

The Stuxnet Worm and Potential Prosecution by the International Criminal Court Under the Newly Defined Crime of Aggression

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I. INTRODUCTION

Recently, the world was introduced to one of the most advanced and sophisticated pieces of computer technology ever seen, a computer worm named Stuxnet. This worm is not a simple computer virus created by hackers to irritate computer owners by corrupting and crashing their computers. Instead, a team of experts engineered this worm over a period of months for a specific purpose and a specific target.¹ The target

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1. Bruce Schneier, *Stuxnet*, SCHNEIER ON SECURITY (Oct. 7, 2010), <http://www.schneier.com/blog/archives/2010/10/stuxnet.html>.

appears to be Iran's nuclear program at the Natanz uranium enrichment center.² The worm reportedly destroyed key parts at the enrichment center, setting the country's nuclear arms program back several years.³

Around the same time as the discovery of Stuxnet, the International Criminal Court (ICC) had finally agreed on a definition of the crime of aggression at the Kampala Conference.⁴ The new definition grants the ICC jurisdiction over crimes of aggression for the first time since its establishment under the Rome Statute in 1998.⁵ While some view the definition as unworkable and overly limited, it is a significant step in the process of limiting the occurrence of crimes of aggression.⁶

This Comment will outline and examine the newly defined crime of aggression under the ICC as it applies it to the recent development of the Stuxnet worm. It will focus on the two core components of the new definition, demonstrating that a computer worm such as Stuxnet could be classified as an armed attack by State actors. Despite the textual limitations of the definition, this Comment will demonstrate that a broad interpretation should include cyber attacks like Stuxnet and others to come in the future.

II. THE CRIME OF AGGRESSION AND THE ICC

A. *History of the Crime of Aggression*

The crime of aggression has long been thought of as the ultimate evil or supreme international crime.⁷ Despite this consensus, the international community faced extreme difficulty in defining the crime of aggression.⁸ Several factors have led to this dilemma; the most noted disagreements are over what acts constitute aggression, who should be

2. *Id.*

3. *Id.*; William J. Broad, John Markoff & David E. Sanger, *Israel: Test on Worm Called Crucial in Iran Nuclear Delay*, N.Y. TIMES, Jan. 15, 2011, at A1.

4. Int'l Criminal Court [ICC], Assembly of State Parties, Review Conference, the Crime of Aggression, ICC Doc. RC/Res. 6 (June 11, 2010) [hereinafter *Kampala Amendment*].

5. *Id.*

6. Kevin Jon Heller, *The Sadly Neutered Crime of Aggression*, OPINIO JURIS (June 13, 2010, 9:24 PM), <http://opiniojuris.org/2010/06/13/the-sadly-neutered-crime-of-aggression/>

7. James Nicholas Boeving, *Aggression, International Law, and the ICC: An Argument for Withdrawal of Aggression from the Rome Statute*, 43 COLUM. J. TRANSNAT'L L. 557, 570 (2004-2005) ("To initiate a war of aggression . . . is not only an international crime; it is the supreme international crime . . . differing only from other war crimes in that it contains within itself the accumulated evil of the whole." (internal quotation marks omitted)).

8. Michael Anderson, *Reconceptualizing Aggression*, 60 DUKE L.J. 411, 416 (2010).

responsible, and who will have the ultimate decision on whether or not a crime of aggression has been committed.⁹

After World War II, the International Military Tribunal (IMT) tried individuals for “crimes against peace.”¹⁰ The IMT defined crimes against peace as “planning, preparation, initiation or waging of a war of aggression, or a war in violation of international treaties, agreements or assurances, or participation in a common plan or conspiracy for the accomplishment of any of the foregoing.”¹¹ Many have found this definition to be circular and vague because the definition includes “war of aggression” without defining aggression.¹² Under this formulation, the IMT had to determine what constituted a crime against peace on a case-by-case basis.¹³ While this was the first time that the principle was established in international law, the most notable achievement of the Charter was the principle of individual responsibility.¹⁴ Although an individual might still escape liability of an act of aggression under the Charter’s definition, the individual could be held responsible for other crimes and would not be allowed to make the claim that, in committing these crimes, he or she was merely following orders.¹⁵ This was the first instance where a tribunal allowed for the prosecution of individuals who may have been following superior orders.¹⁶ By not allowing an individual soldier access to the defense of following orders, each soldier must think first of their own actions and take any responsibility for crimes they may commit.

9. Boeving, *supra* note 7, at 564, 569, 575 (discussing the role of the U.N. Security Council in making determinations on acts of aggression); Grant M. Dawson, *Defining Substantive Crimes Within the Subject Matter Jurisdiction of the International Criminal Court: What Is the Crime of Aggression?*, 19 N.Y.L. SCH. J. INT’L & COMP. L. 413, 421-36 (1999-2000) (finding that the Nuremberg Charter allowed for prosecution of individuals where the U.N. General Assembly’s adoption of Resolution 3314 limited aggression to acts committed by States).

10. Int’l Military Tribunal, Trial of the Major War Criminals Before the International Military Tribunal, Nuremberg, 14 Nov. 1945-1 Oct. 1946, at 279-366 (1947); Michael J. Glennon, *The Blank-Prosed Crime of Aggression*, 35 YALE J. INT’L L. 71, 74 (2010) (noting that “crimes against peace” are the functional equivalent of crimes of aggression).

11. Charter of the International Military Tribunal at Nuremberg, Annex art. VI(a), Aug. 8 1945, 59 Stat. 1544, 82 U.N.T.S. 279, 288 [hereinafter Nuremberg Charter].

12. Boeving, *supra* note 7, at 564; Mohammed M. Gomaa, *The Definition of the Crime of Aggression and the ICC Jurisdiction over that Crime*, in THE INTERNATIONAL CRIMINAL COURT AND THE CRIME OF AGGRESSION 55, 61 (Mauro Politi & Giuseppe Nesi eds., 2004).

13. Boeving, *supra* note 7, at 564.

14. Glennon, *supra* note 10, at 74-75 (noting that the crime of aggression was first and only prosecuted under the IMT of Germany and Tokyo); Dawson, *supra* note 9, at 426. Individual responsibility was limited to the leader or organizer of the act and would not extend prosecution to soldiers who were taking orders. Gomaa, *supra* note 12, at 64.

