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Ambiguity Defines the NPT: What Does “Manufacture” Mean?

DAVID S. JONAS*

*I'm looking for a complication. Looking 'cause I'm tired of trying.
Make my way back home when I learn to fly.*¹

I. INTRODUCTION

No question about it—the Nuclear Nonproliferation Treaty (NPT)² is complicated, with a healthy dollop of vagueness added to the mix. As opposed to the Foo Fighters, who apparently yearn for complications (as if they are difficult to find), in the NPT, this band of merry men would find exceptional fulfillment, since complications abound. For what appears to be a relatively succinct treaty, the NPT becomes more complex as one studies it. Although the NPT functions as the

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1. FOO FIGHTERS, *Learn to Fly*, on THERE IS NOTHING LEFT TO LOSE (Roswell/RCA 1999).

2. Treaty on the Non-Proliferation of Nuclear Weapons, *opened for signature* July 1, 1968, 21 U.S.T. 483, 484, 729; U.N. Treaty on the Non-Proliferation of Nuclear Weapons, *opened for signature* July 1, 1968, 21 U.S.T. 483, 484, 729 U.N.T.S. 161, 169, *available at* <http://www.iaea.org/Publications/Documents/Infcircs/Others/infcirc140.pdf> [hereinafter NPT].

foundation of the current nuclear nonproliferation regime,³ it suffers from certain ambiguities that heightens its complexity and poses significant policy issues.⁴ A lack of clarity in such a vital multilateral treaty may allow states to adopt valid legal positions that bolsters and defend actions inconsistent with the spirit, if not terms, of the NPT. This article examines one of the many important terms in the NPT that suffers from such opacity;⁵ specifically, the use of the term “manufacture” in Article II has generated debate regarding the precise activities that this word encompasses.⁶ In relevant part, Article II requires that the non-nuclear weapon states (NNWS) party to the treaty not “manufacture or otherwise acquire nuclear weapons” and not “seek or receive any assistance in the manufacture” of nuclear weapons.⁷ The key term “manufacture” is undefined in the treaty.⁸

Interpreting the term “manufacture” yields a broad spectrum of activities that are potentially proscribed under the NPT. Existing literature on the subject evinces no real consensus, but the majority view is that the term “manufacture” should be interpreted narrowly.⁹ However, competing views have also arisen as to the exact scope of this narrowing interpretation, specifically, whether the prohibition on “manufacture” should bar only the manufacture of a completed nuclear weapon¹⁰ or include the construction of component parts of a nuclear weapon as well.¹¹ There is surely a vast gulf between those two ends of the continuum.

3. Michael Spies, *Iran and the Limits of the Nuclear Non-Proliferation Regime*, 22 AM. U. INT'L L. REV. 401, 402 (2007); see also David S. Jonas, *Significant Ambiguity in the NPT: A Continuing Issue*, 40 GA. J. INT'L & COMP. L. 37, 38 (2011).

4. Jonas, *supra* note 3, at 38 (“The NPT is fundamentally sound but suffers from an unfortunate lack of clarity in certain areas.”).

5. Daniel Joyner, *Iran's Nuclear Program and the Legal Mandate of the IAEA*, JURIST (Nov. 9, 2011), <http://jurist.org/forum/2011/11/dan-joyner-iaea-report.php> (“The term ‘manufacture’ as used in Article II has been the subject of some controversy regarding its interpretation.”).

6. *Id.*

7. *Id.*; Jonas, *supra* note 3, at 46.

8. NPT, *supra* note 2.

9. See Joyner, *supra* note 5; Spies, *supra* note 3, at 407.

10. Spies, *supra* note 3, at 407.

11. Joyner, *supra* note 5; see Eldon V.C. Greenberg, *Peaceful Nuclear Energy and the Nuclear Nonproliferation Treaty*, in REVIEWING THE NUCLEAR NONPROLIFERATION TREATY 105, 119 (Henry Sokolski ed., 2010), available at http://www.npolicy.org/userfiles/image/Peaceful%20Nuclear%20Energy%20and%20NPT_pdf.pdf (arguing that construction of a prototype nuclear explosive device or components with relevance only to a nuclear device would tend to show noncompliance).

Arguments that interpret the term “manufacture” broadly, encompassing activity in the early stages of nuclear weapons design,¹² are premised on the belief that it is best to “err on the side of caution or restraint and apply . . . restrictions to facilities and materials which pose unacceptable proliferation risks”¹³ Whether the term “manufacture” is interpreted narrowly or broadly produces significant policy consequences. For example, the interpretation determines the nuclear activities in which NNWS may lawfully engage in, including energy development as well as the extent to which the United States and its allies may rely on the NPT to discourage illegal nuclear weapons development by NNWS.¹⁴ The interpretation of the term would also implicate the extent to which the United States and other states may lawfully assist NNWS in nuclear related activities.¹⁵

Professor Joyner, a noted scholar in this area, argues that the term “manufacture” in Article II of the NPT should be interpreted narrowly in an effort to flesh out the nature of the issue.¹⁶ Few existing articles address the ambiguity resulting from the use of the term “manufacture” at length; among those articles are the works of Professors Spies,¹⁷ Stransky,¹⁸ and Xinjun,¹⁹ discussed in section B, *infra*. Numerous Lexis and Westlaw searches of relevant terms such as “NPT,” “manufacture,” and “prepare” yielded only a few articles that acknowledge the absence of an explicit definition of the term “manufacture,” but fails to delve into more detailed analysis.²⁰

