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The Treaty on the Prohibition of Nuclear Weapons (TPNW): Innovation in nuclear disarmament or an innocuous effort?

O Tratado sobre a Proibição de Armas Nucleares (TPAN): inovação no desarmamento nuclear ou esforço inócuo?

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Marcos Valle Machado da Silva
Escola de Guerra Naval, Rio de Janeiro – RJ, Brazil (mbvalle2002@yahoo.com.br)
ORCID ID: orcid.org/0000-0003-0367-8899

Resumo

O Tratado sobre a Proibição de Armas Nucleares (TPAN) foi aberto para assinaturas em 2017, e em outubro de 2019 o tratado tinha 79 signatários. No entanto, nenhum Estado Nuclearmente Armado assinou o tratado. Este artigo argumenta que o TPAN é tanto uma inovação no regime de não proliferação de armas nucleares quanto um tratado inadequado para atingir seu objetivo devido à falta de apoio das grandes potências do sistema internacional, bem como à ausência dos principais países capazes de determinar ou influenciar o sistema internacional em questões relacionadas a armas nucleares. Na primeira seção do artigo, o escopo e os objetivos do tratado são abordados, e a seção seguinte apresenta uma análise dos perfis dos signatários do TPNW. A última seção contém uma visão prospectiva do tratado.

Abstract

The Treaty on the Prohibition of Nuclear Weapons (TPNW) was opened for signature on 2017, and in October 2019 the treaty had 79 signatories. However, no one Nuclear-Weapon State has signed the treaty. This article argues that the TPNW is both an innovation in the nuclear nonproliferation regime and a treaty that is unfitted to achieve its objective due the lack of support from the major powers of the international system, as well as the absence of the main countries that could determine or influence the international system on issues related to nuclear weapons. In the first section of the article, the scope and objectives of the treaty are addressed, and the following section presents an analysis of the profiles of the TPNW signatories. The last section contains a prospective view of the treaty.

Palavras-chave: Tratado sobre a Proibição de Armas Nucleares (TPAN); Desarmamento; Armas Nucleares; Não-proliferação.

Keywords: Treaty on the Prohibition of Nuclear Weapons; Disarmament; Nuclear weapons; nonproliferation.

Introduction

After the *2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT)*, the humanitarian dimension of and the risks associated with nuclear weapons come to the attention of a large number of academics and organizations concerned with nuclear weapons. This was reflected in fora as the United Nations, culminating in three conferences on the Humanitarian Impact of Nuclear Weapons held between 2013 and 2014: Oslo (March 2013), Nayarit (February 2014) and Vienna (December 2014) (See Austria, 2014). The Treaty on the Prohibition of Nuclear Weapons (TPNW) is the result of a process initiated with these Conferences. This process was consolidated on December 5, 2016, when the United Nations adopted resolution A/RES/71/75, in which the General Assembly addressed the issue of an international convention on the prohibition of the use or threat of the use of nuclear weapons.

By this Resolution, the General Assembly expressed the desire of the majority of the U.N member states to start negotiations on a legally binding instrument to prohibit the development, production, stockpiling, and use of nuclear weapons aiming its full eradication.

On December 23, 2016 the General Assembly adopted Resolution A/RES/71/258, which "Decides to convene in 2017 the United Nations Conference to negotiate a legally binding instrument to ban nuclear weapons, leading towards their total elimination."

In this same resolution, the General Assembly decided that the proposed conference would be held in two rounds: from March 27 to 31 and from June 15 to July 7, 2017. However, the Nuclear-Weapon States[1] (NWS) — *de facto* and *de jure* — and most of their allies chose not to join in the negotiations and works.

After these two rounds of negotiations (March 27–31, 2017 and June 15–July 7, 2017) at the UN General Assembly, the TPNW was adopted on July 7, 2017 by a vote of 122 states in favor, with one vote against — the Netherlands — and one abstention — Singapore (UNODA, TPNW, Treaty Overview). It is worth noting that all the NWS boycotted the two rounds of negotiation and works, as did many countries that rely to some degree on nuclear deterrence for security and defense.

The TPNW was opened for signature on September 20, 2017, with 50 Signatory States. A seemingly promising start to a treaty focused on one of the hottest issues in international relations.