15. See Dawson, *supra* note 9, at 426.

16. *Id.*

After the IMT trials concluded, the United Nations General Assembly established a Special Committee on the Question of Defining Aggression.¹⁷ In 1974, the General Assembly agreed on a definition by approving Resolution 3314.¹⁸ Resolution 3314 begins by defining aggression as “the use of armed force by a State against the sovereignty, territorial integrity or political independence of another State . . . inconsistent with the Charter of the United Nations.”¹⁹ It also provides a nonexhaustive list of acts that may qualify as acts of aggression.²⁰ Although article 4 of Resolution 3314 makes it clear that the list is nonexhaustive, it has nonetheless led to a conclusion that only a physical action by a State would be considered an act of aggression.²¹ A striking difference between the IMT definition and the General Assembly definition is the switch from individual responsibility to State responsibility.²² The most likely reason for this difference is that it has become increasingly clear that the origin of an act of aggression cannot be separated between a State and its citizens.²³

The definition of crime of aggression was left untouched until the Rome Conference, which shaped the ICC.²⁴ On July 17, 1998, the General Assembly adopted the Rome Statute and established the ICC.²⁵ Article 5 lists the Crime of Aggression as one of the four crimes over which the court will have jurisdiction.²⁶ However, because of the differing views between States on what constitutes a crime of aggression, no definition was included in the statute. Instead, the statute provided that the court could exercise jurisdiction over the crime once a definition

17. Goma, *supra* note 12, at 70-71. The General Assembly established the first Special Committee in December of 1952, but it wasn't until the fourth committee, established in 1967, that a definition was agreed upon. *Id.*

18. *Id.* at 71.

19. G.A. Res. 3314(XXIX), Annex, U.N. Doc. A/RES/3314 (Dec. 14, 1974).

20. *Id.*

21. *See id.*

22. Under the IMT, however unlikely, the Charter left open the possibility that an individual soldier could be charged for a crime of aggression. However, the definition adopted by the General Assembly with Resolution 3314 limits responsibility to States. *Id.*; Nuremberg Charter, *supra* note 11.

23. Dawson, *supra* note 9, at 435; Elizabeth Wilmshurst, *Definition of the Crime of Aggression: State Responsibility or Individual Criminal Responsibility?*, in *THE INTERNATIONAL CRIMINAL COURT AND THE CRIME OF AGGRESSION*, *supra* note 12, at 93 (noting that the definition does not seek to deal with individual “mercenaries” or terrorists who are acting without State support).

24. Glennon, *supra* note 10, at 80.

25. Rome Statute of the International Criminal Court, July 17, 1998, 37 I.L.M. 999 (entered into force July 1, 2002) [hereinafter Rome Statute].

26. *Id.*

had been adopted through the amendment process.²⁷ By not providing a definition of the crime in the initial statute, State parties had to wait seven years before an amendment would be proposed.²⁸ A further complication of this matter dealt with what role the United Nations Security Council would play in determining when an act of aggression has taken place.²⁹ The Assembly of State Parties established the Special Working Group on the Crime of Aggression, and in 2009 they produced a draft of the amendments, which led to the adoption of the amendment at Kampala.³⁰

B. *The Kampala Amendment*

1. Aggression Defined

On June 11, 2010, the Review Conference for the ICC adopted amendments to the Rome Statute that defined the crime of aggression.³¹ Article 8 *bis* of the amendment defines the crime of aggression as

the planning, preparation, initiation or execution, by a person in a position effectively to exercise control over or to direct the political or military action of a State, of an act of aggression which, by its character, gravity and scale, constitutes a manifest violation of the Charter of the United Nations.³²

Furthermore, the amendment adopted the list of acts that qualify as acts of aggression from G.A. Resolution 3314.³³

Article 15 *bis* establishes ICC jurisdiction over the crime,³⁴ although the court will not exercise jurisdiction until January 1, 2017, when a majority of State parties makes a decision to activate jurisdiction.³⁵ The

27. Boeving, *supra* note 7, at 573. Article 5(2) states:

The Court shall exercise jurisdiction over the crime of aggression once a provision is adopted in accordance with articles 121 and 123 defining the crime and setting out the conditions under which the Court shall exercise jurisdiction with respect to this crime. Such a provision shall be consistent with the relevant provisions of the Charter of the United Nations.

Rome Statute, *supra* note 25.

28. Rome Statute, *supra* note 25, arts. 121, 123.

29. Boeving, *supra* note 7, at 575.

30. Glennon, *supra* note 10, at 81; Andreas Paulus, *Second Thoughts on the Crime of Aggression*, 20 EUR. J. INT'L L. 1117, 1119 (2009).

31. Kampala Amendment, *supra* note 4.

32. *Id.* art. 8 *bis*.

33. *Id.*

34. *Id.* art. 15 *bis*.

35. *Id.*; *Delivering on the Promise of a Fair, Effective and Independent Court: The Crime of Aggression*, COAL. INT'L CRIM. CT., <http://www.iccnw.org/?mod=aggression> (last visited May 2, 2011) [hereinafter *Delivering on the Promise*].

amendment also explicitly excluded jurisdiction over non-State parties when the acts have been committed by their nationals or originated from within their territory.³⁶ A U.N. Security Council referral will trigger ICC jurisdiction in the same way as it does for the other crimes listed in the statute. However, if the conflict is between State parties, a prosecutor for the ICC may only bring his own investigation after first determining whether the Security Council has made a finding of the existence of an act of aggression. Once that determination has been made, the prosecutor must wait six months after the Pre-Trial division of the ICC authorizes the investigation.³⁷

2. An Examination and Critique of the Kampala Amendment

After examining the definition of the crime of aggression, three primary concerns come to mind. First, will limiting the jurisdiction to State parties hamper the ability of the ICC to effectively prosecute crimes of aggression? Second, will the large role of the Security Council in determining when an act of aggression has occurred insulate many States from prosecution? Finally, and perhaps most importantly for this Comment, has the ICC adopted a definition of aggression appropriate for the twenty-first century, where wars can be fought from thousands of miles away and perhaps even without the use of weapons?

The new amendment's definition of the crime of aggression will limit jurisdiction to two instances.³⁸ First, the ICC will have jurisdiction over a crime of aggression stemming from an act of aggression committed by a State party against another State party. Second, the ICC will have jurisdiction over an act of aggression committed by a State party against another State party that has opted out of jurisdiction.³⁹ While these limitations raise several concerns, the primary concern of this Comment is the extension of jurisdiction solely to State actors and not individuals.⁴⁰ While it can be argued that an individual without the

36. Kampala Amendment, *supra* note 4, art. 15(5) *bis*.

37. *Delivering on the Promise*, *supra* note 35.

