

# THE NORTH AMERICAN FREE TRADE AGREEMENT (NAFTA) AND PROCESS PATENT PROTECTION

ALAN WRIGHT

## INTRODUCTION

Despite its congressional passage and pending ratification, controversy still surrounds the North American Free Trade Agreement (NAFTA),<sup>1</sup> both in the United States and Canada.<sup>2</sup> Following years of Bush administration support of free trade,<sup>3</sup> President Clinton faces increased public concern over the agreement's impact on jobs and the environment.<sup>4</sup> For many U.S. workers in mature industries such as automobiles, steel, and textiles, the prospect of decreasing employment outweighs any potential benefits that international free trade agreements might produce.<sup>5</sup> Ironically, while commentators

---

1. North American Free Trade Agreement, Dec. 17, 1992, 32 I.L.M. 289-456, 605-799 [hereinafter NAFTA]. See generally North American Free Trade Agreement, Texts of Agreement, Implementing Bill, Statement of Administrative Action, and Required Supporting Statements, H.R. DOC. NO. 159, 103d Cong., 1st Sess. (1993).

2. See Peter Rachleff, *Solidarity vs. Competition at the Heart of Labor Issue*, STAR TRIB., Nov. 15, 1993, at D3 (reporting history of labor opposition to NAFTA in United States, Canada, and Mexico). Compare Kenneth W. Abbott, *After NAFTA: The Uruguay Round*, CHICAGO TRIB., Nov. 29, 1993, at N19 (discussing benefits of both NAFTA and GATT despite opposition of labor and environmental groups), with Gene Green, *There Were Good Reasons for Opposing NAFTA*, HOUS. CHRON., Nov. 24, 1993, at C11 (defending opposition to NAFTA based in part on labor concerns).

3. See Brian O'Reilly, *How to Keep Exports on a Roll*, FORTUNE, Oct. 19, 1992, at 68, 72 (contrasting Bush's support for free trade with Clinton's initial reluctance to support NAFTA); see also Greg McDonald, *Bush Travels to Texas to Mark Trade Agreement With 2 Leaders*, HOUS. CHRON., Oct. 8, 1992, at A8 (describing President Bush's support of free trade and NAFTA).

4. See Kenneth J. Cooper, *Democrats' House Whips Cut Both Ways on NAFTA; Party Leadership Split Has White House Scrambling to Rally Support for Trade Pact*, WASH. POST, Sept. 5, 1993, at A26 (surveying political divisions caused by NAFTA); James Gerstenzang, *Clinton Maps an Uphill Battle for Trade Pact*, L.A. TIMES, Sept. 13, 1993, at A3 (discussing how Clinton administration put together coalition of business executives and environmentalists that support NAFTA).

5. See Andrew LePage, *Free-Trade Pact Targeted by Protesters: About 500 Workers; Labor and Environmental Leaders Rally Against Agreement*, L.A. TIMES, Oct. 23, 1992, at B4 (reporting opposition of textile union workers to NAFTA); see also Peter Gorrie, *Trade Pact Gets a Clean*

furiously debate NAFTA's impact on these preexisting jobs, few have considered the agreement's impact on future high-technology jobs and industries. By focusing on NAFTA's process patent provisions, this Comment demonstrates the agreement's critical role in protecting U.S. interests in high technology.

For owners of U.S. process patents,<sup>6</sup> NAFTA offers a powerful international approach for resolving the longstanding problem of foreign process piracy.<sup>7</sup> As this Comment will demonstrate, process-based technologies represent technology critical to future U.S. employment and economic security.<sup>8</sup> NAFTA's provisions for combating foreign piracy will help promote high-technology industries and thus will promote future U.S. competitiveness worldwide.<sup>9</sup>

Foreign piracy of U.S. process patents has plagued U.S. patent owners for well over a century.<sup>10</sup> Reforms in domestic trade and patent laws, though numerous, often have resulted in inadequate protection for process patentees.<sup>11</sup> The inadequacy of protective measures stems from the unique nature of process patents, the difficulty in proving their infringement, and the difficulties inherent

---

*Report*, TORONTO STAR, Nov. 3, 1992, at A1 (reporting results of Canadian study that predicts NAFTA will have positive impact on environment and labor); Don Turner, *Trade Agreement Risks U.S. Jobs*, CHI. TRIB., Oct. 26, 1992, at C12 (reporting economic studies of NAFTA's impact on U.S. labor, including University of Massachusetts study predicting 290,000-490,000 lost jobs and Economic Policy Institute study predicting 550,000 lost jobs).

6. See 35 U.S.C. § 101 (1988) ("Whoever invents or discovers any new and useful *process*, machine, manufacture, or composition of matter, or any new and useful improvements thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.") (emphasis added).

7. See *infra* notes 18-34 and accompanying text (discussing historical difficulties of protecting U.S. process patents from foreign infringement).

8. See *Critical Technology: OSTP Report, Hearing Before the Subcomm. on Technology and Competitiveness of the House Comm. on Science, Space, and Technology*, 102d Cong., 1st Sess. 15 (1991) [hereinafter *OSTP Report*] (statement of Dr. William Phillips, Associate Director, Office of Science and Technology Policy) (presenting report of National Critical Technologies Panel outlining 22 technologies considered critical to future U.S. economic and national security). The report noted striking similarities between its findings and those of a number of similar reports prepared by other governmental agencies, including the Department of Commerce and the Council on Competitiveness. *Id.* The report also notes "a great deal of overlap with critical technology identifications that have been carried out by the Japanese and the European Economic Community." *Id.*

9. See *infra* notes 136-56 and accompanying text (discussing need for NAFTA's strong international standards in overcoming problems historically associated with foreign process piracy).

10. See *In re Amtorg Trading Corp.*, 75 F.2d 826, 831, 24 U.S.P.Q. (BNA) 315, 321 (C.C.P.A.), *cert. denied*, 296 U.S. 576 (1935). The court in *Amtorg* stated:

No legislation of the nature of that proposed in 1852 has ever been enacted by the Congress and the extent of patent rights granted by process patents, which extent depends upon the statutes, has not been substantially changed by any law specifically directed thereto since such was fixed by Act of April 10, 1790.

*Id.* at 832, 24 U.S.P.Q. (BNA) at 321-22.

11. See *infra* notes 49-72 and accompanying text (discussing domestic reforms and criticisms of their effectiveness during past 60 years).

in the international enforcement of U.S. patent rights.<sup>12</sup> Unfortunately, while the United States struggles with the process piracy problem, countless process-based, high-technology industries are damaged by or lost to foreign competitors.<sup>13</sup>

NAFTA's process patent provisions represent a significant advancement for U.S. patentees against foreign piracy. By establishing international standards and procedures for the enforcement of intellectual property rights among member nations,<sup>14</sup> NAFTA offers to resolve the longstanding problems of jurisdiction, proof, and enforcement associated with foreign process piracy.<sup>15</sup> If the United States intends to remain globally competitive in process-based, high-technology industries, then it must continue to improve process patent protection through international agreements such as NAFTA.<sup>16</sup>

Defining the importance of process patent protection requires a multifaceted analysis. This Comment first characterizes the unique nature of process patents. Second, the Comment explores the history of process patent protection, illustrating the frustration that U.S. patentees traditionally have experienced in enforcing their patent rights. Third, the Comment considers the impact of increased world trade and highlights the complex trade interests currently surrounding process-based technologies. Once the importance of process patent protection is fully defined, the role that NAFTA plays in furthering U.S. process protection becomes clear.<sup>17</sup> Finally, this Comment considers future challenges for process protection and

---

12. See S. REP. NO. 83, 100th Cong., 1st Sess. 57 (1987) (discussing "difficulty a patentee may have in proving that the patented process was used in the manufacture of the product in question where the manufacturer is not subject to the service of process in the United States"); H.R. REP. NO. 60, 100th Cong., 1st Sess. 16 (1987) (discussing problems that domestic patentees have in bringing infringement actions against foreign manufacturers who are "not subject to discovery under the Federal Rules of Civil Procedure"); see also *infra* notes 18-34 and accompanying text (discussing how nature of process patents makes infringement actions against foreign manufacturers difficult to prove).

