Soviet state-building, environmental concerns, and regional stability more tightly than many of the other zones.

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Our consultations also suggested that the origins of the zone remain politically sensitive in a way that matters less for the operation of the treaty than for regional memory.⁵⁵ Competing claims persist over who first advanced the idea, as different accounts place emphasis on different early moments and different political figures. What appears more important for present purposes is that, whatever competition may have existed at the start, by 1997 the initiative had become unmistakably joint.⁵⁶ The Almaty Declaration and the wider diplomatic activity around that period were described as the point at which the zone ceased to be associated primarily with one state's authorship and became a genuinely collective project. That shift matters because the Central Asian zone seems to have drawn much of its resilience from that later sense of shared ownership.

Its institutional form is correspondingly lean. The treaty does not establish a permanent implementing body, nor was there a pre-existing regional organisation capable of serving as a secretariat for it.⁵⁷ Instead, states parties rely on annual consultative meetings, hosted on a rotating basis, to review compliance and other matters related to implementation. Kyrgyzstan serves as depositary, but that role has not resolved the wider question of coordination. The result is a model that depends less on standing institutional depth than on sustained intergovernmental contact and a continuing political willingness among the five states to carry the zone forward through direct channels.

Our consultations made clear that this model has worked, but not without cost. On the positive side, respondents described a relatively high tempo of regional communication and a generally favourable political attitude toward the purpose of the treaty. There was no suggestion of deep disagreement among the five states over the value of the zone itself. The region has continued to cooperate closely on legacy issues and on questions connected to the development of peaceful nuclear industry. That continuing political convergence is important when one considers that, in a zone without a secretariat, political coordination is not supplementary to implementation. It is implementation.

At the same time, the absence of a permanent mechanism has left obvious gaps. Several respondents treated this as the central institutional weakness of the zone. Kazakhstan has at various points favoured the creation of some form of coordination unit or focal point, but no durable arrangement has yet been agreed. Cost appears to be one reason. Governments in the region are wary of creating new bodies that will require stable financing, especially in a broader regional context where existing institutions already struggle for resources. There also appears to be hesitation about the exact shape such a mechanism should take and how it would sit alongside the depositary role currently held by Kyrgyzstan. The result is a zone that has remained politically functional but institutionally thin.

There are, however, practical implications to this lean institutional structure. Respondents pointed to problems of document management, continuity, and the difficulty of structured engagement with outside actors. The lack of a standing coordination body has reduced the zone's capacity to maintain institutional memory, organise systematic outreach to the P5, and make fuller use of expert and civil society support. Several of the details raised in the consultations, including the difficulty of retrieving and checking already signed documents, may appear administrative. Even so, they point to a broader dynamic where small procedural weaknesses become more consequential because there is less margin for correction and less permanent capacity to absorb them.⁵⁸

The Central Asian zone does, however, have one compensating strength. Its legal and verification framework is comparatively demanding. All verification is carried out by the IAEA, and states parties are required to conclude both comprehensive safeguards agreements and an additional protocol. The treaty also binds the parties to act in accordance with the CTBT and to maintain effective standards of physical protection for nuclear material, facilities, and equipment.⁵⁹ This gives the zone a particularly strong safeguards profile and helps explain why respondents viewed it as a credible and serious arrangement even without a standing institutional body. In effect, Central Asia has relied on a more stringent verification structure to reinforce a lighter political architecture.

The protocol dimension appears somewhat less contentious than in some other regions, though not complete. Respondents noted that four of the five NWS have signed and ratified the protocol, while the United States has still not ratified it. Even here, the Central Asian setting has reduced some of the disputes that have complicated protocol politics elsewhere. Because the zone is landlocked, questions of transit and maritime navigation do not carry the same salience they do in Southeast Asia or the South Pacific. Early diplomatic obstacles over borders and scope appear to have been managed through a more restrictive territorial definition, which helped narrow friction during negotiation.⁶⁰ This may be one reason the protocol history of the zone has been less politically fraught than might have been expected for a region so close to two NWS.

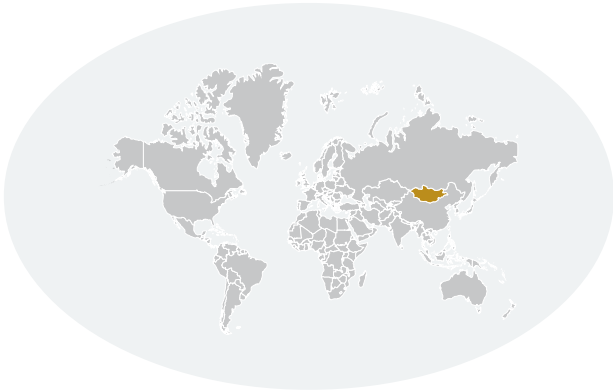
What the Central Asian case therefore offers is not an example of institutional maturity as is found in Latin America. Instead, it is a zone sustained through coordinated restraint, a strong legal and safeguards structure, and a continuing regional understanding that the return of nuclear weapons would be incompatible with the region's post-Soviet security architecture. Our consultations suggested that domestic public awareness of the zone is now lower than it was in the 1990s, which is itself a reminder that successful non-proliferation arrangements can become politically quieter over time.⁶¹ Yet that quiet should not be mistaken for irrelevance, as the Central Asian zone remains one of the clearest examples of a region using a relatively modest institutional form to lock in a major strategic choice.

Mongolia

FIGURE 7: Mongolia (1992)



MONGOLIA <i>Declared 1992</i>	
Region	Mongolia
Entered into Force	2000 (US, UK, France, China, Russia joint statement, A/55/530-S/2000/1052)



Mongolia occupies a different place in the wider nuclear-weapon-free landscape because its experience exposes a structural gap in the regime rather than simply a regional variation within it. The country's policy emerged from the security predicament of a single state situated between two nuclear-armed neighbours and shaped by the legacies of the Cold War. During that period, Mongolia hosted Soviet military bases and was therefore exposed to the possibility of becoming a nuclear target in any wider confrontation.⁶² After the Soviet withdrawal and the recovery of fuller political autonomy, Mongolia chose not to seek security through a nuclear umbrella. It chose instead to pursue protection through law, diplomacy, and international recognition of a nuclear-weapon-free policy. That decision remains one of the clearest cases in which a state outside the classic regional model attempted to translate non-nuclear status into a recognised element of its national security.