38. Kampala Amendment, *supra* note 4, art. 15 *bis*; Heller, *supra* note 6.

39. Heller, *supra* note 6.

40. *Id.* In his article, Kevin Heller points to four problems with the jurisdictional limitations. First, he notes that jurisdiction over aggression is inconsistent with the courts' jurisdiction over the other listed crimes in that a court would have jurisdiction over war crimes or crimes against humanity committed by a State party against a non-State party. Second, he notes that any State party who plans to commit acts of aggression will simply take advantage of the opt-out provision, barring jurisdiction of the court. Third, a State party that opts out of jurisdiction will still be protected from acts of aggression by other State parties, but would be allowed to commit acts themselves. Finally, the ICC will not have jurisdiction over non-state parties despite

support of a State cannot commit a crime of aggression,⁴¹ limiting jurisdiction to State actors will not effectively serve the purpose of the Rome Statute to prevent acts of aggression.⁴²

The Kampala Amendment departs from the Nuremburg Charter by limiting jurisdiction to include only State actors. The Nuremburg Tribunal made it clear that “individuals have international duties which transcend the national obligations of obedience imposed by the individual state.”⁴³ Thus, the Nuremburg Tribunal wanted to establish a principle that individuals “cannot shelter themselves behind their official position in order to be freed from punishment.”⁴⁴ Under the Nuremburg Charter, only individuals who committed heinous crimes would be prosecuted and not the State of Germany.⁴⁵ While the Nuremburg Tribunal established an international precedent for the prosecution of crimes of aggression, the Kampala Amendment adopts the position of Resolution 3314. Resolution 3314 makes it clear that aggression is a crime committed by States, and therefore, any individual charged with the crime must be committing a State act.⁴⁶

The Kampala Amendment adopts Resolution 3314’s definition of aggression as committed by States and adds the requirement that the person must be in a position “to exercise control over or to direct the political or military action of a State.”⁴⁷ This is troubling for two reasons: first, it will bar prosecution of non-State actors, and second, those outside the control of political or military actions will not be held liable. Non-State actors could include groups like terrorist organizations who have no connection to a State, but instead are connected by a common cause or mission.⁴⁸ While some argue that the definition of Statehood could be construed to include these groups, that course of action would undermine the ICC.⁴⁹ Regarding the second issue, it is conceivable that an individual

the fact that the Rome Statute grants jurisdiction for war crimes, crimes against humanity, and genocide. *Id.*

41. Wilmschurst, *supra* note 23, at 93.

42. Rome Statute, *supra* note 25, pmbl.

43. International Military Tribunal, *supra* note 10, at 223.

44. *Id.*

45. Nuremburg Charter, *supra* note 11; Dawson, *supra* note 9, at 423.

46. G.A. Res. 3314, *supra* note 19, annex art. 1 (“[A]ggression is the use of armed force by a State against . . . another State.” (emphasis added)); Dawson, *supra* note 9, at 435.

47. Kampala Amendment, *supra* note 4.

48. Anderson, *supra* note 8, at 419-20.

49. *Id.* at 432-33 (citing Noah Weisbord, *Conceptualizing Aggression*, 20 DUKE J. COMP. & INT’L L. 1 (2009), for the position that the best way for the ICC to handle terrorist organizations is to interpret the word State in a way that would include State-like entities). When a State becomes a member of the ICC, there are rights and obligations conferred upon that State;

with no connection to military or political actions could have substantial involvement in advancing a crime of aggression.⁵⁰ The statute only requires the “planning, preparation, initiation or execution . . . of an act of aggression,” which could be done by numerous individuals (including hired contractors or companies), who would not be held liable.⁵¹

The U.N. Charter gives the Security Council the role of determining when an act of aggression has occurred.⁵² Article 15 *bis* of the Kampala Amendment also outlines the role that the Security Council plays in bringing prosecution for these crimes.⁵³ The involvement is substantial, requiring the ICC prosecutor to ascertain whether the Security Council has determined that an act of aggression occurred, committed by the State concerned.⁵⁴ If the Security Council has made a determination that an act of aggression has occurred, then the prosecutor may continue his investigation.⁵⁵ However, if the Security Council has not determined that an act of aggression has occurred, the prosecutor must wait six months before he can continue the investigation “provided that the Pre-Trial Division has authorized the commencement” and only if the Security Council has not decided otherwise.⁵⁶

Such involvement by the Security Council may greatly hamper the ability of the ICC to bring charges of crimes of aggression.⁵⁷ Since the establishment of the ICC by the Rome Statute, the Security Council has

allowing the ICC to classify terrorist organizations as States would place on them all of the obligations with none of the rights.

50. See Anderson, *supra* note 8, at 419; Jonathan A. Ophardt, *Cyber Warfare and the Crime of Aggression: The Need for Individual Accountability on Tomorrow's Battlefield*, 3 DUKE L. & TECH. REV. para. 52 (2010). Both dukes provide examples of individuals contributing or planning acts that could be considered acts of aggression. *Id.*

51. Kampala Amendment, *supra* note 4.

52. U.N. Charter art. 39 (“The Security Council shall determine the existence of any threat to the peace, breach of the peace, or act of aggression and shall make recommendations, or decide what measures shall be taken in accordance with Articles 41 and 42, to maintain or restore international peace and security.”).

53. Kampala Amendment, *supra* note 4, art. 15 *bis*.

54. *Id.*

55. *Id.*

56. *Id.* Article 15 *bis* is further qualified by article 16, which states:

No investigation or prosecution may be commenced or proceeded with under this Statute for a period of 12 months after the Security Council, in a resolution adopted under Chapter VII of the Charter of the United Nations, has requested the Court to that effect; that request may be renewed by the Council under the same conditions.

Rome Statute, *supra* note 25, art. 16.

57. Anderson, *supra* note 8, at 439; Glennon, *supra* note 10, at 102-06; Claus Kress, *The Crime of Aggression Before the First Review of the ICC Statute*, 20 LEIDEN J. INT'L L. 851, 859 (2007).

been reluctant in referring cases for prosecution.⁵⁸ Even more troubling is the fact that the Security Council rarely finds an armed attack to be an act of aggression.⁵⁹ A potential reason for the Security Council's hesitance in naming an act of aggression is the accepted position that aggression is only committed by States, and therefore peace might be better served by not placing blame on a single State.⁶⁰ The Security Council, relying on political reasons to make a determination, compounds this position.⁶¹ Also, by allowing the Security Council to make the determination, the permanent members of the Council could effectively become immune from liability for committing an act of aggression.⁶²

Any punishment imposed would be *ex post facto*,⁶³ because the Security Council alone determines whether an act of aggression has occurred. There are no specific standards that exist to guide the Council on what should or should not be considered an act of aggression outside Resolution 3314, which explicitly states that the list of possible acts is nonexhaustive.⁶⁴ In making a determination, each case will be decided based on the specific facts and could turn on the political underpinnings.⁶⁵ The danger of this is that the prosecution's case could be based on discriminatory and arbitrary findings.⁶⁶

In light of these issues, it is clear that there is no way around the Security Council's determination. Excluding the Council from the

58. Anderson, *supra* note 8, at 438 (noting that since the Rome Statute entered into effect, the Security Council has only referred one case for prosecution).

59. *Id.* at 438-39 (finding that the Security Council has only denounced aggression thirty-one times); Paula Escarameia, *The ICC and the Security Council on Aggression: Overlapping Competencies?*, in *THE INTERNATIONAL CRIMINAL COURT AND THE CRIME OF AGGRESSION*, *supra* note 12, at 140.