13. See *Unfair Foreign Trade Practices—Part 3: Hearings Before the Subcomm. on Oversight and Investigations and the Special Subcomm. on U.S.-Pacific Rim Trade of the House Comm. on Energy and Commerce*, 99th Cong., 2d Sess. 12-15 (1986) [hereinafter *Unfair Trade Hearings*] (testimony of Stephen F. Sims, Special Assistant, Subcommittee on Oversight and Investigations) (describing how inadequate protection for process patents by some Pacific Rim nations has negative impact on various U.S. industries, including pharmaceutical and biological industries).

14. See *infra* notes 136-56 and accompanying text (discussing NAFTA's improved process patent protection).

15. See NAFTA, *supra* note 1, at ch. 17 (outlining procedural and remedial provisions to enforce intellectual property rights).

16. See *infra* notes 35-48 and accompanying text (discussing role of process patents in critical high-technology industries).

17. See *infra* notes 157-221 and accompanying text (presenting relevant NAFTA provisions and considering impact of NAFTA on problems historically associated with process patent protection).

recommends federal involvement in promoting a competitive high-technology industrial base.

## I. DEFINING THE IMPORTANCE OF PROCESS PATENT PROTECTION

### A. *The Unique Nature of Process Patents*

The process patent is unique both procedurally and substantively.<sup>18</sup> The subject matter of process patents is inherently directed to the "means of obtaining" a result, rather than the actual result.<sup>19</sup> Compared to proving infringement of a product, proving infringement of a process is more difficult because products are tangible and typically in the stream of commerce, while processes are typically conducted outside public view.<sup>20</sup> Proving process infringement therefore presents unique procedural difficulties based in part on the hidden nature of process patent subject matter.<sup>21</sup> The additional burden of proving *foreign* infringement is a common procedural weakness in process patent protection<sup>22</sup> arising from jurisdictional deficiencies between sovereigns,<sup>23</sup> including lack of discovery.

Substantively, process patents represent the inventor's right to exclude others from using the process during the patent's term.<sup>24</sup> A "process" is defined as "an act or series of acts performed upon the subject-matter to be transformed or reduced to a different state or

---

18. See DONALD S. CHISUM, PATENTS § 1.03[1] (1992) (describing subject matter of process patents as unusual in comparison with other utility patents and with respect to nature of disclosed invention).

19. See *Ethyl Corp. v. Hercules Powder Co.*, 232 F. Supp. 453, 457 (D. Del. 1963) (describing difference between product and process patents as "[t]he former applies to a discovered article, the latter applies to a new method of making an article").

20. See CHISUM, *supra* note 18, § 16.02[6]; see also *Welsbach Light Co. v. Union Incandescent Light Co.*, 101 F. 131, 131 (2d Cir. 1900) ("The broad proposition that the vendor of a product which has been made in infringement of a patented process is an infringer, or liable to any extent to the patentee, is untenable and does not require discussion. The patentee's remedy is against the manufacturer."). The rationale set forth in *Welsbach Light* is no longer valid under 35 U.S.C. § 271(g); it serves, however, to illustrate the difference between infringement of a patented product versus a patented process. See *infra* notes 91-117 and accompanying text (tracing evolution of domestic patent law regarding treatment of foreign use of U.S. patented processes).

21. See CHISUM, *supra* note 18, § 21.02[3][b] (describing establishment of jurisdiction over foreign infringers and developments in minimum contacts analysis).

22. See H.R. REP. NO. 60, *supra* note 12, at 16 (discussing need for presumption of foreign infringement in patent enforcement proceedings).

23. See A.D. NEALE & M.L. STEPHENS, INTERNATIONAL BUSINESS AND NATIONAL JURISDICTION 3 (1988) (discussing limits on exercise of sovereign authority, including treaties or conventions that states enter into with other states). Neale and Stephens note that "[b]eing sovereign means that the decision-making of the legitimate organs of each state is autonomous, self determined, not subject to any superior outside authority." *Id.*

24. 35 U.S.C. § 154 (1988) ("Every patent shall . . . grant to the patentee . . . the right to exclude others from making, using, or selling the invention . . ."). The remainder of § 154 contains provisions designed to regulate foreign use of a U.S. process. See *id.*

thing.<sup>25</sup> Like all patents, the inventor discloses the process to the public in return for a term of exclusive use.<sup>26</sup> Whereas a foreign manufacturer can replicate any patented invention as a result of the invention's disclosure,<sup>27</sup> the patent owner can usually detect infringement of products through physical inspection. Conversely, the foreign manufacturer's unauthorized use of a patented process may remain undetected if the process does not produce a unique result.<sup>28</sup> Often, no satisfactory method exists for determining whether process infringement has occurred.<sup>29</sup> Consider the following example.<sup>30</sup>

Imagine you are the proud owner of U.S. Patent Number 6,000,000, granted January 4, 1994. Directed to a process for producing high-technology ceramic engine components, your patent represents years of costly research and development.<sup>31</sup> Assuming that the component itself is not patentable,<sup>32</sup> the U.S. patent system requires you to

---

25. *Cochrane v. Deener*, 94 U.S. 780, 788 (1877). *But cf.* CHISUM, *supra* note 18, § 1.03[1] (explaining courts' difficulties in defining "process" for purposes of determining patentable subject matter). A precise definition of "process" is not required for purposes of this Comment. Instead, it must be recognized that any definition of "process" focuses on determining the point between a theory of operation and some degree of practice or application of that theory.

26. *See* 35 U.S.C. § 154 (1988). The disclosure requirements for process patents are very demanding. Section 112 provides:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains . . . to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

35 U.S.C. § 112 (1988).

27. *See* 35 U.S.C. § 112 (1988) (setting forth requirement that "one skilled in the art" be able to use invention).

28. *See* H.R. REP. NO. 60, *supra* note 12, at 16-17 (explaining inability to identify process infringement in absence of unusual circumstances such as trace element analysis or ability to prove that only one method of manufacture exists).

29. *See* H.R. REP. NO. 60, *supra* note 12, at 16 (discussing rationale behind 1988 amendments, which added presumption of infringement); *infra* notes 107-12 and accompanying text (detailing § 9005(a) of Omnibus Trade Act of 1988 and process patent protection following its enactment).