The TPNW has reinvigorated the debate on nuclear disarmament. To its supporters, it is a normative advance that stigmatizes the development and possession of nuclear weapons (Sauer, 2016) and could lead to international pressure to compel the NWS to conform to "the new global norm" and begin actions to eliminate their nuclear weapons (Perkovich, 2017). On the other hand, the criticisms of the TPNW are many and can be summarized in the explanation of a joint vote, against

1 According to Article IX, item 3 of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), "a nuclear-weapon State is one which has manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967 ". Therefore, USA, Soviet Union, (now Russia), United Kingdom, France and China are Nuclear-Weapon States *de jure*. However, Israel, India, Pakistan and North Korea are also Nuclear-Weapon States *de facto*. (See, UNODA. *Treaty on the Non-Proliferation of Nuclear Weapons – NPT, Text of the Treaty*. <https://www.un.org/disarmament/wmd/nuclear/npt/text/>. Accessed on July 19, 2019).

the resolution L.41 of the First Committee of the U.N. General Assembly[2], made by representatives of France, the United Kingdom, and the United States, on October 27, 2016:

> This proposed ban fails to take into account the requisite security considerations and this will not eliminate nuclear weapons. It will contravene a consensus-based approach, which for several decades has been able to allow us to implement and strengthen the NPT regime with its three pillars, and this will deepen the divide amongst NPT states' parties who are committed to pursuing a world without nuclear weapons (France, United Kingdom & United States, 2016).

Despite these complaints and absentees, the TPNW was adopted on July 7, 2017, and, by October 13, 2019, the treaty had 79 signatories, 32 of which ratified it (UNODA, TPNW, Status of the Treaty). However, no NWS has signed the treaty. In addition, only 5 of the 33 countries that use nuclear power reactors for electricity generation have signed the TPNW. This means that the countries that actually use nuclear energy, mainly for peaceful purposes, did not join the TPNW. In this context, it may be questioned: Could an international treaty that aims the total elimination of nuclear weapons – but does not have participation of any NWS nor the main countries that can determine or influence the international system on this subject – has the chance to reach its goals? What is the involvement of the Signatories States of this treaty with nuclear power?

These questions led to the main question of the paper: Is the TPNW an innovation capable of driving the nuclear disarmament agenda, or is it a politically correct but innocuous effort?

Theories related to whether international treaties without support of the major powers[3] may have their goals achieved are central to this paper. The issue is part of the debate on the success possibility of multilateral new norms and treaties contrary to the interests of the major powers and most powerful states in the international system. Some International Relations theories as the realism and the institutionalism – and its variants – consider that the international cooperation is drove by the powers with military, economic, and diplomatic resources to manage and enforce it (See Ikenberry and Kupchan 1990; and De Nevers 2007).

Therefore, according to these theories, for a multilateral treaty to be able to achieve its objectives, it must have the support of these predominant actors in the international system.

On the other hand, constructivist theorists argue that multilateral treaties, even without support of the major powers, may serve as effective instruments for the promotion of new norms in the international system (See Brunnée and Toope 2010; and Bower, 2017).

In his book entitled *Norms without the Great Powers: International Law and Changing Social Standards in World Politics* (2017), Adam Stephen Bower examines treaties that have been concluded without great powers support and evaluates their success regarding the proposed, changed or discarded

2 It is worth noting that Resolution L.41 led to the already mentioned Resolution A/RES/71/258 adopted on December 23, 2016, in which the General assembly decided "to convene in 2017 the United Nations Conference to negotiate a legally binding instrument to ban nuclear weapons, leading towards their total elimination."

3 By "major power" or "great power" I mean the small group of states "that can, alone, exercise a large, perhaps decisive, impact on the international system" (Keohane, 1969, pp. 296).

norms in their goals. The author analyzes the Mine Ban Treaty (MBT) and the Rome Statute of the International Criminal Court (ICC) as case studies in which multilateral treaties were negotiated, opened for signatures, and entered into force without the support of major powers. According to Bower, both treaties reshaped expectations and behavior in their respective domains, and their respective norms were internalized even by the non-Signatory States.

It is worth noting that the MBT was opened for signature in 1997, and as of October 2019, 164 countries have ratified the treaty (UNTC, MBT Treaty). The ICC was adopted in 1998, and in 2019, 137 countries signed it (UNTC, ICC Statute). The two treaties were negotiated, opened for signature and entered into force with no support from countries such as USA, Russia, China and India, but with support from France and the United Kingdom, as well as most European countries and Japan, Canada, Australia and others.

In this sense, considering that the permanent members of the United Nations Security Council are major powers, in both cases – the MBT and the ICC – there were at least two major powers as signatories (France and UK), as well as a large number of countries with political, economic and military weight. In other words, the MBT and ICC were born with the support of countries capable of significantly influencing the international system.