60. See Boeving, *supra* note 7, at 583.

61. *Id.* ("The possibility of a politically-motivated decision would clearly undermine the credibility of the ICC as an entity able to equally punish all those who commit what its preamble describes as 'the most serious crimes of concern to the international community.'")

62. See Andreas L. Paulus, *Peace Through Justice? The Future of the Crime of Aggression in a Time of Crisis*, 50 *WAYNE L. REV.* 1, 22 (2004). The five permanent members of the Security Council include the United States, Russia, France, the United Kingdom, and China. Each permanent member has veto power over any substantive resolution. U.N. Charter arts. 23, 27.

63. Glennon, *supra* note 10, at 103. The Security Council has such broad discretion in determining when an act of aggression has occurred that no actor could realistically know whether or not their action might give rise to the Council finding that an act of aggression has occurred. *Id.*

64. *Id.*; G.A. Res. 3314, *supra* note 19.

65. G.A. Res. 3314, *supra* note 19. Because of this prosecution will be based on policy judgments, which allow for broad discretion and "broad discretion precludes clear and precise notice." *Id.*

66. *Id.*

process would go against the U.N. Charter, and it is essential that the Charter be upheld in order to maintain cooperation by State parties.⁶⁷ This would help to remove any disincentive for a state to join the ICC. Like it or not, the Security Council determines whether a crime of aggression has occurred, which leads into the next issue of whether an appropriate definition has been adopted to ensure that crimes of aggression are reduced to the least possible.

Article 8 *bis* of the Kampala Amendment has defined the crime of aggression as

the planning, preparation, initiation or execution, by a person in a position effectively to exercise control over or to direct the political or military action of a State, of an act of aggression which, by its character, gravity and scale, constitutes a manifest violation of the Charter of the United Nations.⁶⁸

Paragraph two of article 8 *bis* defines an act of aggression and provides a list of acts that qualify.⁶⁹ However, while the list of acts are identical, there is one key difference: article 4 of Resolution 3314 clearly states that the list of acts are nonexhaustive, which is not stated by the

67. By allowing the Security Council to make a determination on whether an act of aggression has occurred, it is more likely that nations such as the United States will support the ICC and become a State party.

68. Kampala Amendment, *supra* note 4, art. 8 *bis*.

69. *Id.* Under the Amendment, any of the following qualify as an act of aggression:

- (a) The invasion or attack by the armed forces of a State of the territory of another State, or any military occupation, however temporary, resulting from such invasion or attack, or any annexation by the use of force of the territory of another State or part thereof;
- (b) Bombardment by the armed forces of a State against the territory of another State or the use of any weapons by a State against the territory of another State;
- (c) The blockade of the ports or coasts of a State by the armed forces of another State;
- (d) An attack by the armed forces of a State on the land, sea or air forces, or marine and air fleets of another State;
- (e) The use of armed forces of one State which are within the territory of another State with the agreement of the receiving State, in contravention of the conditions provided for in the agreement or any extension of their presence in such territory beyond the termination of the agreement;
- (f) The action of a State in allowing its territory, which it has placed at the disposal of another State, to be used by that other State for perpetrating an act of aggression against a third State;
- (g) The sending by or on behalf of a State of armed bands, groups, irregulars or mercenaries, which carry out acts of armed force against another State of such gravity as to amount to the acts listed above, or its substantial involvement therein.

Id.

definition adopted by the ICC.⁷⁰ By eliminating article 4 from the newly adopted amendment, the definition invites the list to be interpreted as either exhaustive or nonexhaustive.⁷¹ Key to this determination are the words in article 8 *bis* “in accordance with . . . [R]esolution 3314.”⁷² If the provision is read to include all articles of Resolution 3314, whether or not they are included in the amendment’s definition, then the acts listed should not be read as exhaustive.⁷³ The other reading is that the Kampala Amendment specifically chose not to include article 4 of the Resolution in the definition. This reading would classify the list of acts as exhaustive, and “the generic definition that precedes the list is merely a description of the class that those acts occupy exclusively.”⁷⁴ While there appears to be no consensus on which interpretation is correct, the decision might ultimately lie in the hands of the Security Council.⁷⁵

The Security Council has the power under Resolution 3314 to decide when an act of aggression has occurred. Furthermore, the power given to the Security Council by article 15 *bis* of the amendment to make a determination before an investigation may proceed carries great weight. Although the ICC prosecutor must first determine if there is a basis to proceed before going to the Security Council, it seems logical that if the Security Council has determined that an act of aggression has occurred outside the specific acts listed in the amendment, then the ICC prosecutor would make the same determination.⁷⁶ Whether or not the list of acts is exhaustive, it is clear that the act of aggression must constitute a “manifest violation” of the U.N. Charter.⁷⁷

In determining what a manifest violation might be, the amendment provides two starting points. First, the act “by its character, gravity and

70. G.A. Res. 3314, *supra* note 19, annex art. 4. “The acts enumerated above are *not* exhaustive and the Security Council may determine that other acts constitute aggression under the provisions of the Charter.” *Id.* (emphasis added). “Any of the following acts, regardless of a declaration of war, shall, in accordance with United Nations General Assembly resolution 3314 (XXIX) of 14 December 1974, qualify as an act of aggression . . .” Kampala Amendment, *supra* note 4, art. 8 *bis*.

71. Ophardt, *supra* note 50, para. 35.

72. Glennon, *supra* note 10, at 97; Kampala Amendment, *supra* note 4, art. 8 *bis*.

73. Glennon, *supra* note 10, at 97.

74. *Id.* at 97-98.

75. *See id.*; *see also* Ophardt, *supra* note 50, para 35. Both articles make the claim that the exhaustiveness of the list is open to debate.

76. The logic is twofold. First, because the Security Council rarely recognizes acts of aggression, the act must be severe enough for the Council to have classified it as an act of aggression. Second, under the Preamble of the Rome Statute, the ICC is determined to put an end to these crimes and reaffirm the purpose of the U.N. Charter. Rome Statute, *supra* note 25, pmb1.