30. *See* Reginald Rhein, Jr., *Patent Pirates May Soon Be Walking the Plank*, BUS. WK., June 15, 1987, at 62 (reporting Kyocera Corporation's introduction of ceramic heat seals made under process suspiciously similar to process patented in United States by Standard Oil Engineered Materials, Inc.). This Comment uses the following hypothetical for two reasons. First, it aids in understanding the inherent problem of disclosure. Second, it sets the stage for considering the economic stakes for high-technology industry. Similarities between the hypothetical and the reported dispute are purely coincidental.

31. *See id.* at 62 (reporting Standard Oil's loss at \$8.6 million).

32. *See* 35 U.S.C. § 101 (1988) (providing four separate statutory classes of invention, including product and process); *see also* *Amgen, Inc. v. ITC*, 902 F.2d 1532, 1540 (Fed. Cir. 1990) (holding that product patent to genetically engineered cells used in producing proteins provided no protection against foreign use of cell in process of producing protein). Unlike the present hypothetical, Amgen had no process patent. *Amgen* serves to illustrate how one may have a process and a product made from that process, and yet have only one patent, either for the process or the product, or no patent at all. This decision illustrates much of the frustration in biotechnology. Indeed, the biotechnology and pharmaceutical industries pioneered much

disclose how to process the component, yet does not grant you a patent for the product itself.

Soon thereafter, a foreign components manufacturer obtains a copy of your patent and begins producing parts using your disclosed process. The foreign parts are exported to the United States and are purchased by U.S. manufacturers, who are oblivious to the process piracy. You cannot eliminate the sale of the parts because your patent protects only the process for making the parts. Even more troubling is your inability to prove the foreign manufacturer's process infringement because the products are essentially fungible.<sup>33</sup> Although procedures for such proof theoretically exist under present U.S. patent law, careful analysis illustrates some residual problems. Under existing U.S. law, for example, the importer of the parts would be liable as an infringer while the true infringer—the foreign manufacturer—may continue to infringe the process.<sup>34</sup>

Moreover, process patents represent not just an invention, but a significant national resource—high technology.<sup>35</sup> Many technologies considered vital to long-term U.S. economic security are process based.<sup>36</sup> Thus, by disclosing critical process-based technologies, the United States essentially tips its competitive hand when it subsequently fails to commercialize the technologies competitively.<sup>37</sup> Given the inherent paradox of process disclosure, the implications of disclosure for the many process-based U.S. industries are considerable.<sup>38</sup>

---

of the recent reform in U.S. patent law. See Elizabeth R. Hall, Comment, *The Process Patent Amendments Act of 1988: Closing a Loophole in United States Patent Law*, 13 HOUS. J. INT'L L. 343, 356-57 (1991) (discussing *Amgen* and its negative impact on pharmaceutical companies).

33. See *supra* notes 18-29 and accompanying text (discussing proof problems in foreign process infringement).

34. See 35 U.S.C. § 271(g) (1988). Section 271(g) provides in part:

Whoever without authority imports into the United States or sells or uses within the United States a product which is made by a process patented in the United States shall be liable as an infringer, if the importation, sale, or use of the product occurs during the term of such process patent.

*Id.*; see also *infra* notes 110-11 and accompanying text (describing strengths and weaknesses of process patent protection under § 271(g)).

35. Cf. *OSTP Report*, *supra* note 8, at 10-11 (statement of Rep. Rohrabcher) (discussing importance of U.S. technology and need to preserve U.S. technological capability to ensure national wealth and security).

36. See *OSTP Report*, *supra* note 8, at 26 (statement of Dr. William Phillips, Associate Director, Office of Science and Technology Policy) (noting that categories of critical technology need continual development of new products and processes).

37. See *OSTP Report*, *supra* note 8, at 29 (statement of Charles V. Shank, Director, Lawrence Berkeley Laboratory) ("The ability of American industry to compete in the global marketplace, and to provide high value added, high technology American jobs is inexorably linked to our expertise and ability to provide leadership in these critical technological areas").

38. See *Trade and Technology: Implications of the GATT Negotiations, Hearing Before the Subcomm. on Technology and Competitiveness of the House Comm. on Science, Space, and Technology*, 102d Cong., 1st Sess. 53-54 (1991) [hereinafter *Trade and Technology Hearings*] (statement of David C. Mowrey,

Annually, the United States spends billions of dollars on research and development of advanced technology that centers on processing and synthesis.<sup>39</sup> Without protection for such process-based technologies, foreign piracy reduces U.S. industry's return on its investment, thus eroding the U.S. high-technology base.<sup>40</sup>

The United States can ill afford to lose its competitive technological position.<sup>41</sup> Yet foreign process piracy removes the incentive to develop technologies by preventing adequate returns on high-technology investments.<sup>42</sup> A U.S. manufacturer, fearing an inability to recoup the significant development costs associated with a process-based technology, may simply abandon the technology.<sup>43</sup> Alternatively, if a process-based technology is developed and disclosed through a patent, a foreign manufacturer may then exploit the technology without having to recoup development costs.<sup>44</sup> Further,

---

Associate Professor, Haas School of Business, University of California, Berkeley) (noting increased need of U.S. businesses to form international alliances with foreign firms, thereby increasing flow of high technology overseas). Although the United States has historically maintained a strong competitive innovative posture, it remains unable to exploit technologies competitively. *Id.* at 64. With so many critical process-based technologies, the United States has a national economic interest in protecting its process-based intellectual property.

39. See *Trade and Technology Hearings*, *supra* note 38, at 68 (statement of Gerald J. Mossinghoff, President, Pharmaceutical Manufacturers Association) (stating that pharmaceutical industry spent \$9.2 billion on research and development (R&D) in 1991); see also *Critical Technologies: Materials, Hearing Before the Subcomm. on Technologies and Competitiveness of the House Comm. on Science, Space and Technology*, 102d Cong., 1st Sess. 164 (1991) [hereinafter *Materials Hearings*] (statement of Rustum Roy, Professor, Pennsylvania State University) (reporting federal R&D expenditure of approximately \$150 million per year on high-temperature superconductors and approximately \$10 million on generic diamond film process technologies).

40. See *Materials Hearings*, *supra* note 39, at 136-37 (touting intellectual property protection, and process patent protection in particular, as cornerstone of incentive to develop new technologies). With high technology development so costly, industries must have strong enforcement mechanisms to recoup R&D investments. *Id.* at 136 ("The nature of research and development in [advanced materials] is such that extensive processing, testing and characterization is required. Scale-up beyond the laboratory stage depends on expensive capital equipment and systematic processing trials.").

41. See *Trade and Technology Hearings*, *supra* note 38, at 56 (reporting that worldwide share of technology-intensive exports from United States increased from 14% in 1966 to 22% in 1986).

42. See, e.g., *Trade and Technology Hearings*, *supra* note 38, at 91 (statement of Gerald J. Mossinghoff, President, Pharmaceutical Manufacturers Association) (noting that U.S. drug firms lose up to 10% of potential world sales due to process piracy); *Biotechnology Patent Protection, Hearing Before the Subcomm. on Courts, Intellectual Property, and the Administration of Justice of the House Comm. on the Judiciary*, 101st Cong., 2d Sess. 55 (1990) (statement of David Beier, Vice President, Government Affairs, Genentech, Inc.) (noting how inadequate protection for biotechnology has negative effect on capital investments); *id.* at 137 (statement of Richard D. Godown, President, Industrial Biotechnology Association) (emphasizing need for process patent protection in biotechnology industry).