Our consultations were clear that Mongolia's initiative was conceived from the outset as both a self-protective measure and a contribution to wider nuclear risk reduction. That dual character matters, as Mongolia did not simply declare itself non-nuclear. It went further to demonstrate that a state excluded from the traditional group-state architecture could still pursue an organised and credible form of nuclear-weapon-free status. This was precisely where the NWFZ regime's conceptual limits became visible. The prevailing definition of NWFZs had been built around regional treaties among groups of states. Mongolia's case showed that this framework left little room for states that were landlocked, geographically isolated from an existing zone, strategically exposed, and otherwise outside both regional NWFZ structures and nuclear alliances.

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Mongolia explored whether its status could be linked to an existing regional arrangement, including what later became the Central Asian zone, but this proved unworkable on geographical and legal grounds.⁶³ It then raised the issue directly at the United Nations in 1992, thereby forcing a broader confrontation with the question of whether a single state could pursue a recognised nuclear-weapon-free status on terms broadly analogous to a treaty-based NWFZ.⁶⁴ While there was little overt objection to Mongolia's policy itself,⁶⁵ resistance came instead from concern among the NWS that recognition of a single-state arrangement might create precedent and complicate the existing architecture of regional NWFZs. One can infer that Mongolia was rejected because its policy exposed a conceptual and political gap that the wider regime was unprepared to address at the time.

Mongolia's answer was to construct as much of the substance of nuclear-weapon-free status as it could at the national level. Our consultations underlined the importance of domestic implementation in this regard. Mongolia adopted legislation, established export control and border-related measures, and built a legal framework that went in some respects beyond the baseline of the NPT.⁶⁶ The February 2000

Parliamentary Resolution law on Mongolia's nuclear-weapon-free status prohibited the stationing and transit of nuclear weapons and their components through its territory and applied obligations not only to the state but also to individuals, legal entities, and foreign actors.⁶⁷ Substantively, this brought Mongolia quite close to the commitments usually associated with treaty-based zones, even in the absence of a regional treaty of its own. This was reciprocated by the identical letters issued by the P5 on 27 October 2000.⁶⁸ The Mongolian case is important because it shows that the distinction between treaty-based and domestic legislative arrangements is not simply one of legal congruence, as Mongolia's position has been underwritten by national law and by concrete implementing measures.

Mongolia has sought for many years to obtain security assurances from the P5 comparable in substance, if not identical in form, to those extended to parties to traditional nuclear-weapon-free zone treaties. It did not succeed in securing legally binding assurances, but instead, achieved a more limited and more carefully framed outcome. The subsequent parallel declarations between Mongolia and the P5 in 2012 were politically meaningful, but they also did not create a treaty-based status and did not amount to recognition of Mongolia as a nuclear-weapon-free zone in the classic sense.⁶⁹ The wording was cautious, and the P5 explicitly treated Mongolia's case as unique rather than precedential.⁷⁰ A key takeaway from our consultations was that, while the political space for supporting Mongolia existed, the legal and doctrinal willingness to set a precedent was not.⁷¹

As a consequence, Mongolia now enjoys broad international recognition of its policy and has received repeated support through the General Assembly and the NPT review process. Yet, its status remains under-institutionalised, as it does not sit within a treaty organisation, and it does not benefit from the kind of legally binding protocol-based negative security assurances available to traditional zones. It therefore occupies an awkward but revealing middle ground, perceived as less than a fully institutionalised member of the treaty-based NWFZ regime. Our consultations suggested that this unresolved position is evidence of a wider weakness in the regime's present design. That wider weakness comes into focus when one looks beyond Mongolia itself. Respondents repeatedly returned to the number of states that do not fit easily within the existing architecture, such as landlocked states, neutral states, states in South Asia,⁷² and many small island states. These states are part of the contemporary strategic landscape, where several are geographically proximal to nuclear armed states, politically unaligned (i.e., outside NWFZs and nuclear umbrellas), or situated along routes and maritime spaces of increasing significance to major power competition. A key finding from our consultations was that the regime currently offers such states no recognised pathway comparable to that available to states within regional treaty processes. Mongolia's experience therefore reveals a structural blind spot, where the existing architecture is strongest where regional conditions allow classic group-state arrangements, but is weakest where contemporary strategic realities produce vulnerable states that fall outside that pattern.

Our consultations also suggested that the nuclear context in which these vulnerable states operate is less forgiving than the one in which the original concept of NWFZs was developed. Nuclear deterrence is increasingly entangled with conventional conflict, coercive signalling, and hybrid forms of pressure. The practical risk for such vulnerable states, lie in their being strategically exposed without a recognised and sufficiently credible framework of protection. NWS are generally unwilling to formalise stronger assurances for such states, while also maintaining that there is no real intention to threaten them. The result is a category of states that are asked to accept strategic vulnerability without being offered correspondingly serious assurances.

What Mongolia offers is a proof of concept, that shows how single-state nuclear-weapon-free status can be pursued seriously, legislated domestically, recognised politically, and treated as a contribution to regional confidence and non-proliferation. But, it also shows the limits of a NWFZ regime that still rests too heavily on assumptions drawn from the 1970s. The Mongolian case demonstrates that the regime is incomplete without some recognised pathway for states whose security circumstances do not permit entry into existing NWFZs. Mongolia's experience points to areas where that system may need to adapt if it is to remain relevant to contemporary strategic conditions.