12. See Steven G. Stransky, *The Nuclear Non-Proliferation Treaty and Pakistan: Interpreting Nuclear Security Assistance Prohibitions*, 23 FLA. J. INT'L L. 1, 13, 34-35 (2011) (discussing arguments that lend support to a broader interpretation of the term “manufacture” in Article II of the NPT, such that it extends to “pre-manufacturing activity”); Andreas Persbo, *A Reflection on the Current State of Nuclear Non-Proliferation Safeguards*, EU NON-PROLIFERATION CONSORTIUM: NON-PROLIFERATION PAPERS, Feb. 2012, at 1, 5, available at <http://www.sipri.org/research/disarmament/eu-consortium/publications/publications/non-proliferation-paper-8> (“A more functionally consistent interpretation of the treaty is that any fuel cycle activity intended to support the acquisition of a nuclear device would be a matter of non-compliance with the NPT.”).

13. Greenberg, *supra* note 11, at 121.

14. *Id.* at 120.

15. *Id.*

16. Joyner, *supra* note 5.

17. Spies, *supra* note 3, at 401.

18. Stransky, *supra* note 12, at 1.

19. Zhang Xinjun, *The Riddle of “Inalienable Right” in Article IV of the Treaty on the Non-Proliferation of Nuclear Weapons: Intentional Ambiguity*, 5 CHINESE J. INT'L L. 647 (2006).

20. See, e.g., Lewis A. Dunn, *The NPT: Assessing the Past, Building the Future*, 16 NONPROLIFERATION REVIEW 149 (2009), available at http://cns.miis.edu/npr/pdfs/npr_16-2_dunn.pdf (“The effectiveness of ‘no acquisition and no manufacture’ as a constraint on hedging

Of the relatively few articles that do take a position on the ambiguity resulting from the use of the term “manufacture,” most argue that the term should be interpreted narrowly.²¹ Under this purported reading, the term “manufacture” would apply only to the actual construction of a nuclear weapon and not the numerous preliminary activities that may indicate a nation’s future plans to develop a nuclear weapon.²² Accordingly, this article attempts to respond to the gap in the existing literature by outlining these arguments and their consequences. The article concludes with recommendations for addressing this problem in the future.

Current scholarship, minimal as it is, supports a narrow interpretation of the term “manufacture” in Article II of the NPT;²³ a broad view, however, is equally supportable under the terms of the treaty itself. This narrow interpretation understands the term “manufacture” to refer to the actual construction of a nuclear weapon from its component parts,²⁴ in contrast, a broader reading would include the preliminary stages of the nuclear weapons construction process.²⁵ The problem with the broader view is having to decide which of the many preliminary activities may be covered. Under a broader interpretation of the term “manufacture,” one could infer a nation’s future intent to construct a nuclear weapon from the nation’s early

is weakened by the lack of any agreed definition of what ‘manufacture’ entails”); Andrew K. Semmel, Deputy Assistant Secretary, Alternate U.S. Representative to the Second Session of the PrepCom, *Remarks to the Second Session of the Preparatory Committee for the 2005 NPT Review Conference Geneva, Switzerland* (May 1, 2003), available at <http://2001-2009.state.gov/t/isn/rls/rm/20282.htm> (“[T]here is no clear definition of what constitutes the ‘manufacture or acquisition’ of a nuclear weapon”); LEONARD WEISS, *THE NUCLEAR NON-PROLIFERATION TREATY: STRENGTHS AND GAPS* (Air Univ. Press 1996), available at <http://www.fas.org/irp/threat/fp/b19ch2.htm> (stating that the lack of definitive interpretation of key terms, including manufacture, is a key problem that runs throughout the NPT); Maris A. Vinovskis, *Non-Proliferation Treaty: Framework for Nuclear Arms Control*, 11 WM. & MARY L. REV. 279, 280 (1969), available at <http://scholarship.law.wm.edu/wmlr/vol11/iss1/16> (“One of the weaknesses of the treaty is that many of the terms used have not been defined and are likely to cause problems of interpretation in the future. For example . . . the meaning of ‘manufacture’ is extremely difficult to ascertain. Does the manufacture of weapons refer only to the final assembly of the nuclear device or does it also cover the numerous preliminary steps such as the operational decisions to build plants and conduct tests?”).

21. Joyner, *supra* note 5.

22. *Id.*

23. *Id.* (“Thus, my interpretation above of the Article II term ‘manufacture,’ which focuses on *actus reus* and does not focus on intent, is more persuasive from both an evidentiary and substantive perspective.”) (emphasis added).