In this context, as a counterpoint to the optimist view defended by Bower, it is argued that the TPNW is both an innovation in the nuclear nonproliferation regime and a treaty that is unfitted to achieve its objective due the lack of support from the major powers of the international system, as well as the absence of the main countries that could determine or influence the international system on issues related to nuclear weapons.

To pursue answers to the proposed question and corroborate the formulated assumption, this paper proceeds in three steps. Firstly, it summarizes the scope and objectives of the treaty. Secondly, it presents an analysis of the profiles of the TPNW signatories, the analytical axes of which are their involvement with nuclear power and their ability to influence the international system on issues related to nuclear weapons. The third section contains a brief synthesis of the major absent states – non-signatories – and a prospective view of the treaty in light of its scope and current Signatory States.

In summary, the paper contributes to the studies on nuclear disarmament, focusing on the TPNW and underlying the debates and studies on the banning of nuclear weapons. Quality studies have already been produced in relation to the question of the legitimacy of nuclear weapons and the ways in which they can be proscribed (see Perkovich and Acton, 2009). However, there is still a lack of studies on the TPNW and its contribution, or irrelevance, to the issue, mainly because it is a recent treaty, and its impact has not yet fully manifested and whose chances of success are yet to be discussed and assessed. It is in this context that this study is presented.

Following these introductory considerations and before beginning the above-mentioned sections, it is important to address some concepts used in the text, that is, to define some of the lexicon used here, mainly the typology used to classify states in relation to their ability to influence the international system.

Robert Keohane presented a typology for classifying states with a focus on the systemic role of states. According to this, Keohane (1969, pp. 295–296) points out that States are positioned in one of the following categories:

— ***System-Determining States:*** encompasses the states that play "a critical role in shaping the system". Good examples of this kind of state are the USA and the USSR during the time of the bipolar system in the Cold War years.
— ***System-Influencing States:*** constituted by those states which cannot be expected to dominate the system but may nevertheless be able "to influence its nature through unilateral as well as multilateral actions".
— ***System-Affecting States:*** formed by those states that cannot affect the system acting alone but can "nevertheless exert significant impact on the system by working through small groups or alliances or through universal or regional international organizations."
— ***System-Ineffectual States:*** in which are found the "states that can do little to influence the system-wide forces that affect them." Keohane (1969, pp. 296) emphasizes that for these system-ineffectual states "foreign policy is adjustment to reality, not rearrangement of it."

This typology, which was published in 1969, may seem outdated. However, it fits in perfectly with the objectives of this paper, especially for the analysis of the profiles of the TPNW signatories and their ability to influence the international system on issues related to nuclear weapons.

Once having made these introductory considerations, which are intended mainly to define the lexicon used in this paper, the following section will start to address the scope and objectives of the TPNW.

The scope and objectives of the TPNW

The text of the TPNW consists of a preamble and 20 articles (UNODA, TPNW, Text of the Treaty). The preamble of the TPNW presents a humanitarian approach and emphasizes concern not only "about the catastrophic humanitarian consequences that would result from any use of nuclear weapons", but also the "risks posed by the continued existence of nuclear weapons". The preamble also highlights the concern about "the slow pace of nuclear disarmament", the persistent possibility of using nuclear weapons in military doctrines, and the waste of resources in programs to acquire, maintain, develop, and modernize these weapons. In this context, the preamble emphasizes that:

> […] a legally binding prohibition of nuclear weapons constitutes an important contribution towards the achievement and maintenance of a world free of nuclear weapons, including the irreversible, verifiable and transparent elimination of nuclear weapons, […] (UNODA, TPNW, Text of the Treaty).

It should be noted that the preamble reaffirms that the NPT is "the cornerstone of the nuclear disarmament and non-proliferation regime" and has a vital role in the peace and security of the international system. In addition, it is emphasized that nothing in the TPNW text shall be interpreted as a way to restrain the rights of the States Party to it to research and use nuclear power peacefully.

The 20 articles that constitute the TPNW follow the preamble.

In Article 1, the prohibitions to which every State Party to the treaty is committed are clearly expressed. The treaty prohibits each State Party to develop, test, produce, manufacture, acquire,

possess, stockpile, transfer or receive control over nuclear weapons or other nuclear explosive devices, either directly or indirectly, and to either use or threaten to use nuclear weapons or other nuclear explosive devices.

In summary, the essential provisions of Article 1 of the TPNW constitute a series of categorical bans ("never under any circumstances") related to nuclear weapons.