43. See *Materials Hearings*, *supra* note 39, at 83-84 (statement of Mark S. Newkirk, President and CEO, Lanxide Corporation) (stating that industries facing high development costs and long transition periods between innovation and commercial production require investment of such magnitude that only large corporations find such investment feasible).

44. See *Trade and Technology Hearings*, *supra* note 38, at 90-92 (statement of Gerald J. Mossinghoff, President, Pharmaceutical Manufacturers Association) (noting that increasing

process-based technologies often spawn multiple commercial markets.<sup>45</sup> Hence, process patent protection is not only critical to processing technologies that require significant development costs, but is especially important to those technologies that embrace multiple applications.<sup>46</sup> Because high-technology industries are vital to long-term economic prosperity,<sup>47</sup> the United States can no longer afford a hands-off approach to process protection.<sup>48</sup>

### B. A Brief History of Process Patent Protection

The following history of process patent protection describes the complex array of domestic laws, international trade agreements, and other forms of international cooperation that affect the enforcement of process patents today. It is important to view this evolution with an eye to the unusual nature of process patents,<sup>49</sup> which, together with shifts in the global economic and political climate, have created

---

innovation costs in U.S. biotechnology industry endanger U.S. competitiveness). With the development investment for a new drug costing approximately \$230 million, and process patent piracy diminishing the return on the investment, many drugs may go undeveloped. *Id.* at 91-92 ("Someone with a basic knowledge of chemistry and pharmacology can copy most drugs at a tiny fraction of an originator's huge cost. Without patents, there would be no research-based pharmaceutical industry.").

45. See *Trade and Technology Hearings*, *supra* note 38, at 21 (statement of Rep. Ritter) (explaining "that a major advantage or head-start in one technology often confers similar advantages in others"); see also *OSTP Report*, *supra* note 8, at 14-15 (statement of Dr. William Phillips, Associate Director, Office of Science and Technology Policy) (recognizing that manufacturing, information, biotechnology, aeronautics, energy, and environment-related industries rely on advanced materials); *Materials Hearings*, *supra* note 39, at 165 (statement of Rustam Roy, Professor, Pennsylvania State University) (characterizing diamond film technology as generic processing technology having dozens of applications).

46. See *Trade and Technology Hearings*, *supra* note 38, at 69 (statement of Gerald J. Mossinghoff, President, Pharmaceutical Manufacturers Association) (reporting International Trade Commission finding that pharmaceutical industry loses \$5 billion annually to process pirates and recommending improved patent protection, especially for processes). With average development costs of \$230 million per drug and an average ten- to twelve-year lag before an investment becomes a commercially marketable product, intellectual property protection is paramount. *Id.* at 91 (stating "the most fundamental and widespread international problem [the pharmaceutical] industry faces is the lack of adequate intellectual property protection in many countries"). Advanced materials also have high development costs and long lead times. See *Materials Hearings*, *supra* note 39, at 83-84 (statement of Mark S. Newkirk, President and CEO, Lanxide Corporation) (reporting R&D costs for Lanxide Corporation of \$150 million prior to first commercial sale and transition times of 10-15 years between concept and commercial product).

47. See LAURA D'ANDREA TYSON, WHO'S BASHING WHOM? TRADE CONFLICTS IN HIGH-TECHNOLOGY INDUSTRIES 12 (1992).

48. See *Critical Technologies, Hearing Before the Subcomm. on Technology and Competitiveness of the House Comm. on Science, Space, and Technology*, 102d Cong., 2d Sess. I (1992) [hereinafter *Critical Technologies Hearings*] (statement of Rep. Valentine) ("While we have reached consensus on identifying these critical technologies, we have not reached agreement on what actions are required to ensure that the American people benefit not only from the products, but from the high-quality jobs that they create.").

49. See *supra* notes 18-48 and accompanying text (describing unique nature of process patents and problems associated with their protection).



tensions among the various modes of enforcement.<sup>50</sup> This historical review will highlight the deficiencies in present-day process protection, thus providing a better reference point for analyzing NAFTA's process patent provisions.<sup>51</sup>

### 1. *Domestic law to 1974*

Historically, U.S. patent law provided no protection against foreign use of a process patented in the United States.<sup>52</sup> Domestic patent law simply did not consider such practice an infringement until the late 1980s,<sup>53</sup> and prior to 1945, U.S. courts had no jurisdiction over foreign manufacturers.<sup>54</sup> Consequently, U.S. process patentees relied on U.S. trade laws for protection against "unfair acts" under the administrative remedies provided under section 337 of the Trade Act of 1930.<sup>55</sup>

Historically, under section 337, and through the U.S. Customs

50. See *infra* notes 52-90 and accompanying text (outlining evolution of domestic trade and patent law and its relationship with international trade issues).

51. See *infra* notes 136-56 and accompanying text (describing problems in enforcing process patent rights and NAFTA's contribution to their resolution).

52. See *Dowagiac Mfg. Co. v. Minnesota Moline Plow Co.*, 235 U.S. 641, 642 (1915) ("The right conferred by a patent under our law is confined to the United States and its Territories, and infringement of this right cannot be predicated of acts wholly done in a foreign country.").

53. See *infra* notes 107-11 and accompanying text (discussing Omnibus Trade and Competitiveness Act of 1988, Pub. L. No. 100-418, 102 Stat. 1107). The new laws specifically enabled victims of process patent infringement to seek remedies against infringers, including damages and injunctive relief. See 35 U.S.C. §§ 271, 287 (1988).

54. See *In re Amtorg Trading Corp.*, 75 F.2d 826, 831 (C.C.P.A. 1935) (noting that owners of U.S. patents are protected only against domestic infringers), *cert. denied*, 296 U.S. 576 (1935). U.S. courts also lacked jurisdiction over domestic nonresident infringers. See *Barton v. Nevada Consol. Copper Co.*, 36 F.2d 85, 85 (S.D.N.Y. 1929) (stating that although infringer had "regular and established place of business" within district, court lacked venue because plaintiff did not establish "use of process within district"); see also *Kryiak v. Owens Bottle Co.*, 25 F.2d 358, 358 (N.D. Ill. 1928) (holding "[s]ale of product of process patent in another district, of which defendant is not resident, is not infringement which gives court its jurisdiction").

It was not until 1945 that courts started to take a different approach regarding local jurisdiction. See *International Shoe Co. v. Washington*, 326 U.S. 310, 311-21 (1945) (permitting states to exercise in personam jurisdiction over defendant outside forum state provided that defendant had established minimum contacts with forum state). After 1945, a state could exert personal jurisdiction over a foreign defendant if the state's long-arm jurisdictional statutes applied and due process considerations were met. See *Honeywell, Inc. v. Metz Apparatewerke*, 509 F.2d 1137, 1144 (7th Cir. 1975) (holding that personal jurisdiction exists under state long-arm statute where foreign infringer maintains sufficient contacts with state in which district court sits). Today, courts may not have jurisdiction over foreign defendants in certain circumstances. See *Asahi Metal Indus. Co. v. Superior Court*, 480 U.S. 102, 116 (1987) (holding that where state jurisdiction imposes burden on defendant in dispute involving two foreign corporations, reasonableness of exercising personal jurisdiction must be assessed with respect to "fair play and substantial justice").