77. Kampala Amendment, *supra* note 4, art. 8 *bis*.

scale” must constitute a manifest violation.⁷⁸ For a violation to occur, more than one component must be met in order to constitute a manifest violation.⁷⁹ Second, a manifest violation will be determined by an objective finding.⁸⁰ While the amendment sought to clarify what would constitute a crime of aggression by including the manifest violation requirement, the inclusion created as many questions as it answered.⁸¹ The qualifier was likely added as a compromise between two competing sides: those that wanted a minimum threshold allowing all acts of aggression to be subject to prosecution as opposed to those who wanted the highest threshold allowing only the most serious acts to be punishable.⁸² The final question is which entity is responsible for determining when a manifest violation has occurred. While the Security Council argued that they should be the sole determining factor based on the text of the U.N. Charter and their connection to acts of aggression, the amendment settled on a compromise and eliminated exclusive Security Council authority in exchange for the opt-out provision.⁸³

The ICC’s new definition of a crime of aggression at first glance appears to be narrowly construed. Because jurisdiction is limited to State parties, the court will face extreme difficulty in furthering its goal of eliminating this heinous crime. The ICC could further narrow the definition’s applicability by imposing a strict requirement that acts can only be committed by those with substantial State connection and that such acts must be considered an armed attack. However, as the world progresses, there comes a need to broaden its interpretation to include

78. *Id.*

79. Int’l Crim. Court [ICC], Conference Room Paper on the Crime of Aggression, RC/WGCA/1/Rev.2 (June 10, 2010) (“It is understood that in establishing whether an act of aggression constitutes a manifest violation of the Charter of the United Nations, the three components of character, gravity and scale must be sufficient to justify a ‘manifest’ determination. No one component can be significant enough to satisfy the manifest standard by itself.”).

80. Kampala Amendment, *supra* note 4, annex II, art. 8 *bis* Amendments to the Elements of Crimes. The difficulty in making an objective finding is inherent in the definition. One must determine by the gravity of the offense whether or not an act has occurred but no examples of how severe conduct must be are given.

81. Glennon, *supra* note 10, at 101; Beth Van Schaack, *Negotiating at the Interface of Power & Law: The Crime of Aggression*, 49 COLUM. J. TRANSNAT’L L. 505, 522 (2011).

82. Van Schaack, *supra* note 81, at 522.

83. *Id.* at 573. This is consistent with the United Kingdom Coalition for the ICC, which stated, “[W]e would not support the adoption of such an amendment, unless it also fully respected the independence and integrity of the institution of the Court, and in particular does not tie the exercise of jurisdiction by it, to any exclusive pre-determination by any external body.” *Position on Support for the CICC Aggression*, U.K. COAL. FOR THE ICC (May 20, 2010), available at http://www.iccnw.org/documents/UK_CICC_Position_on_Support_for_the_CICC_Aggression_Team_Draft_Paper.pdf.

acts not previously considered. The Stuxnet worm and the increasing threat of cyber attacks appear in this time when a broad interpretation is most appropriate.

III. STUXNET

A. *What Is Stuxnet?*

In 2010, a computer worm called Stuxnet took the world by storm. The worm was first discovered in June of 2010 by a small computer security firm in Belarus.⁸⁴ Since that time, the Stuxnet worm has gone on to infect over 100,000 computer systems worldwide.⁸⁵

Stuxnet is a computer worm that falls under the broad classification of malware.⁸⁶ Malware is the short term for malicious software programs.⁸⁷ Malware is defined by the Information Assurance Technology Analysis Center as “[s]oftware or firmware intended to perform an unauthorized process that will have adverse impact on one or more required properties of the targeted system, including (but not limited to)—confidentiality, privacy, integrity, availability, dependability, usability, and performance.”⁸⁸ There are many varieties of malware. The most common are computer viruses, which were also the first malware to get the public’s attention. Malware can also commonly include worms, Trojan horses, bots, and spyware.⁸⁹ Unlike a computer virus, which is dependent on the transfer of a host file to spread, a worm can work completely independent of a host file and spread to any computer connected to a network.⁹⁰

84. Gregg Keizer, *Is Stuxnet the ‘Best’ Malware Ever?*, COMPUTERWORLD (Sept. 16, 2010), http://www.computerworld.com/s/article/9185919/Is_Stuxnet_the_best_malware_ever_.

85. Wayne Madsen, *Stuxnet: A Violation of US Computer Security Law*, OPINION MAKER (Jan. 22, 2011), <http://www.opinion-maker.org/2011/01/stuxnet-a-violation-of-us-computer-security-law/>.

86. Keizer, *supra* note 84.

87. Sherry Holetzky, *What Is Malware?*, WISEGEEK, <http://www.wisegeek.com/what-is-malware.htm> (last modified June 20, 2011).

88. KAREN MERCEDES GOERTZEL, INFORMATION ASSURANCE TOOLS REPORT: MALWARE 215 (2009), available at <http://iac.dtic.mil/iatac/download/malware.pdf>. The Information Assurance Technology Analysis Center (IATAC) provides the Department of Defense (DoD) with emerging scientific and technical information to support Information Assurance (IA) and defensive information operations.

89. *Id.* at 7.

90. *Computer Worm*, TECH-FAQ.COM, <http://www.tech-faq.com/computer-worm.html> (last visited Sept. 28, 2011).

B. How Stuxnet Works

Unlike other worms that are designed to spread indiscriminately and steal information, such as credit card numbers, account logins, and passwords, Stuxnet was designed to perform a specific task.⁹¹ To begin, Stuxnet only infects Windows-operating computers.⁹² Stuxnet is unique in that it primarily spreads through infected USB devices.⁹³ Thus, if a computer has been infected with the Stuxnet worm, it does not mean that Stuxnet will actually cause any harm to that computer.⁹⁴ Stuxnet is designed to target only a specific Programmable Logic Controller (PLC) made by Siemens.⁹⁵ PLCs are a type of control system that run a variety of machines and automated processes.⁹⁶ The PLCs work in conjunction with supervisory control and data acquisition (SCADA) systems, which “are used to monitor and control a plant or equipment in industries such as telecommunications, water and waste control, energy, oil and gas refining and transportation.”⁹⁷

After Stuxnet has identified the targeted PLC, it uses four zero-day vulnerabilities to gain access to the network of computers that manage the SCADA system.⁹⁸ Once inside the network, Stuxnet is able to infect the specific PLCs that control the SCADA systems.⁹⁹ By infecting the PLC, Stuxnet is able to read and change specific pieces of data, essentially reprogramming the PLC to operate in an unintended way.¹⁰⁰

91. Schneier, *supra* note 1. Bruce Schneier describes Stuxnet as a worm that “performs sabotage.” *Id.*

92. *Id.*; Keizer, *supra* note 84.

93. Keizer, *supra* note 84. A USB (universal serial bus) device is an external electronic instrument that connects to a computer through a USB port. These devices are compact and capable of storing a massive amount of data. Common examples are flash drives, memory sticks, mp3 players, and PDAs. R. Kayne, *What Is a USB Mass Storage Device?*, WISEGEEK, <http://www.wisegeek.com/what-is-a-usb-mass-storage-device.htm> (last visited Sept. 24, 2011).

94. *See* Schneier, *supra* note 1.

95. *Id.* Siemens SIMATIC WinCC/Step 7 controller software is the specific PLC that Stuxnet targets.

96. *Id.* Bruce Schneier notes that the press often refers to PLCs as SCADA systems, but he points out that that term is technically incorrect. *Id.*

97. NAT'L COMM'N SYS., TECHNICAL INFORMATION BULLETIN 04-1, at 4 (2004), available at http://www.ncs.gov/library/tech_bulletins/2004/tib_04-1.pdf.