Articles 2, 3, and 4 are basically a *road map* for the renunciation of nuclear weapons. The Article 2 provides that each State Party shall submit to the Secretary-General of the United Nations a declaration reporting

> […] whether it owned, possessed or controlled nuclear weapons or nuclear explosive devices and eliminated its nuclear-weapon programme, including the elimination or irreversible conversion of all nuclear-weapons-related facilities, prior to the entry into force of this Treaty for that State Party (UNODA, TPNW, Text of the Treaty).

To verify that nuclear weapons are being destroyed and that all nuclear material is kept safe while avoiding diversion, Article 3 requires all treaty members to adopt specific safeguard agreements, supervised by the International Atomic Energy Agency (IAEA).

Article 4 offers states the opportunity to accede to the Treaty even though they still possess nuclear weapons or such weapons are present in their territory, provided that those states "immediately remove them from operational status, and destroy them as soon as possible but not later than a deadline to be determined by the first meeting of State Parties […]" (UNODA, TPNW, Text of the Treaty).

In light of Articles 2, 3, and 4, it is understood that, although the treaty has been negotiated by Non-Nuclear Weapon States (NNWS), it seeks to provide conditions to enable states that either possess nuclear weapons or allow other states to store them in their territory to join the treaty. To do so, the treaty offers two paths: States can destroy their stocks before joining the treaty; or they can accede to the treaty and then start a planned disarmament process, that is, with defined targets and deadlines.

The Article 5 provides that each State Party shall take all measures – including penal sanctions against any person that undertakes activities prohibited to a State Party under the TPNW.

Articles 6 and 7 deal with the provisions relating to Victim Assistance and Environmental Remediation as well as International Cooperation and Assistance to facilitate the implementation of the TPNW, and to "provide assistance for the victims of the use or testing of nuclear weapons or other nuclear explosive devices" (UNODA, TPNW, Text of the Treaty).

The subject of Article 8 is the Meeting of State Parties, and it establishes biannual meetings, in addition to review conferences every six years. These meetings will enable states to assess progress in the implementation and universalization of the treaty.

Articles 9–11 deal with the costs and payments of these meetings, as well as the way to propose amendments to the treaty and the settlement of disputes.

Article 12 clarifies the goal of achieving the universality of TPNW: "Each State Party shall encourage States not party to this Treaty to sign, ratify, accept, approve, or accede to the Treaty, with the goal of universal adherence of all States to the Treaty" (UNODA, TPNW, Text of the Treaty).

Articles 13 and 14 deal with signature, ratification, acceptance, and approval of, and accession to the treaty.

The other articles of the treaty deal largely with details of their legal aspects. Article 15 specifies that the TPNW "shall enter into force 90 days after the fiftieth instrument of ratification, acceptance, approval, or accession has been deposited". Article 16 remarks that the articles of the treaty "shall not be subject to reservations". And Article 17 states that the TPNW has unlimited duration (UNODA, TPNW, Text of the Treaty).

It should be noted that Article 18, establishing the relationship with other treaties and agreements, makes clear that "The implementation of this Treaty shall not prejudice obligations undertaken by States Parties with regard to existing international agreements, to which they are party, where those obligations are consistent with the Treaty" (UNODA, TPNW, Text of the Treaty). It is clear that the intention of this text is to make clear that the TPNW does not interfere with the obligations already assumed by the States Parties in treaties such as the NPT.

Article 19 provides that the UN Secretary-General is the official depositary of the treaty. And Article 20 establishes the languages of the treaty: Arabic, Chinese, English, French, Russian, and Spanish.

In short, in light of its preamble and the 20 articles of its text, it is perceived that the creation of the TPNW is due to the paralysis in the NWS disarmament efforts. It is also clear that the TPNW was drafted with a strong humanitarian bias, seeking to emphasize that nuclear weapons pose a risk to the security and prosperity of all humankind. It also highlights the human and environmental damage caused – or that may be caused – by nuclear weapons and, thus, places these issues at the heart of a UN General Assembly debate.

It is worth recalling that the treaty was adopted with the impressive number of 122 votes in favor. However, TPNW's success with regard to the wide range of prohibited activities related to nuclear weapons, as contained in Article 1, is also related to the actual capabilities of its States Parties to shape and to influence the agenda and the international system on issues related to nuclear weapons.

In this sense, the next section of this paper focuses on the analysis of the profiles of the actual TPNW Signatory States, whose analytical axes are their involvement with nuclear power and their ability to influence the international system on issues related to nuclear weapons.