LESSONS FOR REGIME ADAPTATION AND FUTURE ZONES

Institutional Continuity and Political Embeddedness

One of the clearest findings to emerge from the consultations is that the effectiveness of a nuclear-weapon-free zone depends on whether that treaty is carried forward by institutions, and political routines capable of sustaining it beyond the moment of signature. Institutional continuity is therefore the key determinant of whether a treaty remains visible, usable, and credible as the strategic environment around it becomes increasingly unstable. At the same time, our findings do not support a single institutional template. A more practical conclusion is that strong institutions matter, but they can take on multiple forms.

The Latin American and Caribbean experience remains the clearest example of what institutional continuity can achieve when it is properly embedded. OPANAL has given the Treaty of Tlatelolco a permanent political setting in which obligations can be interpreted, defended, and, where necessary, adapted in practice without reopening the treaty itself. OPANAL's importance lies in the fact that it has created a settled expectation that regional nuclear questions will be addressed collectively and in good time. Over the years, this has helped convert the treaty from a prohibition regime into a durable regional practice, supported by regular meetings, accumulated institutional memory, and a continuing capacity to absorb new issues without losing coherence. Tlatelolco therefore demonstrates the value of a standing body with a clear mandate, recognised authority, and enough continuity to keep the treaty politically alive.

The African experience points to the same lesson from the opposite direction. Pelindaba is broad in ambition, politically significant, and substantively rich, but the institution meant to carry that ambition forward remains under considerable strain. AFCONE has a real mandate and a growing role, yet our consultations repeatedly pointed to the distance between what it is expected to do and the means made available to do it. Its staffing needs reinforcement, institutional visibility is still shallow in many quarters, and the machinery for more sustained external engagement remains under resourced. None of this diminishes the importance of Pelindaba as a continental anti-nuclear stance, but it shows that normative ambition cannot indefinitely compensate for institutional weakness. A zone may continue to matter politically under such conditions, but the gap between purpose and capacity becomes more consequential as implementation demands widen and the external environment becomes more difficult.

The South Pacific and Southeast Asian cases point to a different and nuanced takeaway. Neither depends on a treaty-specific agency like OPANAL, yet neither can be described as institutionally empty. Rarotonga has endured through a hybrid arrangement in which the Pacific Islands Forum carries much of the political weight, while the treaty's own consultative machinery provides a more focused channel for coordination. Bangkok, similarly, has been sustained through ASEAN structures, annual review, and successive Plans of Action that have widened the practical life of the treaty beyond its original prohibitions. In both cases, the embeddedness of the zone in a larger regional political framework has been a source of strength. It has kept the treaty connected to wider regional concerns, rather than isolating it as a narrow disarmament instrument.

That said, our consultations also made clear that embeddedness alone is not enough. In the Pacific, respondents noted that the zone does not feature strongly in political consciousness except when meetings take place, and that resource and capacity constraints continue to shape what can be done in practice.⁷³ The legacy of nuclear testing remains powerful, but it cannot by itself substitute for continuity of institutional attention. This is why the Consultative Committee has become more important, as it offers a realistic way of strengthening operational continuity without creating a wholly separate agency that the region may neither want nor be able to sustain. The issue here, is whether the treaty has enough procedural support, enough memory, and enough regularity of engagement to remain useful when confronted by new demands.

A similar point applies in Southeast Asia. The Bangkok Treaty has been carried through ASEAN machinery with considerable success, and that embeddedness has allowed it to become part of the region's wider political fabric. Yet the same institutional form has also created limits, especially in relation to external engagement with NWS. Reliance on the annual ASEAN Chair has made continuity in protocol diplomacy more difficult than many states would prefer, particularly where the issue competes with wider regional priorities. This shows that political centrality and institutional continuity are not identical dynamics. A NWFZ can be well integrated into a wider regional structure and still require more consistent mechanisms if it is to sustain specialised diplomatic efforts over time.

Central Asia reinforces the same conclusion from yet another angle. The Central Asian zone has no standing treaty body, yet it has remained politically functional because the five states have sustained a relatively high tempo of consultation and because the treaty is anchored in a comparatively demanding safeguards structure. That model has worked better than a simple absence of institutions might suggest. It has enabled the zone to hold together through coordinated restraint, shared post-Soviet purpose, and a legal framework that gives unusual weight to verification. At the same time, the consultations made equally clear that this lighter form has real costs. The absence of a permanent coordination mechanism has weakened institutional memory, limited more systematic outreach to external actors, and made small administrative weaknesses harder to absorb. Central Asia therefore shows that lighter structures can work where political convergence is strong and obligations are clear, but also that such structures remain more exposed where continuity depends too heavily on rotating attention and informal practice.

In sum, these cases suggest that the risks of fragmentation of the present NWFZ regime have an institutional dimension. Some zones are carried by standing bodies with recognised political authority. Others depend on wider regional organisations whose remit extends well beyond the treaty itself. Others still rely on periodic consultation and limited administrative support. This diversity reflects the fact that the zones emerged in different strategic circumstances and were built through different political bargains.

But the risks to the wider regime emerge when zones lack enough institutional continuity to connect legal obligation with regular practice, or enough structure to respond to new pressures without unravelling. This is why the question of institutional minimum requirements is more useful than any search for a single ideal form. The comparative evidence points to a small number of critical institutional requirements.

Institutional Minimum Requirements:

1. A zone needs a recognisable focal point, whether that takes the form of a standing body, an embedded regional institution, or a regularised consultative mechanism with sufficient authority and continuity.
2. A zone needs routine opportunities for states parties to meet, review implementation, and raise concerns before those concerns harden into wider disputes.
3. A zone needs some means of preserving institutional memory and carrying work forward across staffing and political transitions.
4. A zone needs at least a minimal capacity to engage external actors, especially where protocol adherence remains incomplete or where extraterritorial conduct affects the integrity of the zone.
5. A zone needs a way of linking treaty commitments to safeguards practice, peaceful uses, and the wider governance questions through which the relevance of the zones is now increasingly tested.