55. 19 U.S.C. § 1337 (1988) (providing International Trade Commission and U.S. Customs Service discretion to grant administrative remedy for unfair trade acts). The section 337 remedy has endured a number of significant amendments. See *infra* notes 57-72 and accompanying text (tracing evolution of section 337 actions).

Service, a patentee obtained an exclusion order preventing the importation of products,<sup>56</sup> based on an unfair trade practice<sup>57</sup> such as infringement of a U.S. patent. Ironically, while section 337 historically recognized foreign infringement of U.S. *product* patents as an unfair trade practice, its protection against foreign infringement of U.S. *process* patents remained unsettled until 1940<sup>58</sup> when Congress enacted section 337a.<sup>59</sup> Following the enactment of section 337a, process patent owners could prevent the distribution of imported products that were manufactured abroad using a process

56. 19 U.S.C. § 1337(e) (1982). Prior to its 1988 amendment, section 337 provided in pertinent part: "The Commission shall notify the Secretary of the Treasury of its action under this subsection directing such exclusion from entry, and upon receipt of such notice, the Secretary shall, through the proper officers, refuse such entry . . ." *Id.*

57. 19 U.S.C. § 1337(a) (1982). Prior to its 1988 amendment, section 337 provided in part: Unfair methods of competition and unfair acts in the importation of articles into the United States, or in their sale by the owner, importer, consignee, or agent of either, the effect or tendency of which is to destroy or substantially injure an industry, efficiently and economically operated, in the United States, or to prevent the establishment of such an industry, or to restrain or monopolize trade or commerce in the United States, are declared unlawful, and when found by the Commission to exist shall be dealt with, in addition to any other provisions of law, as provided in this section . . . .

*Id.*

58. See *In re Amtorg Trading Corp.*, 75 F.2d 826, 834, 24 U.S.P.Q. (BNA) 315, 323 (C.C.P.A. 1935) (refusing to find foreign use of U.S. patented process an "unfair act" under section 337 "unless the [district] court finds that it was the purpose of Congress in enacting section 337 . . . to broaden the field of substantive patent rights, and create rights in process patents extending far beyond any point to which the courts have heretofore gone in construing patent statutes"), *cert. denied*, 296 U.S. 576 (1935). In *Amtorg*, the court also clarified the process by which jurisdiction could be exercised over the infringer, explaining that "suits brought for the infringement of patents are required to be brought in either the judicial district of which the defendant is an inhabitant, or in any district in which the defendant has committed an act of infringement." *Id.* at 833, 24 U.S.P.Q. (BNA) at 322. In a blow to process patent holders, *Amtorg* distinguished two previous cases, *Frischer & Co. v. Bakelite Corp.*, 39 F.2d 247, 17 C.C.P.A. 494 (1930) and *In re The Orion Co.*, 71 F.2d 458, 22 C.C.P.A. 149 (1934), which had been interpreted as protecting processes under section 337, as only protecting product patents. *Amtorg*, 75 F.2d at 831, 24 U.S.P.Q. (BNA) at 321. Thus, following *Amtorg*, the process patent owner had no protection until 1940 when Congress enacted section 337a. See Act of July 2, 1940, ch. 515, 54 Stat. 724 (1940), *repealed by* The Omnibus Trade and Competitiveness Act of 1988, Pub. L. No. 100-418, 102 Stat. 1107.

59. Act of July 2, 1940, ch. 515, 54 Stat. 724 (1940), *repealed by* The Omnibus Trade and Competitiveness Act of 1988, Pub. L. No. 100-418, 102 Stat. 1107.

Section 337a must not be confused with subsection 337(a). The former was enacted in 1940 to specifically protect processes in response to the *Amtorg* decision and provides:

The importation for use, sale, or exchange of a product made, produced, processed, or mined under or by means of a process covered by the claims of any unexpired valid United States letters patent, shall have the same status for the purposes of section 1337 of this title as the importation of any product or article covered by the claims of any unexpired valid United States letters patent.

19 U.S.C. § 1337a (1982). *But see supra* note 57 (setting forth text of 19 U.S.C. § 1337(a) as it existed at time of *Amtorg* decision). Although it has been amended, subsection 337(a) remains in effect today. See *infra* note 109 and accompanying text (discussing 1988 amendments to subsection 337(a)).

patented in the United States.<sup>60</sup> Until 1988, sections 337 and 337a provided the only domestic protection against importation of products manufactured abroad through the use of a process patented in the United States.<sup>61</sup>

Unlike domestic patent law proceedings, which required personal jurisdiction, exclusion of imports under sections 337 and 337a only required *in rem* jurisdiction.<sup>62</sup> Unfortunately, however, section 337 required the U.S. patentee to prove an unfair trade practice, namely process infringement, before a section 337 action could even proceed.<sup>63</sup> In practice, the required burden of proof to trigger section 337's exclusion order proved too formidable for many U.S. process patentees.<sup>64</sup> In short, the hidden nature of foreign process infringement prevented effective domestic enforcement of process patent rights through section 337.

Despite the availability of section 337 and 337a remedies, they remained largely unused until the late 1960s.<sup>65</sup> As international trade increased during the 1960s and 1970s, however, U.S. patent owners increasingly relied on section 337 to prevent foreign infringement.<sup>66</sup> Partly in response to the increasing usage of section 337, the Trade Act of 1974 amended many of the procedures used for enforcement.<sup>67</sup> For example, adjudication through the International Trade Commission was established to better manage patent-based dis-

---

60. See 19 U.S.C. § 1337(a) (1982) (setting forth requirements for showing unfair trade acts).

61. See *infra* notes 108-11 and accompanying text (discussing 1988 amendments to domestic patent and trade law).

62. See *Sealed Air Corp. v. ITC*, 645 F.2d 976, 985-86, 209 U.S.P.Q. 469 (C.C.P.A. 1981) (stating that ITC and Customs have always used *in rem* jurisdiction over articles and that *in personam* jurisdiction is not required).

63. See Terry L. Clark, Comment, *The Future of Patent-Based Investigations Under Section 337 After the Omnibus Trade and Competitiveness Act of 1988*, 38 AM. U. L. REV. 1149, 1154 (1989) (detailing numerous procedural hurdles required to trigger section 337, including proving infringement, showing substantial injury to U.S. industry, showing that industry is efficiently and economically operated, and identifying public welfare considerations). Between the enactment of section 337a in 1940 and The Omnibus Act in 1988, the lack of personal jurisdiction prevented the patentee from discovering whether process infringement took place. Thus, the threshold burdens for initiating a section 337 action remained daunting.

64. See *id.* at 1162 (detailing problems associated with domestic injury requirement of section 337 action).

65. See Harvey Kaye & Paul Plaia, Jr., *The Filing and Defending of Section 337 Actions*, 6 N.C. J. INT'L L. & COM. REG. 463, 465 (1981) (detailing development of patent rights protection using section 337).

66. See Kaye & Plaia, *supra* note 65, at 465 (discussing increase in section 337 actions to protect patented rights through exclusion orders).