24. *Id.*

25. *Id.*

“concept, capacity building, design, research and experimentation stages.”²⁶ In analyzing the proper meaning of the term “manufacture,” the following section argues that the term “manufacture” should be interpreted narrowly according to: (a) the plain meaning of the NPT; (b) the negotiating history of the NPT; (c) the U.S. ratification history of the NPT; (d) the subsequent action by states party to the NPT; and (e) the problematic counterarguments that have been advanced in support of a broader reading of the term “manufacture.”²⁷

A. Plain Meaning

To determine the meaning of the term “manufacture,” one begins by looking to the plain meaning of the term pursuant to Articles 31 and 32 of the Vienna Convention on the Law of Treaties (VCLT).²⁸ In the VCLT, Article 31 requires that “[a] treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose.”²⁹ We must, however, look further because the plain meaning here could be, as discussed above, a broad or narrow interpretation of the term.³⁰ Article 32 of the VCLT provides for a supplementary means of interpretation, which includes the “preparatory work of the treaty and the circumstances of its conclusion, in order to confirm the meaning resulting from the application of Article 31.”³¹

In interpreting Article II, the plain meaning of the term “manufacture” certainly refers to physical construction.³² Joyner has argued that the term “manufacturer” in the NPT “refers to the physical construction of a nuclear explosive device, or perhaps at its broadest reading, to the physical construction of the component parts of a nuclear explosive device.”³³ Stransky also offers a plain meaning of “manufacture” based on physical construction, stating that: “[a]

26. *Id.*

27. *Id.*

28. Vienna Convention on the Law of Treaties art. 31(1), May 23, 1969, 1155 U.N.T.S. 331, U.N. Doc. A/CONF.39/27 [hereinafter VCLT]; see also David S. Jonas, *General and Complete Disarmament: Not Just for Nuclear Weapons States Anymore*, 43 GEO. J. INT’L L. 587, 600 (2012) (“Any exploration of treaty obligations begins with Articles 31 and 32 of the Vienna Convention on the Law of Treaties (VCLT).”).

29. *Id.* art. 31; see also Stransky, *supra* note 12, at 19 (citing the VCLT).

30. *Id.*; Joyner, *supra* note 5.

31. VCLT, *supra* note 28, art. 32.

32. Joyner, *supra* note 5.

33. Persbo, *supra* note 12, at 4.

common understanding of ‘manufacture’ was a ‘process of making products by hand or machinery.’”³⁴

Thus, the plain meaning of “manufacture” in Article II suggests that the term should be read narrowly. Consequently, a narrow reading of “manufacture” fails to encompass preliminary activities related to the research and development of a nuclear weapon, even if such activities might later be used in the construction of a nuclear weapon.³⁵ If the drafters of the NPT intended to reach farther back into the earlier stages of weapon development, they could have used other terminology, such as “preparing for assembly.” Stated otherwise, the term “manufacture” does not “reach far back along the knowledge acquisition and development line of a nuclear weapons program to the concept, capacity building, design, research and experimentation stages.”³⁶ As discussed below, the narrowed plain meaning of the term “manufacture” significantly impacts which activities of NNWS would fall within the scope of the NPT.

B. Negotiating History

The negotiating history of the NPT supports a narrow view of the definition of manufacture.³⁷ The VCLT considers the *travaux préparatoire* an important means of deciphering ambiguous treaty terminology.³⁸ Not only do all drafts of the NPT include a prohibition on the manufacture of nuclear weapons as noted in Mohamed Shaker’s treatise,³⁹ but the negotiating history of the NPT also reveals a deliberate effort to incorporate terminology reflecting the narrower view of the

34. *Id.* at 21 (citing BLACK’S LAW DICTIONARY, 1117 (4th ed. 1951)).

35. Joyner, *supra* note 5.

36. *Id.*

37. *Id.*

38. VCLT, *supra* note 28, art. 32 (the term “*travaux préparatoire*” refers to the official record of the treaty negotiations).

39. MOHAMED I. SHAKER, THE NUCLEAR NON-PROLIFERATION TREATY: ORIGIN AND IMPLEMENTATION 1959-1979 249 (Oceana Publications Inc. 1980) [hereinafter SHAKER] (In his seminal treatise on the negotiating history of the NPT, Mohamed Shaker offers this interesting vignette about the drafting of Article II, and in particular, the term “manufacture:” “the prohibition on manufacture was envisaged in all the previous treaty drafts. The Soviet draft of 24 September 1965 also envisaged the undertaking by the States ‘not possessing nuclear weapons’ not to ‘prepare for the manufacture’ of nuclear weapons. The American draft as amended on 21 March 1966 included the preparations for the manufacture but only with respect to the prohibition on assistance. This means that non-nuclear-weapon States would have been allowed, under the American draft, to prepare for the manufacture of nuclear weapons as long as no assistance was provided from outside.”).

meaning of “manufacture.” In analyzing the negotiating history of the NPT, one can see that the drafters distinguished between the terms “manufacture” and “prepare for the manufacture” before ultimately deciding to use the narrower term “manufacture.”⁴⁰

“Manufacture” was the more limited term; it focused “more to the later steps of actual fabrication, construction, and assembly of the component parts of a nuclear weapon, and to the completion of the full device from those component parts.”⁴¹ Interestingly enough, even that sentence, with its intention to clarify the matter, is itself ambiguous. That is, it establishes several elements of manufacture: fabrication, construction, assembly, and completion. Does it mean that one has “manufactured” a weapon only after completion of all four steps, or is each separate step considered “manufacture?” “Prepare for the manufacture,” in contrast, was the more expansive term. This phrase “clearly sought to include earlier steps on the ladder of development of a nuclear weapon, including the concept, capacity building, design, research and experimentation steps.”⁴² Again, there are many intermediate steps between “capacity building” and “completion of the assembly.” Even if the NPT drafters did not intend to regulate “capacity building,” perhaps they intended to prohibit other intermediate stages.