The need for adaptation follows directly from this. The limits of the zones are likely to be tested more often in the coming years, by newer pressures linked to naval nuclear propulsion, environmental harm, legacy remediation, nuclear safety, and the changing geography of strategic competition. A zone that cannot absorb such issues without reopening its founding bargain is unlikely to remain effective for long. What matters, therefore, is not whether one region can reproduce the institutional design of another, but whether it has enough continuity and procedural flexibility to take up new questions in a way that remains regionally legitimate and politically sustainable. In the Pacific, for example, our consultations suggested little appetite for treaty renegotiation, even where new issues such as propulsion are beginning to pressure the zone. The more realistic path lies in strengthening interpretive and consultative practice within the existing framework, rather than attempting to reconstruct the treaty itself. That is a useful lesson. Adaptation is most likely to succeed where it builds on existing political and institutional habits, and where the additional support required is modest enough to be realistic.

What matters is not whether one region can reproduce the institutional design of another, but whether it has enough continuity and procedural flexibility to take up new questions in a way that remains regionally legitimate and politically sustainable.

This has implications for cooperation among the zones themselves. Our consultations suggested that inter-zonal cooperation remains politically appealing, but too often lacks a practical mechanism capable of carrying it forward between conferences or moments of diplomatic attention. Willingness to coordinate exists, but the absence of a light but reliable means of inter-zonal coordination inhibits this willingness. Minimal inter-zonal administrative support can sustain contact, organise agenda-driven exchanges, and preserve inter-zonal continuity without imposing significant new financial burdens. If institutional continuity is a determinant of effectiveness within the zones, continuity of inter-zonal coordination is increasingly becoming one between them as well.

NWFZs do not need to become more institutionalised in the same way, but institutional continuity is one of the conditions under which zones remain effective, flexible, and capable of strengthening over time.

- Tlatelolco shows the benefits of a standing body with deep regional roots and an established political role.
- Rarotonga and Bangkok show that embedded regional mechanisms can also sustain a zone, provided they preserve enough focus and continuity to remain operationally meaningful.
- Central Asia shows that lighter structures can work where political coordination is strong and safeguards are demanding, though not without clear limits.
- Pelindaba shows that institutional capacity must match treaty ambition.

Strong institutions matter because the practical limits of the zones are likely to be tested more directly in a harsher strategic environment. But strong institutions do not take one form. What matters is whether a zone has enough continuity, enough political ownership, and enough procedural capacity to keep its commitments alive under pressure, to adapt without losing coherence, and to remain credible when the environment around it becomes less forgiving. Where those conditions exist, zones can remain effective and can strengthen. Where they do not, even serious legal commitments are more likely to thin out over time.

The Role and Limits of Negative Security Assurances

The consultations suggest that negative security assurances remain important to the NWFZ regime, but that their importance is best understood within a wider politics of recognition and engagement. When the NWS sign and ratify a zone's protocols, they undertake not to use or threaten to use nuclear weapons against the parties. But beyond this, they recognise the zone as a legitimate security arrangement, accept that the region has chosen to organise its security on a non-nuclear basis, and place some measure of their own future conduct within a framework defined by others. In that sense, the protocols remain one of the principal ways in which regional denuclearisation is connected to the wider nuclear order. They are also one of the clearest indicators of whether the NWS are prepared to treat regionally defined restraint as something more than an internal preference among non-nuclear states.

That role should not be understated. Where the protocols have advanced furthest, they have helped reinforce the sense that the zone carries external recognition as well as internal legitimacy. They have also strengthened the diplomatic position of the parties by making clear that their regional status is not simply declaratory, but one that the NWS have, at least formally, accepted. Yet our consultations were equally clear that protocols do not exhaust the meaning of a zone, nor do they provide the only measure of its practical security value. In several regions, respondents described the more immediate gain as the entrenchment of non-nuclear status among neighbours, the reduction of mistrust, and the exclusion of nuclear weapons from local strategic competition. A zone may therefore be doing considerable security work even where protocol adherence is incomplete. The converse is also true. Formal recognition does not, by itself, resolve institutional weakness, political drift, or wider implementation problems, and the regional record illustrates this clearly.

A zone may therefore be doing considerable security work even where protocol adherence is incomplete. The converse is also true. Formal recognition does not, by itself, resolve institutional weakness, political drift, or wider implementation problems, and the regional record illustrates this clearly.

Tlatelolco remains the strongest case of external consolidation. Full protocol adherence by the recognised NWS has reinforced an already strong institutional and political settlement and has strengthened the authority of the Latin American and Caribbean position in wider disarmament diplomacy. At the same time, the consultations suggested that even this comparatively complete case has not removed the need for continued engagement. Interpretative declarations and residual disagreements remain politically relevant, and OPANAL has continued to treat them as matters requiring diplomatic attention rather than as settled history. This is worth stressing because it points to a broader lesson, that even where negative security assurances have been secured in their fullest existing

form, dialogue with the NWS remains necessary if those assurances are to retain political force and contemporary relevance.

The South Pacific presents a more qualified picture. Rarotonga has broad protocol signature, but not full ratification in practice, and several of the NWS have attached reservations that qualify the reach of their commitments. The result is a zone that is unquestionably real and politically important, yet still only partially recognised on the terms Pacific states would prefer. Our consultations suggested that this situation affects the quality of external recognition and leaves the region carrying more of the political burden itself. Yet, the Pacific experience also shows why dialogue matters as much as the legal endpoint. The region has continued to press the protocol issue over a long period, often without immediate return, because engagement with the NWS has been one of the few means available to keep the treaty's wider purpose visible: namely, that the Pacific should not be treated as a permissive strategic space, whether in light of its testing history, its anti-nuclear political identity, or newer concerns linked to strategic competition and naval nuclear propulsion. In this sense, the continuing dialogue around the protocols is itself part of the region's effort to defend the zone.