Signatory States profile – their involvement with nuclear power and their ability to influence the international system on issues related to nuclear weapons

As already mentioned, in October 13, 2019, the TPNW had 79 Signatory States, 32 of which ratified the treaty. However, no NWS have signed the treaty (UNODA, TPNW, Status of the Treaty). It is worth noting that, in addition, only 18 of the more than 50 countries that use nuclear power peacefully for research purposes have signed the TPNW (World Nuclear Association).

For states that conduct some type of research in the peaceful use of nuclear energy, and that have at least one research reactor in operation, the ratio of research reactors between Signatory States

and non-Signatory States is 28/199; that is, out of a total of 227 Operational research reactors around the world, only 28 belong to TPNW Signatory States.[4]

Table 1 shows the Signatory States of the TPNW and their respective quantities of research reactors either in operation or under planned construction.

Table 1 – Signatory States of the TPNW and their Research Reactors[5]

Signatory State	Number of Research Reactors	Status
Algeria	01	Operational
Austria	01	Operational
Bangladesh	01	Operational
Brazil	04 01	Operational Planned
Chile	01	Operational
Colombia	01	Operational
Ghana	01	Operational
Indonesia	03	Operational
Jamaica	01	Operational
Kazakhstan	04	Operational
Libya	01	Operational
Malaysia	01	Operational
Mexico	02	Operational
Nigeria	01 01	Operational Planned
Peru	02	Operational
South Africa	01	Operational
Thailand	01 01	Operational Planned
Viet Nam	01 01	Operational Planned
Total: 18	Total: 28 04	Operational Planned

Source: prepared by the author based on data from the *IAEA – Research Reactor Database*, on October 15, 2019 (See <https://nucleus.iaea.org/RRDB/RR/ReactorSearch.aspx>).

4 The IAEA Research Reactor Database presents quantitative information on the statuses of research reactors – operational, under construction, planned, shut down, under decommissioning, and decommissioned — both by region and by country (see IAEA. *Research Reactor Database*. <https://nucleus.iaea.org/RRDB/RR/ReactorSearch.aspx>). Accessed October 15, 2019.

5 Research reactors (RR) of TPNW signatory states with the status *shutdown, under decommissioning, or decommissioned* are not included in Table 1. But they are presented here: Algeria – 1 RR – *temporary shutdown*; Austria – 2 RR – *decommissioned*; Chile – 1 RR – *shutdown*; Democratic Republic of Congo – 2 RR – *shutdown*; Kazakhstan – 1 RR – *permanent shutdown*; Libya – 1 RR – *temporary shutdown*; Mexico – 1 *decommissioned* and 1 *shutdown*; Philippines – 1 RR – *permanent shutdown*; South Africa – 1 RR – *decommissioned*; Uruguay – 1 RR – *decommissioned*; Philippines – 1 RR – *permanent shutdown*; Venezuela (Bolivarian Republic of) – 1 RR – *permanent shutdown.* (See <https://nucleus.iaea.org/RRDB/RR/ReactorSearch.aspx>).

Regarding the use of nuclear power reactors, the number of Signatory States of the TPNW is even smaller. From a total of 70 Signatory States, only five either have or have had nuclear power reactors. According to *IAEA – Nuclear Power Reactors in the World* (2018, pp. 30–45), of the 454 nuclear power reactors in operation, only 6 were from Signatory States of the TPNW. Of the 55 nuclear power reactors under construction (IAEA, 2018, pp. 27–28), only three are from Signatory States of the TPNW.

Table 2 shows the TPNW Signatories States and their respective quantity of nuclear power reactors; that is, reactors used in generating electricity in nuclear power plants.

Table 2 – Signatory States of the TPNW and their nuclear power reactors

Signatory State	Number of Power Reactors	Status
Bangladesh	02	Under Construction
Brazil	02 01	Operational Under Construction
Kazakhstan	01	Permanent Shutdown
Mexico	02	Operational
South Africa	02	Operational
Total: 5	Total: 6 03 01	Operational Under Construction Permanent Shutdown

Source: prepared by the author based on data from the *IAEA – Power Reactor Information System (PRIS) – The Database on Nuclear Power Reactors*, on February 28, 2019 (See <https://pris.iaea.org/PRIS/home.aspx>).