98. Keizer, *supra* note 84. A zero-day vulnerability means that a worm takes advantage of a vulnerability in the computer's security on the same day that the vulnerability is discovered. *Zero-Day Exploit*, SEARCHSECURITY.COM, <http://searchsecurity.techtarget.com/definition/zero-day-exploit> (last updated Mar. 17, 2004).

99. Keizer, *supra* note 84.

100. *Id.*; Schneier, *supra* note 1.

C. Stuxnet's Target and the Damage Caused

It has been widely reported that Iran's nuclear program was the intended target of the Stuxnet worm.¹⁰¹ While downplaying the success of the worm, Iranian President Mahmoud Ahmadinejad confirmed that the Stuxnet worm did indeed set back the country's nuclear program.¹⁰² Because Stuxnet looks for very specific details in very specific locations, experts believe that the Bushehr nuclear power plant and the Natanz uranium enrichment facilities were the actual target of the worm.¹⁰³ Outside of Iran's nuclear program, there is no consensus on whether the Stuxnet worm has caused any other damage.¹⁰⁴

The worm has two components. The first component was designed to inflict the damage, and the second component was designed to cover the tracks.¹⁰⁵ The first component infected the PLC, making changes to the system that caused the uranium centrifuges at Iran's uranium enrichment site to increase in speed to the point of failure.¹⁰⁶ The second component was the key to success.¹⁰⁷ The worm made a copy of the plant system operating at normal conditions, then, the worm made changes to cause centrifuge destruction, while it played the copy of the plant operating normally so that the plant operators assumed all systems were running correctly.¹⁰⁸ The destruction of the centrifuges caused many individuals, including Secretary of State Hillary Clinton, to announce their beliefs that Iran's nuclear efforts have been set back several years.¹⁰⁹

101. Broad, Markoff & Sanger, *supra* note 3; John Leyden, *Israel and US Fingered for Stuxnet Attack on Iran*, REGISTER (Jan. 17, 2011), http://www.theregister.co.uk/2011/01/17/stuxnet_israel_connection_fleshed_out/; Keizer, *supra* note 84; Madsen, *supra* note 85.

102. Christopher Williams, *Stuxnet: Cyber Attack on Iran 'Was Carried Out by Western Powers and Israel'*, TELEGRAPH, Jan. 21, 2011, <http://www.telegraph.co.uk/technology/8274009/Stuxnet-Cyber-attack-on-Iran-was-carried-out-by-Western-powers-and-Israel.html>.

103. Robert McMillan, *Was Stuxnet Built To Attack Iran's Nuclear Program?*, PC WORLD (Sept. 21, 2010, 4:10 AM), http://www.peworld.com/businesscenter/article/205827/was_stuxnet_built_to_attack_irans_nuclear_program.html; Duncan Hollis, *Could Deploying Stuxnet Be a War Crime?*, OPINIO JURIS (Jan. 25, 2011, 11:54 AM), <http://opiniojuris.org/2011/01/25/could-deploying-stuxnet-be-a-war-crime/>. Siemens expert Ralph Langer stated that the Bushehr plant was the most logical target, but Langer did note that it was just a speculation. McMillan, *supra*.

104. Madsen, *supra* note 85 (claiming that systems in as many as thirty countries were disabled). While there is no doubt that Stuxnet has been found on other systems in many countries, the Iranian nuclear program appears to be the only system that was definitely affected by the worm. Broad, Markoff & Sanger, *supra* note 3; Keizer, *supra* note 84.

105. Broad, Markoff & Sanger, *supra* note 3.

106. *Id.*

107. *See id.*

108. *Id.*

109. *Id.*

D. Who Is Responsible?

The incredible complexity of the Stuxnet worm led many to estimate that the project took eight to ten computer programmers up to six months to write.¹¹⁰ Furthermore, the specialized target, the time invested, and the high cost of writing a worm of this complexity point to a conclusion that the worm is supported by a State government.¹¹¹ Following the logic that a State is responsible for the worm, the evidence uncovered thus far indicates that the United States and Israel are the most likely culprits.¹¹² It is widely known that the United States and Israel do not condone Iran's nuclear efforts, and evidence embedded inside the worm itself also points to their involvement.¹¹³ Inside the worm were words referring to the Jewish Old Testament.¹¹⁴ The word "mytrus," which is found in the worm, is Hebrew for Queen Ester who saved the Jews from genocide.¹¹⁵ In addition, the registry value, which alerts new copies of Stuxnet that computer is infected, is "19790509."¹¹⁶ It is speculated that this number refers to the date May 9, 1979, which is the date that Jewish philanthropist Habib Elghanian was executed in Tehran after being convicted of espionage.¹¹⁷ At first appearance, these hidden keys appear to be conclusive, but experts are quick to point out that they could be a "red herring" or perhaps have another meaning altogether.¹¹⁸

The evidence in the code is likely insufficient to justify a real accusation of the two nations, but according to a *New York Times* article, there is much more than just hidden words and numbers embedded in the worm that point towards U.S. and Israeli involvement.¹¹⁹ The *New York Times* reported that the project began in the last month of President Bush's Administration.¹²⁰ In 2008, the Idaho National Laboratory began

110. Schneier, *supra* note 1; Keizer, *supra* note 84 (noting that because there are so many different parts to the worm, it would take a team of specialists to complete the project).

111. Schneier, *supra* note 1; Keizer, *supra* note 84; Williams, *supra* note 102; Broad, Markoff & Sanger, *supra* note 3.

112. Broad, Markoff & Sanger, *supra* note 3.

113. *Id.*

114. Madsen, *supra* note 85.

115. *Id.*; Schneier, *supra* note 1.

116. Schneier, *supra* note 1.

117. Elinor Mills, *Stuxnet: Fact vs. Theory*, CNET (Oct. 5, 2010, 4:00 AM), http://news.cnet.com/8301-27080_3-20018530-245.html; Karmel Melamed, *Recalling Elghanian's Execution 30 Years Later*, JEWISH J. (May 6, 2009), http://www.jewishjournal.com/community/article/recalling_elghanians_execution_30_years_later_20090506/.

118. Mills, *supra* note 117 (pointing out that May 9, 1979, is also the date that a bomb made by the Unabomber injured a Northwestern grad student and that the word "myrtus" could stand for "my remote terminal units").