The African case is comparable in one respect and more difficult in another. Pelindaba also remains incomplete in protocol terms, most notably because the United States has still not ratified. Here, however, the significance of the gap is bound up with wider questions of territorial interpretation, external engagement, and institutional capacity. The consultations were clear that Africa lacks a sufficiently settled mechanism through which issues involving extraterritorial actors can be taken up consistently and credibly. Under those conditions, incomplete external recognition becomes harder to manage because the zone's own machinery is not yet strong enough to compensate. Pelindaba therefore illustrates a more difficult combination: a treaty of considerable normative and substantive ambition, partial recognition by the NWS, and an implementing body that is still consolidating its role. In such a setting, the importance of dialogue becomes even more pronounced, precisely because the legal outcome remains unfinished and the institutional means for pursuing it remain relatively weak.

Southeast Asia presents a different need for external engagement with NWS. The Bangkok Treaty is distinct because it is the only existing treaty-based zone for which the NWS have not provided negative security assurances through the protocol at all. Yet, the treaty has become part of ASEAN's institutional and political fabric, and respondents consistently described the zone as internally stable and effective in preserving the region's nuclear-weapon-free status. The difficulty lies instead in the unresolved relationship between ASEAN's ambitions and the strategic preferences of the NWS.⁷⁴ The result is a region that has organised itself on a nuclear-weapon-free basis without yet securing the legally binding external assurances that should, in principle, accompany that choice. Here again, the consultations pointed less to the absence of diplomacy than to the difficulty of diplomacy. Engagement with the NWS has continued, but the central disagreements touch questions of navigation, military mobility, and strategic flexibility for outside powers. The value of dialogue is in making clear that the obstacle is political and treaty-specific, not a lack of seriousness on ASEAN's part.

The Central Asian case shows that protocol politics need not always be so contentious, though that is not because the region lacks strategic importance. On the contrary, the zone borders two NWS and emerged in a region with a direct nuclear legacy. Yet clearer territorial limits, fewer transit disputes, and a comparatively strong safeguards structure appear to have made external recognition easier to secure than elsewhere. Four of the five NWS have signed and ratified the protocol, while the United States has

still not ratified. This remains incomplete, but the politics around it have been less obstructive than in Southeast Asia or the South Pacific. Central Asia therefore suggests that where scope is more tightly defined and verification is strong, external recognition may be easier to secure even in a strategically sensitive setting. Even so, the point remains that partial legal recognition does not remove the need for continued political engagement, especially where one ratification remains outstanding and where the zone lacks a strong standing mechanism for managing its external relationships.

Mongolia exposes the limits of the present architecture most clearly, and in doing so sharpens the distinction between the value of NSAs and the value of engagement with the NWS. Mongolia's difficulty has never been the absence of political sympathy. It has been the unwillingness of the NWS to extend to an individual country the kind of legally binding assurances associated with treaty-based regional zones. The reasons given were consistent over time: concern about precedent, and reluctance to move beyond the traditional group-state model.⁷⁵ Yet the Mongolian experience also shows that dialogue with the NWS can still produce politically meaningful outcomes even where the legal ceiling remains low. Mongolia explored multiple formats over many years, including a trilateral arrangement with its neighbours, wider multilateral formulas, and a possible Security Council role.⁷⁶ None produced treaty-based assurances. What they did produce, however, was a more qualified but still significant form of recognition, reflected most clearly in the 2012 parallel declarations. Those declarations did not amount to recognition of a legally binding nuclear-weapon-free status, and they were carefully framed so as not to create precedent. Even so, they showed that sustained engagement could yield softer forms of reassurance, acknowledgment of Mongolia's policy, and undertakings that, while politically weaker than formal NSAs, were not without value. Several broader conclusions follow from this analysis.

- 1.** Firstly, negative security assurances remain important because they are the clearest form of external recognition available to most zones and because they give legal and political substance to the claim that a region's non-nuclear choice should be respected by the NWS.
- 2.** Secondly, incomplete protocol adherence does not render a zone ineffective. Regional denuclearisation can remain politically robust and strategically meaningful even where the external assurance structure is weak, delayed, or qualified.
- 3.** Thirdly, dialogue with the NWS is often the more concrete and consistently available instrument, because it is through that dialogue that reservations are contested, interpretative positions are tested, and the wider security contribution of the zones can be argued in terms the NWS may eventually be prepared to accept.

The wider lesson is therefore a note of caution. NSAs remain important, and in some cases, they are indispensable, because they confer legitimacy, reduce ambiguity, and help connect regional denuclearisation to the conduct of the NWS. Yet the comparative record also shows that the practical politics of external recognition are carried forward less by the protocols alone than by the continuing effort to engage the NWS on what those protocols mean, why they matter, and how regional restraint should be reflected in their conduct. The regimes that have advanced furthest have not done so because legal instruments alone settled the matter. They have done so because the legal instruments were supported by continuing diplomacy. That is likely to remain true as the strategic environment becomes harsher and as the zones are asked to defend their relevance under more difficult conditions.

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Inter-Zonal Coordination and the TPNW

Our consultations suggest that the present NWFZ regime is stronger than is often assumed at the regional level, but weaker than it should be at the systemic level. Existing NWFZs remain functioning regional arrangements, in some cases with considerable political depth, institutional continuity, and practical relevance. Yet the regime they collectively comprise is still marked by two connected weaknesses. The first is its structural incompleteness. The regime does not adequately accommodate states and strategic spaces that fall outside the traditional model on which it was built. The second is fragmented coordination: existing NWFZs do not yet operate with enough sustained contact, shared agenda-setting, or institutional follow-through to function as a more coherent system. And, these weaknesses reinforce one another.

The first of these weaknesses lies in the regime's underlying architecture. The model that continues to shape most thinking about NWFZs is still largely a first-generation one, built around group-state arrangements established by regional treaty among states that are geographically contiguous and politically able to organise themselves on that basis. That model remains valid for the zones already in existence. It does not, however, cover the full range of contemporary strategic realities. As earlier discussed, Mongolia is the clearest example, where its experience shows that a state may be serious about pursuing a recognised nuclear-weapon-free status, yet still find no recognised pathway into the existing architecture because it does not fit the treaty-based regional form. The issue here is that the regime remains institutionally most comfortable with those cases that resemble the assumptions on which it was originally designed.