In light of Tables 1 and 2 it is clear that most of the TPNW Signatory States have no involvement with the peaceful use of nuclear energy, either in research or in generation of electricity by nuclear power plants. Of the 79 Signatory States, only 18 have some involvement with research and/or power generation by nuclear power reactors. That is, the Signatory States of the TPNW could be active in research into nuclear energy and/or be exponents of its peaceful use, which would increase the credibility of the treaty with the international public opinion. However, this is not the case. It should be noted that these data do not either denigrate or detract from the positive intentions of the Signatory States in relation to nuclear disarmament. However, they reveal a fact that cannot be disregarded when evaluating the potential of TPNW success.

If one observes the economic dimension of the TPNW Signatory States, for example, the GDP, it can be seen that, among the 30 states with the largest GDP in the world economy, only six are Signatory States of the TPNW. Table 3 shows the 30 states with the largest GDPs in 2017, with the Signatory States of TPNW being highlighted in yellow.

Table 3 – Gross Domestic Product (GDP) 2017

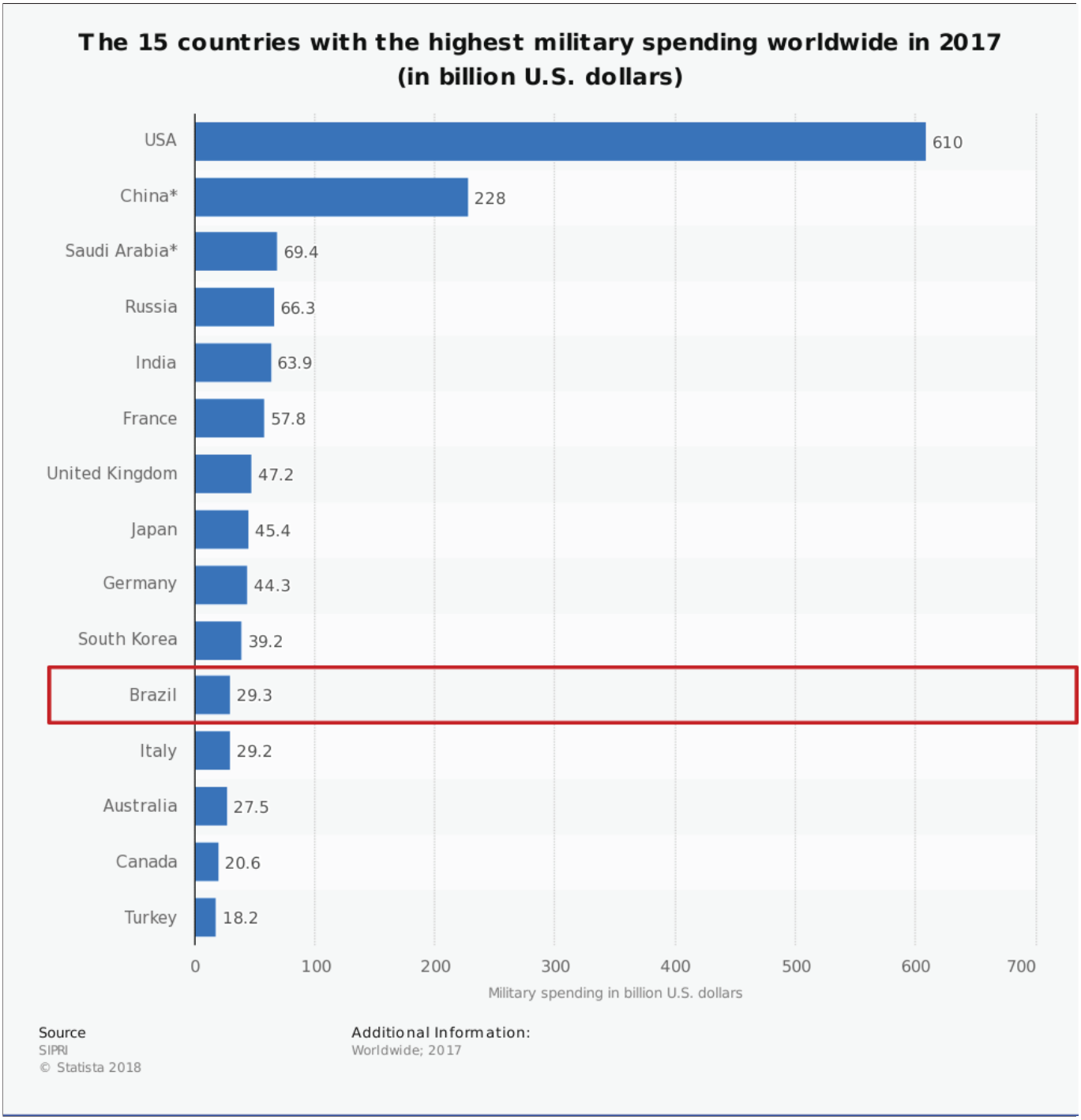
Rank	Country	GDP (Millions of US dollars)
1	United States	19.390.604
2	China	12.237.700
3	Japan	4.872.137
4	Germany	3.677.439
5	United Kingdom	2.622.434
6	India	2.597.491
7	France	2.582.501
8	Brazil	2.055.506
9	Italy	1.934.798
10	Canada	1.653.043
11	Russian Federation	1.577.524
12	Korea, Rep.	1.530.751
13	Australia	1.323.421
14	Spain	1.311.320
15	Mexico	1.149.919
16	Indonesia	1.015.539
17	Turkey	851.102
18	Netherlands	826.200
19	Saudi Arabia	683.827
20	Switzerland	678.887
21	Argentina	637.590
22	Sweden	538.040
23	Poland	524.510
24	Belgium	492.681
25	Thailand	455.221
26	Iran, Islamic Rep.	439.514
27	Austria	416.596
28	Norway	398.832
29	United Arab Emirates	382.575
30	Nigeria	375.771