Various drafts of the NPT included alternating uses of the terms “manufacture” and “prepare for the manufacture.”⁴³ Interestingly, the Chemical Weapons Convention, a related treaty, does not regulate “military preparations” for the use of chemical weapons.⁴⁴ A 1965 Soviet draft of the NPT included a provision mandating that NNWS could not “prepare for the manufacture” of nuclear weapons.⁴⁵ Furthermore, a 1966 American draft suggested allowing NNWS “to prepare for the manufacture of nuclear weapons as long as no assistance

40. Joyner, *supra* note 5. (“[I]n the early U.S. and Soviet drafts, there was a distinction clearly drawn between the terms ‘manufacture’ and ‘prepare for the manufacture.’ . . . the fact that both terms had been considered by the drafters, and that the term ‘manufacture’ was eventually agreed upon by all NPT treaty parties, confirms the limited meaning of the term.”).

41. Joyner, *supra* note 5.

42. *Id.*

43. *Id.*

44. Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, *opened for signature* Sept. 3, 1992, 1974 U.N.T.S. 45, 32 I.L.M. 800.

45. *Id.*; see also Stransky, *supra* note 12, at 30 (“The Soviets’ September 24, 1965 draft . . . prohibited NWS from providing assistance to NNWS ‘in preparations for the manufacture’ of nuclear weapons . . .”).

was provided from outside [nations].”⁴⁶ “The fact that both terms were considered by the drafters, and that the term ‘manufacture’ was the term ultimately agreed upon by all NPT treaty parties confirm the limited meaning of the term.”⁴⁷ Therefore, the drafters’ eventual decision to reject the broader term, “prepare for the manufacture,” in favor of the narrower term demonstrates a definitive intent to limit the activities proscribed by Article II of the NPT.

By evaluating the negotiating history, it is apparent that the 1966 American draft “apparently initiated the use of ‘manufacture,’ as opposed to ‘prepare to manufacture”⁴⁸ “This fact is rather ironic in light of the current efforts led by the United States to expand the meaning of ‘manufacture’ to include steps that would have much more persuasively been included in the term ‘prepare to manufacture,’ which was previously proposed by the Soviet Union for inclusion in the NPT and rejected by U.S. drafters.”⁴⁹

Existing literature supports the view that the term “manufacture” should be interpreted narrowly, as confirmed by the negotiating history of the NPT.⁵⁰ For example, Professor Spies contends that a narrow reading of the term “manufacture” should prevail.⁵¹ Specifically, Spies states that the term “suggest[s] a completed nuclear explosive device . . . as some negotiating parties had originally remarked.”⁵² Spies also notes of the terms “manufacture” and “prepare for the manufacture” being distinguished and compared before ultimately deciding to use the narrower term, “manufacture,” as evidenced by the drafters’ rejection of a Soviet proposal to ban the “preparation” for the manufacture of a nuclear weapon.⁵³ Here, however, Spies suggests that only a *completed* nuclear weapon, as opposed to the manufactured component parts of a nuclear weapon, satisfies the narrow interpretation of the term “manufacture.”⁵⁴

46. Joyner, *supra* note 5 (internal quotations marks omitted).

47. *Id.*

48. *Id.*

49. *Id.*

50. *See, e.g.*, Spies, *supra* note 3, at 407; Stransky, *supra* note 12, at 31; *see also* Statute of the International Court of Justice art. 38, para. 1(d) (referring to “the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law”).

51. Spies, *supra* note 3, at 407.

52. *Id.*

53. *Id.* at 409.

54. *Id.* at 407.

Like Professors Joyner and Spies, Professor Stransky notes that excluding the term “preparation to manufacture” followed by the rejection of the “preparation for the manufacture” language in the 1965 Soviet draft supports an argument that the NPT precludes only the actual construction of a nuclear weapon.⁵⁵ Stransky thus states that this “ambiguity in distinguishing between ‘manufacturing’ and ‘pre-manufacturing’ activity . . . creates more flexibility in interpreting acceptable behavior” under the NPT.⁵⁶ In further discussing the consequences of this ambiguity, Stransky also notes the arguments made by the Swedish delegation about the difficulty in distinguishing manufacturing from pre-manufacturing activity.⁵⁷

Although Professor Xinjun’s article on the NPT refrains from explicitly advocating for a narrow reading of the term “manufacture,” he nevertheless comments on the continued ambiguity surrounding the use of the term “manufacture” based on the NPT’s negotiating history.⁵⁸ Xinjun acknowledges the competing interpretations of the term “manufacture’s” usage⁵⁹ and discusses how the narrow view requires

55. Stransky, *supra* note 12, at 30-31 (“Despite these concerns, the final version of the NPT to which the United States and Soviet Union agreed upon omits any ‘reference at all to preparations for manufacture, either in relation to prohibited nuclear-weapon state assistance or to prohibited non-nuclear-weapon state activities.’ Based on the fact that the NPT specifically excludes the ‘preparation to manufacture’ restriction that was in two previous drafts, one can credibly argue that the NPT does not prohibit NWS from ‘assist[ing], encourag[ing], or induc[ing]’ a NNWS in pre-manufacturing efforts.”).

56. *Id.*

57. *Id.* (“[T]he Swedish delegation focused on international assistance and the risks associated with pre-manufacturing nuclear developments. For example, Swiss Representative Myrdal stated that manufacturing nuclear weapons is comparable to a ‘long ladder with many rungs’ and that ‘the practical question is: on which of these is it reasonable and feasible to introduce international blocking?’ Representative Myrdal warned that to ‘prohibit just the final act of ‘manufacture’ would seem to come late in these long chains of decisions.”) (citing SHAKER, *supra* note 39, at 250).