67. Trade Act of 1974, Pub. L. No. 93-618, § 341, 88 Stat. 1973, 2053-56 (1975) (codified as amended at 19 U.S.C. § 1337 (1988)). The Trade Act brought the International Trade Commission (ITC) under the Administrative Procedure Act, 5 U.S.C. §§ 551-559 (1988). Trade Act of 1974, Pub. L. No. 93-618, § 341, 88 Stat. at 2054 (1975) (codified as amended at 5 U.S.C. § 551 (1988)).

putes.<sup>68</sup> Although these new procedures provided some relief to U.S. process patentees, criticism of the system as overly burdensome continued throughout the 1970s and 1980s.<sup>69</sup>

The criticism of the domestic system, however, was actually a manifestation of the frustration associated with the tremendous increase in world trade during the previous decade.<sup>70</sup> By the mid-1970s, international trade had evolved dramatically.<sup>71</sup> Up to that time, intellectual property had not historically been considered an international trade issue. A review of the evolution of international trade is therefore essential to understanding more recent developments in process patent protection.<sup>72</sup>

## 2. *The evolution of international trade under GATT*

Increased globalization of trade following World War II created complex trading relationships among nations.<sup>73</sup> In an effort to liberalize international trade, the General Agreement on Tariffs and Trade (GATT) was established in 1948.<sup>74</sup> At its inception, GATT

68. See 19 U.S.C. § 1337(c) (1988) (granting to ITC investigatory and adjudication powers, including power to determine patent issues such as validity); see also Wayne W. Herrington, *U.S. International Trade Commission: Imported Articles Made by Patented Processes*, 14 J. WORLD TRADE L. 549, 552 (1980) (discussing increased use of section 337 following 1974 restructuring of ITC adjudications).

69. See Keith E. George, Note, *Importation of Articles Produced by Patented Processes: Unfair Trade Practices or Infringement?*, 18 GEO. WASH. J. INT'L L. & ECON. 129, 136-38 (1984) (discussing series of ITC cases following 1974 Act in which patentees proved infringement, yet remained unsuccessful based on deficient showings of other section 337 requirements such as injury to domestic industry and public interest concerns); see also Clark, *supra* note 63, at 1162-67 (discussing similar problems with showing injury in section 337 actions).

70. See JOHN H. JACKSON & WILLIAM J. DAVEY, *LEGAL PROBLEMS OF INTERNATIONAL ECONOMIC RELATIONS* 9 (1986) (discussing significant increases in world trade between 1963 and 1973 as world export volume grew at annual rate of approximately 8.5%).

71. See Raymond J. Ahearn, *An Overview of the International Trading Environment*, in *MANAGING TRADE RELATIONS IN THE 1980's*, 18, 20 (Seymour J. Rubin & Thomas R. Graham eds., 1983) (discussing how remarkable expansion of world trade during 1950s and 1960s led to "economic integration of the world economy enhanc[ing] prosperity in all major trading countries").

72. See *Trade and Technology Hearings*, *supra* note 38, at 11 (statement of Rep. Thornton) (stating that "current GATT negotiations are expanding coverage beyond trade in products, and I think it's important that we do expand the coverage of negotiations beyond trade in products because services, intellectual property, and other elements of trade may have not been treated as appropriately as they should"); see also *Status of Intellectual Property Protection, Hearing Before the Subcomm. on International Economic Policy and Trade of the Senate Comm. on Foreign Affairs*, 99th Cong., 2d Sess. 2 (1986) [hereinafter *Status Hearings*] (statement of Harvey E. Bale, Jr., Assistant U.S. Trade Representative for Trade Policy and Analysis) (stating "from our side of the street, so to speak, the Administration identified intellectual property protection as a key issue if not the key issue for U.S. trade and competitiveness in the future").

73. See Ahearn, *supra* note 71, at 18-20 (describing complexity created by tension of world integration resulting from increased international trade and domestic concerns regarding economic effects of such integration).

74. General Agreement on Tariffs and Trade, Oct. 30, 1947, 61 Stat. A3, 55 U.N.T.S. 187, reprinted in 4 GENERAL AGREEMENT ON TARIFFS AND TRADE: BASIC INSTRUMENTS AND SELECTED DOCUMENTS (1969).

included only twenty-four nations, or "contracting parties."<sup>75</sup> Initially designed to facilitate international trade through the removal of tariffs among the contracting parties, GATT continues in this capacity today.<sup>76</sup> The early success in tariff reduction between the late 1940s and the late 1960s, however, led to increasingly complex GATT negotiations as more nations joined the agreement.<sup>77</sup>

The contracting parties first discussed nontariff barriers during the Kennedy Round of GATT negotiations in the 1960s.<sup>78</sup> Unlike tariffs, nontariff barriers are based on governmental infrastructures, such as arbitrary customs valuations, inspection procedures, and packaging requirements, that restrain trade in a variety of ways.<sup>79</sup> Although their positions were largely undefined in the late 1960s and early 1970s, negotiators continued to refine their positions on these nontariff barriers as GATT evolved from an international tariff reduction mechanism to its modern role as a charter for international trading practices.<sup>80</sup>

---

75. See Thomas R. Graham, *GATT's Wandering Ministerial*, in *MANAGING TRADE RELATIONS IN THE 1980's*, *supra* note 71, at 7, 10. The term "contracting parties" refers to the contractual nature of the GATT agreement. See R. Michael Gadbaw, *The Outlook for GATT as an Institution*, in *MANAGING TRADE RELATIONS IN THE 1980's*, *supra* note 71, at 33, 37 ("[T]he GATT is a contract. It has no members, only contracting parties.") (quoting former GATT Director General Oliver Long). Because GATT is a contract, it is provisional in nature and operates by consensus. See Graham, *supra*, at 10-11 (stating that consensus represents will of contracting parties and indicates confidence in system).

76. See Ahearn, *supra* note 71, at 20 (stating that during its first decade of operation, GATT established "[k]ey rules limiting government intervention in the international marketplace centered on tariffs and quantitative restrictions"). The U.S. tariff rate has dropped significantly during GATT's operation. See Graham, *supra* note 75, at 10 (reporting drop in U.S. average tariff rate between 1946 and 1987 from 26% to 5%); see also *Trade and Technology Hearings*, *supra* note 38, at 23 (statement of Charles Owen Verrill, Jr., Partner, Wiley, Rein & Fielding) (stating "in this [Uruguay] round of negotiations, like previous GATT negotiations, tariff reductions are a key market access objective").

77. See Ahearn, *supra* note 71, at 21. Although GATT was created as a temporary measure, it became permanent when nations rejected the proposed International Trade Organization (ITO). See Gadbaw, *supra* note 75, at 33-35 (explaining that parties to GATT rejected ITO's strong institutional and legal framework because of concerns over relinquishing sovereign control over commercial policy). Thus, without a centralized administrative organization, GATT became strained in its second decade of operation, a decade characterized by a remarkable increase in world trade. *Id.* at 35.

78. See Seymour J. Rubin & Thomas R. Graham, *Introduction*, in *MANAGING TRADE RELATIONS IN THE 1980s* 1, 1 (Seymour J. Rubin & Thomas R. Graham eds., 1983) (discussing nontariff trade distortions as "leading edge of trade policy discussions at the close of the Kennedy Round in the late 1960s"). Essentially, GATT's ability to remove tariffs was not indicative of its ability to manage societal organizations. *Id.* at 10; see also JACKSON & DAVEY, *supra* note 70, at 325-26 (stating that Kennedy Round failed to achieve progress on nontariff barriers, but that these were addressed significantly during Tokyo Round's Multilateral Trade Negotiations).