The wider implication is that the regime contains blind spots at its edges. Our consultations repeatedly returned to the number of states that do not fit easily within the present architecture as earlier discussed. These states are increasingly relevant to a strategic environment in which geography, maritime access, and proximity to NWS matter greatly. Yet the regime offers them no settled pathway comparable to that available to states able to form part of a classic regional NWFZ treaty. This is also the point at which the relationship between NWFZs and the Treaty on the Prohibition of Nuclear Weapons (TPNW) becomes more relevant. For many states outside existing zones, the TPNW is attractive precisely because it offers entry into a global prohibition framework where the NWFZ regime offers no clear place. It allows states that cannot join a regional zone to align themselves with an international legal and normative position against nuclear weapons, and in that respect it helps explain why support for the TPNW has been particularly strong among states whose security outlook is shaped by non-possession, humanitarian concern, and resistance to nuclear deterrence-based security architectures.⁷⁷ In political disposition, Mongolia is closer to this community than to states under nuclear umbrellas that accept nuclear deterrence as a normal feature of security.

At the same time, our consultations and the wider material suggest that the TPNW does not resolve the specific structural problem identified here. It provides a global prohibition framework, but it does not provide the kind of regionally grounded security architecture, nor the external recognition by the NWS that have given the zones much of their distinct value. Membership of the TPNW does not engage the politics of recognition in the same way, because the NWS have not accepted its legitimacy as a framework governing their own conduct. The treaty may therefore reduce political isolation for states outside NWFZs, but it does not answer the question of how a state or group of states secures meaningful

external acknowledgement of a non-nuclear status under conditions of strategic exposure. This is why the TPNW should be understood as adjacent to the problem of structural incompleteness, but not as its substitute. NWFZs and the TPNW therefore should not be collapsed into a single legal framework. They operate on different legal and institutional tracks, even if they share a broader purpose in seeking to narrow the political space in which nuclear weapons possession or use is treated as acceptable.

The second weakness lies within the regime itself. Even among the zones that do exist, coordination remains episodic, under-institutionalised, and too dependent on specific meetings and short-lived diplomatic moments. Our consultations suggested that cooperation among the zones is widely seen as desirable, and in some cases increasingly necessary, but that it still lacks a sufficiently practical mechanism through which common concerns can be carried forward between formal gatherings. This matters because the zones now face several pressures that are no longer purely regional in character, including questions of treaty scope and transit, legacy nuclear harm, environmental contamination, and the growing challenge of maintaining institutional coherence under harsher strategic conditions. These are not identical problems across all zones, but they are close enough that the present level of coordination looks weaker than the moment requires.

Each NWFZ has developed ways of functioning regionally, but the regime still behaves more like a set of parallel arrangements than like a connected architecture.

The weakness here points to the absence of a connective, coordinating body. Each NWFZ has developed ways of functioning regionally, but the regime still behaves more like a set of parallel arrangements than like a connected architecture. And this matters for the relationship with the TPNW as well. Another reason the TPNW has become a point of convergence for many non-nuclear states: it provides a multilateral political platform that the NWFZ regime has not built for its own members. This helps explain the attraction of the TPNW even where the NWFZ system remains the more developed source of regional practice, and that can produce a degree of functional conflation. On one hand, the TPNW offers a visible forum and a common diplomatic language through which non-nuclear states can organise collective positions, and that overlap may be useful when states want to consolidate messaging across different strands of anti-nuclear diplomacy. Even so, the two regimes do not occupy the same place in the wider nuclear order, and conflating NWFZs with the TPNW obscures what stronger inter-zonal coordination could uniquely achieve. Unlike the TPNW, the zones have secured a degree of recognition from, and engagement with NWS. That recognition remains partial, but it gives the zones a distinct practical value, as they remain among the few frameworks through which NWS and non-nuclear states can constructively engage on contentious issues.

That is where fragmentation has practical consequences. It makes collective action harder when common interests are at stake, and leaves issues requiring treaty-specific engagement with nuclear-weapon states to be handled in separate tracks. These include negative security assurances, maritime scope and transit, naval nuclear propulsion, territorial application, protocol accession, and extraterritorial questions involving overseas territories or disputed spaces. Fragmentation also weakens coordination in areas where the zones hold practical experience that the TPNW does not replicate in the same way,

including safeguards implementation, reporting practice, and the governance of nuclear technologies for peaceful purposes. A more connected system would be better placed to consider how single-state or small-group arrangements might be recognised, how incremental pathways into nuclear-weapon-free status could be articulated, and how common positions might be developed before emerging pressures harden into separate regional disputes. A fragmented system is more likely to remain reactive and zone specific at precisely the moment when a broader strategic imagination is needed.

Our consultations also suggest, however, that the answer is unlikely to be a burdensome new institutional architecture. What is needed instead, is some form of light and sustained coordination capable of preserving contact, organising agenda-driven exchange, and carrying work forward between conferences or diplomatic cycles. Several respondents pointed to the United Nations Office for Disarmament Affairs (UNODA), by expressing interest in a mechanism linked to their secretariat, noting that inter-zonal conferences alone cannot sustain cooperation.

LESSONS FOR NUCLEAR-WEAPON-STATE ENGAGEMENT WITH NUCLEAR-WEAPON-FREE ZONES

Proactive Engagement is a Risk Reduction Measure

NWS should pro-actively approach nuclear-weapon-free zones, recognising zones as the practical security infrastructure through which large parts of the international system have kept nuclear escalation at bay. The zones do not remove the wider risks created by deterrence, rivalry, or nuclear modernisation. They do, however, reduce the number of regions in which those pressures can be translated into deployment, basing, hedging, or local nuclear competition. NWFZs are a form of organised restraint, and they serve the interests of NWS as well as zonal members, because they narrow the number of theatres in which nuclear dangers may have to be managed in crisis conditions.