58. Xinjun, *supra* note 19, at 647 (“Yet, revisiting the Treaty on the Non-Proliferation of Nuclear Weapons *travaux préparatoires* of Article IV of the inalienable right reveals a strong intention of the dominant negotiating States to advocate ambiguity.”); *see also* Xinjun, *supra* note 19, at 649-51 (“The article will then investigate the NPT *travaux préparatoires* recorded in United Nations Documents and Official Records to see how ambiguity have been made on the wording of ‘inalienable right,’ ‘the right to participate,’ *as well as the relevant wording of ‘manufacture’ in Articles I and II.*” (emphasis added)). Specifically, Xinjun argues that the “inalienable right” provision of Article IV (which entitles parties to pursue the “peaceful application of nuclear energy”) reveals the drafters’ intention to leave ambiguous provisions within the NPT, although the article also references the use of the term “manufacture.”

59. *Id.* at 651.

“actual” manufacture of a nuclear weapon.⁶⁰ Xinjun notes that the narrow interpretation was espoused by “some U.S. nonproliferation experts” despite their pro-nonproliferation stance,⁶¹ and goes on to acknowledge criticisms that such a narrow interpretation would render the treaty ineffectual.⁶² Xinjun further introduces some consequences of this ambiguity, stating that “[t]he fear from NNWS was that their ‘inalienable right’ [to the peaceful uses of nuclear energy] might be restricted by Article II: because Article II prohibited them from manufacturing nuclear weapons, some manufacturing activities could no longer be exercised.”⁶³ In Xinjun’s assessment, although the drafters of the NPT “*prima facie* precluded the ban on manufacturing preparation” when they rejected the term “prepare for the manufacture” in the 1965 Soviet draft, the “final phase of ‘manufacture’ remains unclear” in the final version of the NPT.⁶⁴ His observation is wise because, as noted earlier, the term “manufacture” could conceivably encompass activities such as uranium mining and milling.

Xinjun supplements his analysis with more support from the negotiating history of the NPT, specifically, the clarification of the term “manufacture.”⁶⁵ Notably, the Swiss representative attempted to “clarify” the term “manufacture” “by enumerating certain ‘sensitive’ nuclear activities as not within the scope of the prohibited manufacturing.”⁶⁶ Indeed, it appears logical to differentiate between

60. *Id.* at 652-53 (“F. Barnaby, the then director of the Stockholm International Peace Research Institute, pointed out that an act in preparation for manufacture, even in a case that came close to weaponry, did not necessarily mean the banned ‘manufacture’ in Article II. Sensitive nuclear activities would be safe from the treaty ban. Barnaby wrote, ‘A party to the NPT could legally manufacture the components of any number of nuclear weapons, and the non-nuclear parts of the weapons could be assembled. Only when the fissile material was placed into one of the devices would the Treaty be broken.’”).

61. *Id.* at 653 (“Ironically, some U.S. nonproliferation experts shared this view regardless of their pro-nonproliferation position. The early response of the U.S. towards European sensitive nuclear exports was marked as ‘spreading the bomb without quite breaking the rules,’ viewing sensitive nuclear exports as not falling in the scope of prohibition in Article I and Article II.”).

62. *Id.* (“Leonard S. Spector criticized that such interpretation ‘would make a mockery of their commitments to renounce nuclear weapons.’ He argued, ‘It must be made clear that the NPT commitment not to ‘manufacture’ nuclear weapons incorporates a prohibition on all related development, component fabrication, and testing.’”).

63. *Id.* at 658.

64. *Id.*

65. *Id.*

66. *Id.* (“The Swiss government worked on clarifying ‘manufacture’ by enumerating certain ‘sensitive’ nuclear activities as not in the scope of the prohibited manufacturing. In an *aide-memoire* to the 1967 identical draft, Switzerland requested such an interpretation to be confirmed formally: ‘the phrase ‘to manufacture or otherwise acquire nuclear weapons or other nuclear

manufacturing dual use equipment and equipment that could only be useful for nuclear weapons.⁶⁷ In addition, Xinjun describes both Soviet and U.S. efforts to ensure that NNWS could pursue activities for the peaceful acquisition of nuclear energy without violating the NPT's restriction on the "manufacture" of nuclear weapons,⁶⁸ implicitly supporting an argument for the narrower reading of the term "manufacture." However, Xinjun notes that such statements "had a strong propaganda smell" and "helped little in substantially clarifying the issue."⁶⁹

Nevertheless, an evaluation of the negotiating history of the NPT and the existing literature describing the negotiations shows that the use of the term "manufacture," as opposed to the broader term "prepare for the manufacture," in the final draft of the NPT demonstrates the drafters' intention to refrain from banning pre-manufacturing activity.⁷⁰ It would seem that the intent of the NNWS activity is crucial. If the intent is to build a nuclear weapon, then even mining and milling should be prohibited under the definition of "manufacture." Without an intent element, such activities simply cannot be included.

C. Ratification History

The U.S. ratification history of the NPT further illuminates the ambiguous nature of the term "manufacture" in Article II.⁷¹ During the Senate hearings on the NPT, U.S. officials were "unable to actually proffer a definition of 'manufacture.'"⁷² However, the testimony offered by William Foster, Director of the U.S. Arms Control and Disarmament

explosive devices' does not cover, according to the interpretation of the Swiss authorities, exploitation of uranium deposits, enrichment of uranium, extraction of plutonium from nuclear fuels, or manufacture of fuel elements of heavy water, when these processes are carried out for civil purposes.") (citing ENDC/204 (24 November 1967), ¶(1)(b)).