79. See Graham, *supra* note 75, at 10 (identifying subsidies, product standards, and import licensing as non-tariff trade barriers).

80. See Jeffrey J. Schott, *More Free Trade Areas?*, in *FREE TRADE AREAS AND U.S. TRADE POLICY* 1, 4 (Jeffrey J. Schott ed., 1989) (discussing challenges faced by GATT in adjusting to changes in international commerce including liberalized trade in banking, insurance, and telecommunications services, and need for revisions in rules protecting high technology industry from unfair

Nontariff barriers became the central focus of negotiations during the Tokyo Round of GATT talks, which lasted from 1973 to 1979.<sup>81</sup> During this round of negotiations, nontariff barriers became more fully defined, illustrating the diversity of national procedures and policies used by the contracting parties in the course of trade and reflecting the parties' varied political, social, and economic structures and priorities.<sup>82</sup> Additionally, because GATT's membership had grown substantially, the contracting parties' interest had grown increasingly diverse<sup>83</sup> and disputes regarding nontariff barriers had increased.<sup>84</sup> Ultimately, the contracting parties were unable to resolve many of these national incompatibilities, and GATT's administrative and dispute resolution mechanisms were criticized as inadequate, threatening the agreement's credibility and future viability.<sup>85</sup>

With a rapidly changing global economy and increasing international competition, the Tokyo Round marked a turning point for GATT.<sup>86</sup> By the time the Tokyo Round negotiations concluded,

---

trade practices such as dumping).

81. See Rubin & Graham, *supra* note 78, at 1.

82. See Rubin & Graham, *supra* note 78, at 2 (stating that "[d]isputes that bring into focus questions about the acceptable level of government involvement in promoting industrial development go far beyond the rudimentary GATT concept"). The contractual nature of GATT, combined with an inability to manage structural differences between sovereign members, led to loss of faith in the system. *Id.* at 2. Rubin and Graham explain:

GATT is not a world government, but neither is it merely a debating forum . . . . [I]t is a 'contractual' system of rules that has worked reasonably well in the past because the contracting parties have recognized that conducting their trade under a framework of rules works to their mutual advantage. It follows, however, from the contractual nature of GATT that the institution and the rules cannot deal seriously with subjects before most influential contracting parties perceive the need to do so.

*Id.*

83. See Rubin & Graham, *supra* note 78, at 2-3 (noting that increased GATT membership with divergence of interests frustrates consensus among contracting parties); see also Schott, *supra* note 80, at 4 (stating that GATT is victim of its own success and attempts to extend discipline into non-tariff practices have contributed to dissatisfaction with operation of GATT).

84. See JACKSON & DAVEY, *supra* note 70, at 326 (outlining broadened scope of GATT following Tokyo Round, resulting in Multilateral Trade Negotiation designed to address problems of nontariff barriers affecting international trade system over previous decade).

85. See Gadbow, *supra* note 75, at 36. Gadbow, describing the GATT crisis of the early 1980s, states:

[The crisis revolved around a] declining respect in national policies for the rules of the international trading system and the underlying commitment to a multilateral resolution of trade conflicts. This problem is compounded by the absence of a strong international institution that can play a catalytic role in bringing countries together, reminding them of the responsibilities and benefits of an open international trading system and providing the analytic tools and innovative proposals to deal concretely with the problems they confront.

*Id.*

86. See Graham, *supra* note 75, at 10 (expressing concern that Tokyo Round significantly changed GATT's status as centerpiece of international trade). The lack of consensus among contracting parties at the Tokyo Round eroded support for GATT. See Gadbow, *supra* note 75,

GATT's role in liberalizing international trade was in question,<sup>87</sup> and the focus of international trade changed as GATT members sought the difficult balance between continued liberalization of international trade and maintenance of national economic security.<sup>88</sup> Thus, by the 1980s, national interests began to redefine the role of GATT.<sup>89</sup> Consistent with this trend, process patent protection has advanced through a complex series of domestic and international economic leveragings during the past thirteen years, as trading nations jockeyed for globally competitive positions.<sup>90</sup>

### 3. *Process patent protection from 1980 to present: GATT failures and domestic responses*

During the Reagan administration, government officials attempted to reestablish support for GATT's underlying goal of liberalized international trade.<sup>91</sup> During GATT's 1982 Geneva Conference, the United States proposed to introduce high-technology trade issues into the negotiations.<sup>92</sup> Unfortunately, because the United States poorly

---

at 35 (stating that change in GATT focus "altered the basic consensus over trade policy on which GATT's early success depended").

87. See Rubin & Graham, *supra* note 78, at 2 (explaining that shift in focus of international trade "threaten[s] to consign the GATT rules and institution to a reduced role in international trade").

88. See Rubin & Graham, *supra* note 78, at 1 (discussing international community's new focus on international competitive effects of "industrial policies," a fashionable phrase that often means government-led nurturing of high-technology 'industries of the future,' ranging from applied robotics to biotechnology to fiber optics"). The United States led the push for discussions on high-technology trade during GATT's November 1982 Ministerial meeting. See Graham, *supra* note 75, at 13 (describing U.S. concern over concerted industrial policies in Japan and other countries).

89. See Ahearn, *supra* note 71, at 19 ("Trade problems of the 1980s have centered increasingly on disputes between developed countries. The intensity of trade competition and the growing role played by governments in determining market success are major causes of the disputes."). Developed countries were caught between the need for free trade to ensure long-term growth in markets, and the need to protect domestic industries as GATT struggled with its inability to resolve disputes among its members. Determining the level of government intervention that strikes the appropriate balance between the two was troublesome. See *id.* (acknowledging that trade friction between major economies is systemic, elimination of protectionism will continue as major area of dispute, and both bilateral and multilateral talks should attempt to keep free trade system operating).

90. See Gadbar, *supra* note 75, at 38-39 (describing "Balkanization" of international trade policy whereby competitive position is leveraged through domestic policy and bilateral "mini-GATTs").

91. See Graham, *supra* note 75, at 11 (reviewing 1981 Reagan administration "bicycle theory" initiative that postulated that GATT "must move forward or it will fall over").

92. See Schott, *supra* note 80, at 4 n.4 (noting United States' ambitious agenda at 1982 summit for extending GATT to cover new technologies); see also Graham, *supra* note 75, at 11 (describing Geneva Summit as "representing the best and worst of the American approach to such things—the best, because it was an earnest attempt to lead a faltering trading system and reluctant trading partners forward into important new areas; the worst, because it was too ambitious").

defined its position, the proposal received little international support.<sup>93</sup> In light of international skepticism of GATT following the Geneva Conference, the United States sought to protect its trading interests through alternative international measures.<sup>94</sup> These measures included bilateral trade agreements and unilateral retaliatory measures.<sup>95</sup> In addition, the United States began strengthening its international competitive position through domestic reforms, including improvements in domestic patent law.<sup>96</sup>

Although discussions regarding domestic reforms in intellectual property protection were well underway by the mid-1980s,<sup>97</sup> process patent protection remained an international problem.<sup>98</sup> In 1986, following years of apathy and resistance toward GATT,<sup>99</sup> the Uruguay Round of GATT negotiations began. These negotiations included an

---

93. See Rubin & Graham, *supra* note 75, at 13 (describing high-technology trade proposal as "a legitimate subject for future investigation" requiring additional definition to aid GATT in "considering the competitive effects of sociopolitical systems"); see also Schott, *supra* note 80, at 4 (describing strong foreign resistance to new negotiations).