Source: The World Bank. *GDP Rank. Gross Domestic Product 2017*.

Results that are not very different are obtained if one observes either the military dimension — defense spending, for example — or the demographic dimension. In the case of the military

dimension, of the fifteen largest and most significant defense budgets, only one country — Brazil — is a Signatory State. Graphic 1 shows the ratio of the 15 largest defense expenditures in 2017.

Graphic 1 – 15 largest defense expenditures in 2017



Source: STATISTA. *The 15 countries with the highest military spending worldwide in 2017 (in billion U.S. dollars).*

The point to note is that the largest military budget holders do not support the TPNW. Of the fifteen largest defense budgets in 2017, 14 are countries that have nuclear weapons (USA, China, Russia, India, France, and United Kingdom), or have military alliances with NWS (Saudi Arabia, Japan, Germany, South Korea, Italy, Australia, Canada, and Turkey).

As far as the demographic dimension is concerned, most of the world population belongs to non-Signatory States. As of August 2018, the total population of the world exceeds 7.63 billion people. The 20 most populous states of the planet contain more than 5.3 billion people, that is, almost 70% of the population of the planet (World Population Review). If we take these countries as reference we can see that more than 4 billion of these 5.3 billion people are in non-Signatory States. The point to be highlighted for reflection is that, considering that governments represent the desire of their populations, most of the global population does not support TPNW.

This is not a determining variable for the eventual failure of the TPNW in relation to its main objective, once the Mine Ban Treaty Mine Ban Treaty (MBT) and the Rome Statute of the International Criminal Court (ICC) also lack support, for example, from China and India. However, this variable cannot be disregarded in the analysis of the TPNW, nor of any other treatise that has universal goals.

Table 4 presents the list of the 20 most populous states on the planet, with the Signatory States of the TPNW highlighted in yellow.

Table 4 – 20 Most Populous States

Rank	Country	Population 2019 (Data based on the latest United Nations Population Division estimates)
1	China	1,420,062,022
2	India	1,368,737,513
3	USA	329,093,110
4	Indonesia	269,536,482
5	Brazil	212,392,717
6	Pakistan	204,596,442
7	Nigeria	200,962,417
8	Bangladesh	168,065,920
9	Russia	143,895,551
10	Mexico	132,328,035
11	Japan	126,854,745
12	Ethiopia	110,135,635
13	Philippines	108,106,310
14	Egypt	101,168,745
15	Viet Nam	97,429,061
16	DR Congo	86,727,573
17	Turkey	82,961,805
18	Iran	82,820,766
19	Germany	82,438,639
20	Thailand	69,306,160

Comments
- $\Sigma > 5{,}389$ billion people
- Approximately 4,047 billion people in non-Signatory States.

Source: Worldometers. *Countries in the world by population (2018).*

In summary, for any of the criteria that are used to assess the ability to influence the international system, the TPNW Signatory States are mostly ineffectual and may become system-affecting States only under particular circumstances and in specific forums.

A synthesis of the major absent states and a prospective view of the TPNW

The NWS are the main absentees from TPNW Signatory States. None of the NWS – *de facto* and *de jure* – is a member of the TPNW. If we add to this absence list the states with the biggest economies and even the states with the largest military budgets, we can see that the main countries with capacity to determine or influence the international system are non-Signatory States of the TPNW. Given such absences, a treaty aimed at banning nuclear weapons does not appear to have promising prospects of achieving that purpose.