67. *Id.*

68. *Id.* at 659 ("Knowing well the concerns from NNWS, the two co-authoring NWS tried on many occasions to ease such fears. The Soviet Union . . . announced, 'we base ourselves on the assumption that a treaty . . . should enable [NNWS] to develop their peaceful atomic industries and *all forms* of the peaceful use of nuclear energy.' The U.S. delegate to ENDC also emphasized that the fear for an expanded interpretation was not well founded. Foster pointed out, 'For example, the United States, as well as some other advanced civil nuclear Powers, have made available materials and technology for the building of nuclear reactors, the fact that these reactors produce plutonium that can be used in weapons has not prevented us from supplying these materials and technology under adequate safeguards.'") (emphasis added) (citations omitted).

69. *Id.*

70. Stransky, *supra* note 12, at 31.

71. *Id.* at 17, 34-35.

72. *Id.* at 34 (citing SHAKER, *supra* note 39).

Agency and chief U.S. negotiator of the NPT, ostensibly supports the arguments made for a broader reading of the term “manufacture.”⁷³ The testimony emphasized pre-manufacturing activity rather than the narrower definition supported by the NPT’s plain meaning and negotiating history.⁷⁴ Foster submitted additional testimony in response to Senator Clifford Case’s request for clarification about what constitutes a prohibited nuclear explosive device as opposed to anything else that a NNWS could research and develop.⁷⁵ The testimony hints at an intent element, based on the response of U.S. representatives made during treaty negotiations when asked similar questions:

For example, *facts indicating that the purpose of a particular activity was the acquisition of a nuclear explosive device would tend to show non-compliance.* (Thus, the construction of an experimental or prototype nuclear explosive device would be covered by the term “manufacture” as would be the production of components, which would only have relevance to a nuclear explosive device.) Again, while the *placing of a particular activity under safeguards* would not, in and of itself, settle the question of whether that activity was in compliance with the treaty, it would of course be helpful in allaying any suspicion of non-compliance.

It may be useful to point out, for illustrative purposes, several activities which the United States would not consider per se to be violations of the prohibition on Article II. Neither uranium enrichment nor the stockpiling of fissionable materials in connection with a peaceful program would violate [A]rticle II so long as these activities were safeguarded under Article III. Also clearly permitted would be the development, under safeguards, of plutonium fueled power reactors, including research on the properties of metallic plutonium, nor would Article II interfere with the development of the use of fast breeder reactors under safeguards.⁷⁶

The testimony of Dr. Glenn T. Seaborg, Chairman of the Atomic Energy Commission, arguably implies a narrow interpretation of

73. *Id.*

74. *Id.* at 35 (“Foster’s definition is concerned primarily, and most obviously, with pre-manufacturing activity.”).

75. *Id.* at 34-35.

76. *Id.* (emphasis added).

“manufacture.”⁷⁷ In addressing the inherent tension between Article V of the NPT (committing all parties to take appropriate measures to make available the benefits which may be obtained from peaceful nuclear explosions) and Article II (precluding NNWS from manufacturing or acquiring nuclear explosive devices, even for peaceful purposes), Dr. Seaborg pledged to make “freely available the information and data obtained” from the development of nuclear explosive technology for peaceful purposes “except information relating to the design or manufacture of nuclear explosive devices.”⁷⁸ He stated further: “we will be prepared to make . . . available technical advice and assistance . . . to those nonnuclear weapon parties to the treaty which seek assistance in studying specific peaceful applications of nuclear explosions.”⁷⁹ This statement arguably implied that sharing of nuclear explosive technology for peaceful purposes would be permitted provided that the ultimate construction of the explosive nuclear device itself was not shared.⁸⁰ He also reserved the possibility of conducting “cooperative experiments abroad.”⁸¹

D. Subsequent History

VCLT Article 31(3)(a) and (b) deal with treaty interpretation and discuss subsequent agreement and subsequent practice as the critical tools for determining the consent of parties to evolving interpretations of treaty obligations.⁸² The twin concepts of subsequent agreement and subsequent practice are premised on the idea that over time, treaty parties may informally consent to “new and different interpretations of treaty obligations.”⁸³

Existing literature also references the parties’ conduct since the NPT’s ratification as further support for a more limited interpretation of

77. See generally *Statement by A.E.C. Chairman Seaborg to the Senate Foreign Relations Committee: Nonproliferation Treaty, July 12, 1968*, in DOCUMENTS ON DISARMAMENT 1968, PUBLICATION 516-24 (1969).

78. *Id.* at 522-23.

79. *Id.* at 523.

80. *Id.*

81. *Id.*

82. VCLT, *supra* note 28, art. 31(3)(a), (b); see also Alexander M. Feldman, *Evolving Treaty Obligations: A Proposal for Analyzing Subsequent Practice Derived from WTO Dispute Settlement*, 41 N.Y.U. J. INT’L L. & POL. 655, 657 (2005).