119. Broad, Markoff & Sanger, *supra* note 3.

120. *Id.*

to study the software of Siemens PLCs.¹²¹ The Idaho National Laboratory teamed up with Siemens to identify vulnerabilities and ways to gain control of the system.¹²²

The type of centrifuge attacked at the Bushehr nuclear plant is known as a P-1, standing for Pakistan's first-generation centrifuge.¹²³ The purpose of a centrifuge is to spin uranium gas, which slowly concentrates into the form needed to fuel bombs and reactors.¹²⁴ It is unclear when and how Israel obtained the P-1 centrifuge for testing, but there is now a row of the centrifuges at the Dimona nuclear complex in the Negev desert.¹²⁵ It also appears that the United States has its own crop of P-1 centrifuges for testing that it obtained from Libya after the cessation of their nuclear program in 2003.¹²⁶ While this evidence does point to U.S. and Israeli involvement, it is still unclear how the worm was embedded on the plant's system. Iran claims that the worm came from the laptops of Russian contractors who were working at the plant and placed it onto the system.¹²⁷

The complexity of the Stuxnet worm at this point in time seems unparalleled by any other malware. The destructive nature of the worm and the precision with which it sought out and disabled its target, without the need to fire a missile or explode a bomb, could establish a precedent for modern warfare. What remains to be seen is whether the Stuxnet worm will, or should, lead to prosecution. The ICC is in the best position to pursue prosecution for an international incident, but is it possible that the worm will be considered an act of aggression under the ICC?

IV. STUXNET: ACCOUNTABILITY FOR THE CRIME OF AGGRESSION UNDER THE ICC

The definition adopted by the ICC requires the prosecution to establish three things. First, there must be State action; second, the action must rise to the use of armed force; and third, the prosecution must establish jurisdiction over the crime. The forces at work behind the Stuxnet worm appear to provide the possibility of State action; the devastating nature of the worm could lead to the conclusion that it constitutes the use of armed force; and while the jurisdictional bar may

121. *Id.*

122. *Id.*

123. *Id.*

124. *Id.*

125. *Id.*

126. *Id.*

127. Nancy McKenna, *Stuxnet: The First Cyber "Super-Weapon?"* COMPUTER CRIM. TECH. L. ENFORCEMENT 1-2 (Nov. 2010).

be too much to overcome in this case, the court could start down a path that would lead to future prosecution.¹²⁸

A. *Stuxnet: Individual or State Action?*

Cyber attacks like the Stuxnet worm may represent a new era in the way States engage in warfare.¹²⁹ Experts have viewed the worm to be evolutionary, state of the art, and even a “cyber super weapon.”¹³⁰ There is no denying the potential that Stuxnet and future cyber attacks pose; still, the Kampala Amendment did not include “cyber attacks” in their definition of the crime of aggression. The definition appears to be limited to armed attacks by State actors, but it is possible that under certain situations and broad interpretation, that the Stuxnet worm and others to follow could be considered a crime of aggression.

There are two main concerns when claiming Stuxnet is a crime of aggression: the State actor requirement and the armed force qualifier. The requirement that only “person[s] in a position effectively to exercise control over or to direct the political or military action of a State” may commit a crime of aggression limits the Kampala Amendment’s applicability when attempting to apply it to the Stuxnet worm.¹³¹ The first issue is that a person who exercises control over State actions likely did not create Stuxnet—Stuxnet was most likely created by a group of individuals who specialize in computer engineering or programming.¹³² Alternatively, independent companies could have been hired to coordinate cyber attacks on targets.¹³³ Although the German company Siemens worked with the Idaho National Labs to find the vulnerabilities in the PLC, the State actor requirement would bar prosecution, unless the German government was also involved in the attack.¹³⁴

State involvement with the Stuxnet worm has not been conclusively determined, but there is little doubt that it did occur.¹³⁵ Attacks of this magnitude could only be State sponsored. Primarily, there are too many people involved, and realistically, the Stuxnet worm is too complicated to

128. Broad, Markoff & Sanger, *supra* note 3.

129. Ophardt, *supra* note 50, para. 1.

130. McKenna, *supra* note 127; *see* Keizer, *supra* note 84.

131. *See* Ophardt, *supra* note 50, paras. 12, 45; Kampala Agreement, *supra* note 4, art. 8 *bis*.

132. *See* Schneier, *supra* note 1.

133. Ophardt, *supra* note 50, para 15.

134. There does not appear to be any evidence that the German government knew or participated in the creation of the Stuxnet worm.

135. Broad, Markoff & Sanger, *supra* note 3.

be developed by a non-State group.¹³⁶ Another indication is the target of the worm. The Natanz plant was being used for the development of nuclear weapons.¹³⁷ Cyber attacks conducted by individuals are normally done for monetary gain and fame.¹³⁸ Attacking a nuclear center solely for its destruction and not for monetary gain appears to be a State-motivated action. Another factor is the massive cost of creating Stuxnet. Funding eight computer programs for a period of six months, in addition to contracting with Siemens to discover vulnerabilities in the PLC and acquiring P-1 centrifuges for testing, requires serious financial backing that only a State could provide.¹³⁹ These facts lead to the logical conclusion that Stuxnet was a State-funded operation designed to attack a military target.

Conversely, assume that the United States and Israel are behind the attacks on Iran's nuclear program. Under the amendment, Stuxnet must have been planned, prepared, initiated, or executed by a person in control of the actions of the State.¹⁴⁰ According to the *New York Times*, President Bush "authorized a covert program to undermine the electrical and computer systems around Natanz," Iran's uranium nuclear center that was hit by the Stuxnet virus.¹⁴¹ The article continues, claiming that President Obama was briefed on the program before taking office and instituted a policy to speed up the development.¹⁴²

If the Presidents of the United States knew of and supported the program, then the first prong of the definition of the crime of aggression should be satisfied. One could argue that they planned and prepared the attack by instituting policy to develop the program. They are also "person[s] in a position effectively to exercise control over or to direct the political or military action of a State" under the commander in chief power granted by the United States Constitution.¹⁴³ The same argument would be made for the leaders of Israel.

Although potential liability for the Stuxnet worm would fall on the Heads of State, the leadership clause in the definition severely limits the amendment's purpose to prevent crimes of aggression when considering

136. See Schneier, *supra* note 1; Broad, Markoff & Sanger, *supra* note 3.

137. *Natanz (Kashan)*, GLOBALSECURITY.ORG, <http://www.globalsecurity.org/wmd/world/iran/natanz.htm> (last modified July 24, 2011).

138. Ophardt, *supra* note 50, para. 46.

139. See Broad, Markoff & Sanger, *supra* note 3.

140. Kampala Amendment, *supra* note 4. Under the wording of the Amendment, high-ranking generals may also be liable. This view would be consistent with Resolution 3314, which adopted the position that only acts made by heads of State would be prosecutable.

141. Broad, Markoff & Sanger, *supra* note 3.

142. *Id.*

143. Kampala Amendment, *supra* note 4, art. 8 *bis*; U.S. CONST. art. II, § 2.

the Stuxnet worm and future cyber attacks. For example, a group of individuals most likely created the Stuxnet worm, and the most probable scenario is that these individuals were contracted by a government to create the worm.¹⁴⁴ However, under the Kampala Amendment's definition, these individuals would escape prosecution because they are not in a position to control or direct political or military action. Because of the leadership clause, there is no deterrent in place to keep individuals from creating dangerous computer worms or viruses with the ability to cripple a vast amount of infrastructure.