These absences show that the TPNW ignores the current reality of states that rely on some degree of nuclear deterrence for their own security and defense. These states will not eliminate the deterrence of their national defense policy or strategy in short time and, consequently, will not participate in a treaty that outlaws nuclear weapons.

It is difficult to envisage that a treaty that aspires to a universal range and deals with one of the central issues of international security could succeed without the main actors and military and economic powers of the international system. What universal treatise has prospered without the participation of the major poles of power throughout history?

From a medium-term perspective, the TPNW cannot succeed in fulfilling its purpose without the participation of, for example, the USA, China, Russia, Japan, Germany, France, the UK, India, Canada, and Australia. Among the signatories to the TPNW, only Brazil, Mexico, and Indonesia appear as average powers in economic terms. Of these three states, only Brazil and Mexico are relatively expressive users of nuclear energy.

In this context, while commendable in its purpose, the TPNW does not include Signatory States capable of either determining or decisively influencing the issue of the prohibition of nuclear weapons. Together, the Signatory States of the TPNW come close to the category of system-affecting states; however, in respect of nuclear disarmament, they can influence the system only in the nuclear weapons debate, mainly in humanitarian and moral terms. In practical terms of nuclear disarmament, they do not decisively either determine or influence the system. Therefore, in light of its scope and current Signatory States — and non-Signatory States – the TPNW appears to be an innocuous effort in respect of nuclear disarmament.

Conclusions

Based on the research conducted it can be inferred that the Signatory States of the Treaty on the Prohibition of Nuclear Weapons are mostly ineffectual, not only economically but also in respect of

issues of the uses of nuclear energy. From the most condescending perspective, the TPNW is a treaty constituted of system-affecting states. Thus, its Signatory States are unable to decisively influence the international system in respect of the relevant issues of the use of nuclear energy, especially with regard to the nuclear disarmament of Nuclear-Weapon States (NWS).

Even with the potential of 122 Signatory States, TPNW will remain a treaty formed mostly by system-ineffectual states, with a few system-affecting states. It is worth noting that, even with this number of potential Signatory States, representing most states in the international system, the TPNW does not include most of the world's population. In theory, while China, India, Pakistan, the USA, Russia, and most European states are outside the TPNW, most of the world's population will not be supporting this treaty.

What gives TPNW some potential for success, and to achieve, even if only partially, the objectives contained in its preamble, is the possible public conviction of states that today are currently against the treaty. It seems clear that the ideals of the TPNW are aimed at long-term results, through the increasing co-optation of public opinion, especially of the countries that currently openly reject the TPNW.

This possibility may be greater in democratic states, where debates and the eventual conviction of such public opinion may generate pressure in their respective governments as to the validity of what the TPNW proposes to achieve. However, this debate may make most of the public convinced that nuclear weapons are necessary for the security of their countries and, therefore, cannot be prohibited. In that case, the TPNW would be doomed to failure.

In short, the TPNW is an innovation and a breakthrough, because the treaty makes nuclear weapons as big an aberration as are chemical and biological weapons. With the TPNW, the possession of, permission to possess, and support for the possession of nuclear weapons stigmatizes a state that is framed in one of these situations. In this sense, the TPNW is a breakthrough for nuclear disarmament efforts. However, the point to be highlighted is that the TPNW Signatory States are mostly in the category of system-ineffectual states, with a few system-affecting states. Therefore, in keeping with the current status of TPNW absences, the treaty will not be able to influence the international system in matters related to nuclear weapons to achieve the statement in its preamble: "the achievement and maintenance of a world free of nuclear weapons […]".

As a last remark its worth to stress that the TPNW is an innovation that has raised the debate on nuclear disarmament to another level because it is the political and moral link capable of uniting the majority of Non-Nuclear-Weapon States (NNWS) and international public opinion to pressure the NWS to comply with Article VI of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). However, the TPNW will not be able to fulfill its purpose because there is neither the support of the main military and economic powers of the international system, nor the support of the majority of states that make peaceful use of nuclear energy. Moreover, the Signatory States have no ability to either determine or influence the international system on issues related to nuclear weapons. In this sense, the argument put forward in this article appears to be valid: the TPNW is both an innovation in the nuclear nonproliferation regime and a treaty that is unfitted to achieve its objective due the

lack of support from the major powers of the international system, as well as the absence of the main countries that could determine or influence the international system on issues related to nuclear weapons.

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