NWS engagement with zones should be understood as a risk-reduction activity in its own right.

In this vein, engagement with zones should be understood as a risk-reduction activity in its own right. Where a zone is politically accepted, institutionally credible, and externally respected, it helps stabilise regional expectations and reduces the likelihood that escalating nuclear competition will be pulled into regional theatres. Our consultations also suggested that dialogue with NWS is not experienced uniformly across the regime. Some NWS were described as more consistent, more accessible, and more willing to engage the practical concerns of zones than others, particularly where the discussion moved beyond abstract support and into treaty-specific questions.⁷⁸ Support for zones should therefore be framed as a means of preserving restraint in regions where the consequences of erosion would be costly for all concerned. The more unstable nuclear deterrence theatres are, the stronger this argument becomes.

Additionally, nuclear-weapon-state engagement should not end at protocol signature or declaratory support. In several regions, it is equally important that NWS are willing to treat the zones as living arrangements requiring continued dialogue, political attention, and a degree of practical support. Where implementation bodies are under-resourced, where reporting burdens are growing, or where new technologies create strain, the question is not only whether the treaty remains in force, but also whether the zone continues to function as intended. Therefore, capacity building, technical exchange, and serious political engagement with NWFZs should be seen as part of NWS' responsibility toward practical risk reduction, rather than as optional extras.

Generic engagement is insufficient

A second implication is that NWS should move away from generic language of support for NWFZs and adopt a more treaty-specific approach to engagement. Our consultations make clear that the obstacles to fuller recognition are not uniform. In Southeast Asia, the central difficulty lies in the Bangkok Treaty's maritime scope, including its application to continental shelves and exclusive economic zones, together with the way negative security assurances are formulated within that wider zone of application. In other regions, the central issues are different, clustering instead around transit, territorial interpretation, operational flexibility, or the relationship between treaty language and NWS' strategic flexibility. A uniform diplomatic posture therefore obscures real problems rather than resolving them.

NWS need more disciplined clarity about where their security concerns actually lie, and where zone members' own concerns about recognition, vulnerability, or regional integrity remain insufficiently understood in return.

NWS need more disciplined clarity about where their security concerns actually lie, and where zone members' own concerns about recognition, vulnerability, or regional integrity remain insufficiently understood in return. That means taking treaty texts seriously on their own terms, engaging the institutions or political mechanisms through which each zone is carried, and being more explicit about which objections are legal, which are operational, and which are simply political preferences preserved through long-standing positions that have not yet been systematically revisited in light of current conditions. Greater clarity would not eliminate disagreement, but it would at least reduce the present situation in which many of the most important differences remain unexplored.

This is especially important in zones where the divergence in subjective security understandings has widened over time. The Bangkok case is the clearest example. ASEAN treats the treaty as an expression of regional security and autonomy, while NWS have continued to approach the protocol chiefly through the lens of navigation, mobility, and strategic flexibility. This points to unresolved inter-subjective understandings of what the zone is for. A more serious treaty-specific engagement would therefore require NWS to recognise the political and security logic that produced a treaty in the first place, rather than responding only to the clauses they find constraining.

NSAs as a starting point

Negative security assurances remain important because they are the clearest expression of external recognition available to most zones. They reduce ambiguity, strengthen legitimacy, and signal that a region's non-nuclear choice will be respected by the states whose conduct matters most to the wider nuclear order. Where protocols remain outstanding, NWS should treat ratification seriously and avoid allowing years of delay to become a substitute for (or the de-facto) policy. The continuing incompleteness of protocol practice in the South Pacific, Africa, and Central Asia, and its total absence in Southeast Asia, weakens the reciprocity between NWS and NNWS that protocols were designed to express.

At the same time, the useful diplomatic work often lies in the continuing dialogue around protocols. Interpretative declarations, reservations, doctrinal caveats, and shifting understandings of NWFZ scope do not disappear simply because a protocol has been signed, nor do they become irrelevant where signature remains blocked. NWS should therefore treat dialogue on protocols and assurances as a standing track of engagement rather than as something to be revisited only when ratification becomes politically convenient. That applies especially where zones themselves are asking not only for formal adherence, but for more clarity about how the NWS understand their obligations in present conditions.

Some of the caveats that still shape NWS language on negative security assurances were framed in very different strategic conditions and continue to cast a longer shadow than may now be justified.

This is also where declaratory policy matters. Some of the caveats that still shape NWS language on negative security assurances were framed in very different strategic conditions and continue to cast a longer shadow than may now be justified. A useful step, even where formal legal change remains difficult, would be for NWS to review whether inherited reservations, interpretative positions, or doctrinal formulas still correspond to the strategic realities they claim to be addressing. In several cases, our consultations pointed less to an absence of contact than to a lack of serious re-examination. A more candid dialogue on these older formulations would itself be a confidence-building measure.

Mongolia offers a useful reminder that the choice is not simply between full treaty-based assurances and no meaningful engagement at all. The P5 were unwilling to move to a treaty form, but sustained contact still yielded politically meaningful declarations that committed them to cooperate with Mongolia, to respect its status, and not to contribute to any act that would violate it. Those commitments remain softer and more limited than the protocol-based assurances available to traditional zones, but they show that dialogue can still produce substantive reassurance where the legal ceiling remains low. NWS should therefore avoid treating non-treaty cases as outside the field of meaningful recognition altogether.

Supporting pragmatic inter-zonal coordination

NWS should value sustained inter-zonal coordination. At present, the zones cooperate, but with limited regularity and institutional support to operate as a more coherent system. Yet many of the pressures now testing them are no longer purely regional. Reservations to protocols, naval nuclear propulsion, technical capacity shortfalls, environmental and transboundary nuclear risk, and questions of interpretation all have cross-regional relevance. There is therefore a strong case for supporting lighter, more regular forms of inter-zonal exchange through existing multilateral venues rather than trying to construct a heavy new architecture from scratch.