An alternative is to allow for broad interpretation of the leadership clause.¹⁴⁵ The individuals responsible for the creation of the Stuxnet worm may be the only ones that can "control" the action of the worm. By interpreting the definition broadly, it is arguable that the worm acts as a military action of the State because it effectively disables another nation's nuclear arms program and that the creators of the worm are in control of that military action. While this definition is unlikely, it would be the best way to ensure that individuals are deterred from creating future malware like Stuxnet.

B. Stuxnet as Armed Force

The second prong that must be satisfied under the new definition of crime of aggression is that the act constitutes a manifest violation of the U.N. Charter.¹⁴⁶ The U.N. Charter defines an act of aggression as the use of armed force and the Kampala Amendment includes a list of acts that qualify.¹⁴⁷ It is clear that the Stuxnet worm and cyber attacks in general do not neatly fit into the definition of an act of aggression; however, there are several reasons why this type of attack should be included under a broad reading of the definition.

The traditional view is that the use of armed force refers to physical military action by traditional arms such as bombs, missiles, or troops.¹⁴⁸ However, a key flaw in this view is that "many objectives for which armed force was used in the past are now being realized through nonmilitary, nonforceful pressures."¹⁴⁹ There is immense pressure placed

144. Schneier, *supra* note 1.

145. See Ophardt, *supra* note 50, para 47.

146. Kampala Amendment, *supra* note 4.

147. *Id.*

148. See Hollis, *supra* note 103.

149. Boevig, *supra* note 7, at 570 (quoting ANN VAN WYNEN THOMAS & A.J. THOMAS, JR., THE CONCEPT OF AGGRESSION IN INTERNATIONAL LAW 12, 46 (1972) (internal quotation marks omitted) (alterations in original)). The article specially mentions tactics such as economic and diplomatic pressures; however, in this context a cyber attack could apply the same. *Id.*

on Iran's national security by targeting infrastructure critical to the development of its nuclear program.

Article 8 *bis* 2(b) lists one of the acts that qualify as an act of aggression as "the use of any weapons by a State against the territory of another State."¹⁵⁰ Arguably, Stuxnet is a weapon used by a State against the territory of another State. The common definition of a weapon is an instrument used or conceived to harm or kill another person.¹⁵¹ The definition in 2(b), however, qualifies the weapon as one used against the territory of another State. The Stuxnet worm was certainly used against the territory of Iran by infiltrating a nuclear plant and destroying the plant's centrifuges. Furthermore, while section 2(b) of the list begins with "[b]ombardment by the armed forces," the key to the section is that the allowance of *any weapons* used against a territory will qualify.¹⁵² Not only should the Stuxnet worm be considered a weapon, but it also should fall directly under section 2(b) of the list because the destruction caused is similar to that of a bomb.

On the other side of the coin, the use of armed forces refers to State activity that gives rise to a particular nature or intensity.¹⁵³ The force used must intend to cause damage or destruction and which the outcome was foreseeable.¹⁵⁴ The effects caused by the Stuxnet worm were the same as a missile or bomb hitting the facility.¹⁵⁵ The worm attacked the controllers at the nuclear plant, which led to the destruction of the centrifuges. From the experts' accounts, it seems that this was the intended target and the foreseeable outcome of the worm. Under these circumstances, Stuxnet should be viewed as a use of armed force.

The remaining problem is the possibility that the list of acts contained in the amendment is exhaustive. If Stuxnet cannot be viewed to fall under section 2(b), then the possibility that Stuxnet may be considered an act of aggression could be precluded. The solution would be to interpret the definition broadly to view the list as nonexhaustive and allow the possibility of prosecution.¹⁵⁶

150. Kampala Amendment, *supra* note 4, art. 8 *bis* 2(b).

151. BLACK'S LAW DICTIONARY 1730 (9th ed. 2009).

152. Kampala Amendment, *supra* note 4, art. 8 *bis* 2(b).

153. Michael N. Schmitt, *Wired Warfare: Computer Network Attack and Jus in Bello*, 84 IRRC 365, 372 (2002).

154. *Id.* at 373.

155. Hollis, *supra* note 103.

156. Ophardt, *supra* note 50, para. 66.

C. Obtaining Jurisdiction

The last hurdle to overcome involves the ICC's jurisdiction over the crime of aggression. Currently, this is an impossible hurdle. In order for the ICC to have jurisdiction, the crime of aggression must have been committed by a State party against another State party.¹⁵⁷ Neither the United States nor Israel is a party to the ICC.¹⁵⁸ Iran is also not a party to the ICC.¹⁵⁹ The jurisdictional restriction to only State parties of the ICC is the largest impediment to effective prosecution of the Stuxnet worm as a crime of aggression.

The limitation on jurisdiction is further compounded by the opt-out provision.¹⁶⁰ While some argue that the opt-out provision is a necessary compromise to ensure that nations like the United States become parties to the ICC, it undermines the meaning behind the crime of aggression. There is no apparent benefit to accept the court's jurisdiction over the crime of aggression. Under this interpretation, the sole purpose for defining the crime was not to actually prosecute any nation, but to entice non-State parties to join the ICC. The jurisdiction should have remained the same as it is under the other core crimes of the Rome Statute.

V. CONCLUSION

It is clear that the world is changing. Wars were at one time fought on battlefields with swords and hand-to-hand combat. Then the arrow changed the game, allowing the opposing forces to move further away and still inflict damage on the enemy. The gun followed, furthering the distance and the damage caused. Now modern wars can be fought from ships and planes firing missiles from hundreds of miles away.

Warfare has reached yet another era, where battles can be fought without missiles, bombs, or even soldiers. The Stuxnet worm is the beginning of a new form of warfare that can target and destroy key military objectives without the loss of a single soldier. The worm infiltrated a secure system and caused the destruction of key nuclear components, leading to a significant setback in an enemy's nuclear arms program. With almost all forms of communication and travel run by computer systems, the possibility of attacks of this kind will only increase.

157. Kampala Amendment, *supra* note 4, art. 15 *bis*.

158. *The States Parties to the Rome Statute*, ICC, <http://www.icc-cpi.int/Menu/ASP/states+parties/> (last visited Nov. 8, 2011).

159. *Id.*

160. Heller, *supra* note 6.

The international community needs to take a stand to eliminate the kind of attacks that could lead to serious destruction of a State's way of life. It is necessary that computer attacks like Stuxnet be viewed as acts of aggression. The ICC is in the best place to take that stand. However, once again, the court will fall victim to political pressure and will lack the key tools to make an effective fight against this new type of warfare.