83. Feldman, *supra* note 82, at 662; see also ANTHONY AUST, MODERN TREATY LAW AND PRACTICE 191 (2000).

the term “manufacture.”⁸⁴ According to Stransky, “[e]xamining state practice as a method of treaty interpretation has become commonplace in both the domestic and international arena.”⁸⁵ To substantiate this point, Stransky quotes Justice Brennan in *United States v. Stuart*: “[t]he practice of treaty signatories counts as evidence of the treaty’s proper interpretation, since their conduct generally evinces their understanding of the agreement they signed.”⁸⁶ Further, Stransky notes that Article 31 of the VCLT states that “[t]here shall be taken into account, together with the context . . . any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation.”⁸⁷

Subsequent actions of states party to the NPT also support the narrow interpretation of the term “manufacture.” The fact that the International Atomic Energy Agency (IAEA) or the U.N. Security Council has not criticized Germany and Japan, industrialized states with mastery of the nuclear fuel cycle, for their nuclear capacity demonstrates that the term was intended to be applied narrowly.⁸⁸ Of course, not being criticized for the steps they have currently taken also does not prove that they are insulated from such criticism or would not deserve criticism if they took further steps closer to a nuclear weapons capability, even if these steps are not considered the “final assembly” of a complete device.⁸⁹

E. Problems with a Broader Reading of the Term “Manufacture”

Support for a broader application of the term “manufacture” exists, so much so that the term might extend to activity indicative of a state’s intention to manufacture a nuclear weapon in the future.⁹⁰ A broader interpretation, however, requires one to make inappropriate inferences

84. Joyner, *supra* note 5.

85. Stransky, *supra* note 12, at 36.

86. *Id.*

87. *Id.* (citing VCLT, *supra* note 28, art. 31(3)(b)).

88. Joyner, *supra* note 5 (“In the practice of states since the establishment of the NPT, the cases of Japan and Germany and other advanced industrialized countries who have the knowledge and capability to construct a nuclear weapon, but that have not on that account been criticized by the IAEA or by the UN Security Council, are yet further evidence of the correctness of this interpretation of the limited definition of the term ‘manufacture’ in the Article II prohibition.”).

89. Vinovskis, *supra* note 20, at 279-80.

90. Joyner, *supra* note 5 (“Some would argue that this definition of ‘manufacture’ is too limited.”).

of a nation's intent to develop a nuclear weapon.⁹¹ Unfortunately, it is not quite clear what the term "intent" really means as applied to a state or other artificial entity. It is difficult to translate human emotions to fictional persons. This highlights yet another aspect of definitional ambiguity. "[D]omestic legal systems . . . seldom if ever provide for a determination of intent prospectively . . ." ⁹² Such a determination poses a serious evidentiary challenge, as "it would be nearly impossible to ever show from evidence . . . that an accused state nevertheless intends in the future to manufacture a nuclear explosive device."⁹³ Rather, it will almost always "be just as reasonable, if not more so, to infer an intent simply to develop the knowledge and capacity necessary to manufacture a nuclear weapon, without actually constructing working components or a finished device."⁹⁴ Thus, a narrow interpretation of the term "manufacture" focusing specifically on the *actus reus* of constructing a nuclear weapon as opposed to intent "is more persuasive from both an evidentiary and substantive perspective."⁹⁵ It is unfortunate that this concept is not even mentioned in the NPT text.

Not all states, however, embrace such a narrow interpretation of the term "manufacture."⁹⁶ A state might engage in activities that would fall under a broader interpretation of "manufacture" without actually intending to develop a nuclear weapon, thereby resulting in an overbroad application of the NPT.⁹⁷

There are important policy implications in interpreting the meaning of the term "manufacture."⁹⁸ In analyzing the final version of the NPT, the one which the United States and Soviet Union both agreed

91. *Id.* ("The problem with such an interpretation is that it requires an inference of a specific intent or purpose associated with activities that could be related to a nuclear weapons program. That intent must be to manufacture or otherwise acquire a nuclear explosive device.")

92. *Id.*

93. *Id.*

94. *Id.*

95. *Id.*

96. Spies, *supra* note 3, at 407-08.

97. *Id.* at 408-09 ("It is conceivable for a state to engage in the activities listed above without necessarily attempting to acquire nuclear weapons. For instance, the same fuel cycle facilities used in a civilian program, which all states are entitled to pursue under the NPT, can be used in a weapons program. A state may have many reasons to pursue nuclear programs, including the prestige gained from mastering an advanced technology and legitimate non-weapons military use such as naval propulsion, among many other conceivable reasons. Many state activities, such as defense and general welfare spending, can lack a strict economic justification from a critical outsider point of view, but such programs remain legitimate due to widespread domestic support and other subjective considerations.") (citations omitted).

98. Stransky, *supra* note 12, at 30-31.

upon, some ambiguity arises in distinguishing between “manufacturing” and “pre-manufacturing” activity, given that the NPT specifically excludes “preparations to manufacture” restrictions that was previously included in two past drafts.⁹⁹ This issue has the potential to be highly relevant if the international community ever seriously tackles the issue of nuclear disarmament. In that context, negotiators would have to consider what activities would remain permissible for former Nuclear Weapon States (NWS), specifically, which types of manufacturing activities would be allowed under a “nuclear zero” regime. In some ways, this is the mirror image of the subject of this article and would again raise the question of whether the United States should favor a broad or narrow interpretation in such a future context.¹⁰⁰