NPT PrepComs, Review Conferences, UNGA First Committee, and UNODA-linked processes should be used more deliberately as venues through which zones can compare practice, develop common positions, and engage NWS in a more structured way.

For NWS, the practical recommendation is modest but important. NPT PrepComs, Review Conferences, UNGA First Committee, and UNODA-linked processes should be used more deliberately as venues through which zones can compare practice, develop common positions, and engage NWS in a more structured way. That would help strengthen the multilateral voice of the zones, including those implementation bodies that speak for large groups of states but still have limited standing in wider nuclear diplomacy. It would also give NWS a more regular channel through which to hear regional concerns before they harden into wider political grievance. This should remain distinct from the politics of the TPNW. One of the advantages of stronger NWFZ-centred coordination is precisely that it offers a separate and often more politically accessible channel of engagement, one that has historically attracted greater recognition from NWS than the prohibition treaty itself. A more active NWS role in enabling such coordination could therefore help preserve a space for practical dialogue on regional restraint even under conditions where wider nuclear diplomacy is more fractured.

Naval nuclear propulsion, maritime sensitivities, and the politics of treaty spirit

A final implication concerns naval nuclear propulsion and the politics of treaty “spirit”.⁷⁹ In both the South Pacific and Southeast Asia, AUKUS has shown that even where a zone’s text does not clearly prohibit a particular activity, outside powers can still be seen as testing the political meaning of the zone. For many regional actors, AUKUS is not only a safeguards question, it is also a question of whether such arrangements sit comfortably with the anti-nuclear purpose of the zone and with the historical experience from which that purpose derives. In the Pacific, that wider reading remains closely tied to the idea of a nuclear-free Blue Pacific and to continued efforts to operationalise the Treaty of Rarotonga as a living regional commitment.

The position of Australia, the United Kingdom, and the United States has, however, been clear. They have maintained that Australia remains fully committed to the Treaty of Rarotonga, that AUKUS is consistent with Australia’s obligations under that treaty, and that the programme will proceed under Australia’s safeguards commitments with the IAEA.⁸⁰ The issue is therefore better understood as one of perception and reassurance than of legal compatibility. AUKUS partners present the arrangement as lawful and treaty compatible, but that appears insufficient in a region where anti-nuclear identity, environmental harm, and suspicion of great-power military competition remain deeply embedded. That is why the debate has often turned on the treaty’s “spirit” as much as on its formal legal scope.

Political legitimacy in these regions depends on more than strict legal defensibility. Once a regional perception takes hold that a treaty’s purpose is being ignored, formal arguments about compatibility may no longer be enough.

NWS should engage such zones earlier, more transparently, and with greater sensitivity to how regional actors understand both the letter and the spirit of their treaties. That means engaging the relevant regional bodies before arguments harden, providing more specific reassurance on issues such as waste, safety, safeguards, transit, and militarisation, and recognising that political legitimacy in these regions depends on more than strict legal defensibility. Once a regional perception takes hold that a treaty’s purpose is being ignored, formal arguments about compatibility may no longer be enough. Here, voluntary transparency and confidence-building measures deserve more serious attention. Respondents suggest that additional verification activity, or self-initiated transparency measures may in some cases help reassure regional partners that newer applications of nuclear technologies do not cut against treaty commitments. NWS and their close partners should not wait for formal disputes before considering how reassurance might be operationalised in practice.

Taken together, these implications point to a modest conclusion. NWS do not need to adopt the political worldview of the zones in order to engage them more effectively. They do, however, need to recognise that the zones are critical to maintain the architecture of nuclear restraint, and they now sit at the intersection of some of the most difficult questions in contemporary nuclear politics. This is a contemporary era where the value of NWS assurance and dialogue increases in direct proportion with intensifying strategic competition, accelerating technological change, and the declining credibility of multilateral governance. More serious, treaty-specific, and forward-looking engagement by NWS would be a much-needed form of practical risk reduction in an international environment that is becoming more unforgiving.

CONCLUSION

NWFZs have become durable mechanisms of regional security governance through which nuclear restraint has been organised, preserved, and, in several cases, adapted to changing strategic conditions. Their importance lies in the broader political and institutional work they continue to perform, even as they maintain the baseline legal prohibitions of nuclear weapons within defined territories. NWFZs keep nuclear competition out of regional security practice, reduce uncertainty among neighbours, reinforce habits of consultation and cooperation, support safeguards and peaceful nuclear governance, and are among the more durable forms of nuclear risk reduction in an increasingly unstable international environment.

At the same time, our consultations have shown that the present regime is uneven in ways that now matter more than they once did. Institutional continuity remains one of the clearest determinants of whether a zone can remain politically active, operationally credible, and responsive to new pressures, even if that continuity takes different forms across regions. Negative security assurances continue to matter because they provide external recognition and help connect regional restraint to the conduct of the NWS, but their value depends as much on sustained dialogue and political follow-through as on formal protocol status alone. The regime also remains structurally incomplete. Mongolia's experience, and the wider discussion of strategically exposed states, shows that the classic group-state model does not cover the full range of contemporary security realities. Relatedly, existing zones do not yet coordinate with one another regularly enough to function as a more coherent system capable of sharing practice, responding collectively to common pressures, or shaping the wider environment with sufficient consistency.

The task ahead goes beyond simply preserving what already exists, important though that is. The task is to strengthen the zones as living arrangements, to be better institutionalised where necessary, more capable of adaptation under changing strategic conditions, better connected to one another, and more fully recognised as practical security instruments rather than symbolic expressions of regional preferences. That requires clearer thinking about future zone design, more consistent support for implementation and coordination, and more serious engagement by NWS with the security logic that the zones embody. Without these efforts, the regime will remain stronger in its regional parts than in its overall architecture. With improvements, NWFZs can serve as active reinforcers of the wider non-proliferation order and as one of the more credible means through which regional and global nuclear risks can still be contained.

Endnotes

- 1 Corresponding author osamuel@paxsapiens.org
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