One could argue that the exclusion of the phrase “preparations to manufacture” left open the possibility that the NPT does not prohibit NWS from “assist[ing], encourag[ing], or induc[ing]”¹⁰¹ a NNWS in pre-manufacturing efforts. Stransky argues that the ambiguity in distinguishing between “manufacturing” and “pre-manufacturing” activity is significant given the flexibility that results in interpreting acceptable behavior.¹⁰² For example, during the NPT negotiations, the Swiss representative declared that the “exploitation of uranium deposits, enrichment of uranium, extraction of plutonium from nuclear fuels, or manufacture of fuel elements or heavy water when the processes are carried out for civil purposes,” does not constitute “manufacturing” of nuclear weapons.¹⁰³

Some states could claim that while such activity may constitute “pre-manufacturing” of a nuclear weapon, it is permitted under the American-Soviet’s version of the NPT given that the prohibition is on the actual “manufactur[e] of nuclear weapons” only. The ability to interpret a state’s actions within the narrower and relatively more flexible understanding of “manufacture” as opposed to “preparations to manufacture” provides important leeway for state officials in deciding what actions, if any, are appropriate to take in response to state transgressions. Ultimately, it is clear that intent remains the one unresolved element at work here.

99. *Id.* at 31; Spies, *supra* note 3, at 409.

100. *Id.*

101. *Id.*

102. *Id.*

103. SHAKER, *supra* note 39, at 250.

II. HOW STATES SHOULD ADDRESS THIS PROBLEM

NPT Review Conferences (RevCon) are held every five years.¹⁰⁴ If successful, the RevCon will produce an agreed text.¹⁰⁵ This text, not a part of the NPT, would represent the political commitments from the states party to the treaty. Such text could easily include a point regarding the parties' collective understanding of the meaning of "manufacture" and perhaps even an acknowledgement of intent's importance in regards to a state's pursuance of either a peaceful nuclear program or a nuclear weapon.

III. CONCLUSION

Ultimately, this issue may have real world ramifications. For example, Joyner uses his argument for a narrow interpretation of the term "manufacture" to support the assertion that there is no evidence that Iran breached the NPT, as indicated by the recent IAEA report, because—based on current U.S. knowledge—Iran has not "physically constructed a nuclear explosive device or any of its components."¹⁰⁶ However, beyond the immediate repercussions of this debate, the continued ambiguity arising from the use of the term "manufacture" raises questions regarding the scope of permitted uses of nuclear development and the reach of the NPT. What if intent was an anticipated aspect of the "manufacture" determination? If so, Iran's intent is fairly obvious; it does not need nuclear power, as it is sitting on a sea of oil.

In assessing the consequences of ongoing ambiguity about the proper interpretation of "manufacture," Spies argues that any uncertainty arising from the term "manufacture" in Article II will not independently affect a nation's compliance with the NPT, as actions that might be included under a broader reading of "manufacture" are specifically proscribed in Article III.¹⁰⁷ In support of this argument, Spies notes that Article III requires fissile material, which is necessary for the production of nuclear weapons, to be placed under safeguards.¹⁰⁸

Despite the lack of a definitive interpretation of the term "manufacture," the prevailing interpretation of Article II is that the

104. NPT, *supra* note 2, at 4.

105. *Id.*

106. Joyner, *supra* note 5.

107. Spies, *supra* note 3, at 407-09.

108. *Id.* at 409.

many activities a state must undertake to eventually construct a nuclear explosive, thereby indicating non-compliance with Article II, would necessarily involve violating specific provisions in Article III.¹⁰⁹ Spies, however, maintains that the existing ambiguity of the proper interpretation of “manufacture” continues to create problems in monitoring compliance with the NPT.¹¹⁰ Consequently, this poses practical and policy challenges to the NPT’s ability to function as the foundation of an effective nuclear nonproliferation regime.¹¹¹

Based on the limited volume of literature addressing this important question, the plain language of the NPT, the negotiating history of the NPT, and the subsequent state action by states party to the NPT, one can deduce that the drafters of the NPT intended for the term “manufacture” to be applied narrowly. Such a narrow construction would prohibit only the physical construction of nuclear weapons. However, this may only have been because an intent element was too difficult to capture in treaty text.

Regardless of how the debate over the term “manufacture” is ultimately resolved, this is yet another example of a situation where the meaning of an ambiguous NPT term must be deciphered by lawyers and policy experts. The correct outcome would be for the NPT states to debate the issue at upcoming Preparatory Committee meetings and RevCons and to reach an agreement on the incorporation of the intent element into the application of the term “manufacture” to any particular NNWS.

109. *Id.* at 407-09.

110. *Id.* at 407-08.

111. *Id.* (“Although such a narrow interpretation of ‘manufacture’ is not accepted by the states parties, the lack of definitive criteria for what constitutes ‘manufacture’ continues to be an issue in the context of compliance assessment. During the 2005 NPT Review Conference a U.S. diplomat noted, ‘[i]n an extreme case, an NPT party might have manufactured an entire mockup of the non-nuclear shell of a nuclear explosive, while continuing to observe its safeguards obligations on all nuclear material.’ The U.S. diplomat suggested a list of activities of concern which would indicate an ‘intent’ to manufacture a nuclear weapon in violation of Article II. These activities include seeking certain fuel cycle facilities of direct relevance to nuclear weapons, such as enrichment or reprocessing, with no clear economic or peaceful justification; clandestine facilities and procurements; committing safeguards violations and failing to cooperat[e] with the IAEA to remedy them; and using denial and deception tactics to conceal nuclear-related activities.”).