94. See Schott, *supra* note 80, at 4 (discussing parallel approaches to GATT process).

95. Schott, *supra* note 80, at 4 (noting bilateral agreements with Israel and Canada and retaliatory efforts under Trade Act of 1974 to open foreign markets to U.S. exports).

96. See Omnibus Trade and Competitiveness Act of 1988, Pub. L. No. 100-418, § 1342, 102 Stat. 1107, 1212-16 (codified at 19 U.S.C. § 1337 (1988)) (relaxing patentee's burden of proving foreign infringement); H.R. 4814, 98th Cong., 2d Sess. (1984) (proposing that importer of products made abroad by U.S. patented process be considered patent infringer); S. 1841, 98th Cong., 1st Sess. §§ 501-503 (1983) (proposing changes in patent law which would classify infringer as seller of product manufactured abroad using U.S. patented process); see also *Trade and Technology Hearings*, *supra* note 38, at 57 (statement of David C. Mowrey, Associate Professor, HAAS School of Business, University of California, Berkeley) (describing radical change in Reagan administration's domestic technology policy between 1980 campaign pledge to remove Federal Government from commercialization of new technologies and 1987 programs aimed at strengthening government investment in high technologies such as ceramic superconductors, semiconductor manufacturing, and other basic research areas); Graham, *supra* note 75, at 11 (describing U.S. trade agenda during Geneva Conference as raising "among political constituencies unrealistic expectations that could not be met, leaving them disillusioned with GATT and determined to take corrective trade-restrictive actions in the 98th Congress").

97. See *supra* note 96 and accompanying text (discussing congressional bills seeking to improve domestic patent law).

98. See *Status Hearings*, *supra* note 72, at 2 (statement of Rep. Bonker) ("[T]his is one area in which the Administration and the leadership in both parties in the House agree. Intellectual property rights ought to be clearly identified as a trade issue for purposes of this country's bilateral relations with our trading partners."). The U.S. pharmaceutical industry, for example, loses up to ten percent of its sales to piracy. *Trade and Technology Hearings*, *supra* note 38, at 91 (statement of Gerald J. Mossinghoff, President, Pharmaceutical Manufacturers Association); see also *Unfair Trade Hearings*, *supra* note 13, at 24 (testimony of Stephen F. Sims, Special Assistant, Oversight and Investigations Subcommittee) (noting study conducted by Pfizer Pharmaceuticals which found that, in 1984, pirates sold about \$42 million in Pfizer's patented products while Pfizer sold \$47 million). See generally James M. Gould, *Protecting Owners of U.S. Process Patents from the Importation of Pharmaceutical Made Abroad by Use of the Patented Process: Current Options, Proposed Legislation, and a GATT Solution*, 42 FOOD DRUG COSM. L.J. 346, 346-48 (1987) (discussing exemplary problem of process patent protection relating to pharmaceutical industry).

99. See Schott, *supra* note 80, at 4 (noting strong foreign resistance to GATT negotiations from Geneva conference of 1982 to Uruguay Round of 1986).



ambitious U.S. agenda of trade-related intellectual property issues (TRIPs).<sup>100</sup> Although the United States advocated improved intellectual property protection during the Uruguay Round, multilateral progress remained elusive.<sup>101</sup> Thus, with no GATT standards for intellectual property as of 1986, a domestic section 337 action remained the only remedy that U.S. process patent owners could use against foreign process pirates.<sup>102</sup> In *Corning Glass Works v. United States International Trade Commission*,<sup>103</sup> however, the Court of Appeals for the Federal Circuit dealt a lethal blow to both section 337 and process patent owners. Although the plaintiff overcame section 337's burden of proving foreign process patent infringement<sup>104</sup> and subsequent importation of the product into the United States, the Federal Circuit upheld the International Trade Commission's (ITC) determination that the plaintiff had failed to satisfy section 337's "substantial injury" requirement because the quantity of infringing imports was "*de minimis*."<sup>105</sup> In light of the court's burdensome requirement for process patent owners in *Corning*, the slow progress of TRIPs in the Uruguay Round, and the losses U.S. industry was

---

100. See *Mastering the World Economy, Hearings Before the Senate Comm. on Finance, 100th Cong., 1st Sess. 12 (1987)* [hereinafter *World Economy Hearings*] (statement of James D. Robinson III, Chairman & CEO, American Express, Chairman, Business Roundtable Task Force on International Trade and Investment) (stating that while GATT must adapt, United States must defend its own interests "if others won't play by the rules"). Mr. Robinson stated that "key objectives" for the United States should include rules for trade in areas not covered by GATT, such as agriculture, services, intellectual property, and investment. *Id.* at 13. In 1986, a Japan Economic Institute Report stated that while GATT's 90 member countries accounted for 80% of world trade, only 20% of that trade fell within GATT rules. See *id.* at 78 n.32 (reporting need for improved GATT due to treaty's inability to resolve trade disputes).

101. See OFFICE OF THE U.S. TRADE REPRESENTATIVE, 1990 TRADE POLICY AGENDA AND 1989 ANNUAL REPORT OF THE PRESIDENT OF THE UNITED STATES ON THE TRADE AGREEMENTS PROGRAM 24 (1990) (discussing temporary setbacks encountered at conclusion of 1988 Uruguay Round talks). In December 1988, the Uruguay Round Trade Negotiations Committee held a meeting to discuss all negotiating areas and to complete frameworks for continued negotiation. The discussion to decide which types of intellectual property would be included in future talks deadlocked after two years of negotiations. *Id.* The deadlock centered on whether the negotiation would establish adequate and effective standards for protecting intellectual property rights. *Id.* In April 1989, negotiators broke this deadlock on intellectual property. *Id.*

102. See 19 U.S.C. § 1337 (1988) (providing remedies for unfair trade practices).

103. 799 F.2d 1559, 230 U.S.P.Q. (BNA) 822 (Fed. Cir. 1986).

104. *Corning Glass Works v. ITC*, 799 F.2d 1559, 1563, 230 U.S.P.Q. (BNA) 822, 823 (Fed. Cir. 1986).

105. See *id.* (upholding administrative law judge's decision that quantity of imports was minimal and importation of Japanese product could not destroy market because Corning could not meet U.S. market's demand for product). Apparently the administrative law judge chose to discount certain phrases in section 337. See 19 U.S.C. § 1337(a) (1988) (providing in part that "effect or tendency of which is to destroy or substantially injure an industry, efficiently and economically operated, in the United States, or to prevent the establishment of such an industry") (emphasis added). Thus, the court ignored two important points: first, the infringing imports could increase in number to a point where their impact was injurious; and second, Corning could increase its production to meet domestic demand. In light of this decision, even when all requirements are met under section 337, a process patentee still might not prevail.

sustaining through international piracy,<sup>106</sup> it became clear that a change in domestic process patent protection was necessary.<sup>107</sup>

The Omnibus Trade and Competitiveness Act of 1988 (the Trade Act)<sup>108</sup> constituted a milestone for U.S. process patent owners. The Trade Act amended the burdensome proof requirements of section 337,<sup>109</sup> and through § 271(g) made the importation or sale of goods manufactured abroad using a U.S. patented process an "infringement" actionable under U.S. patent laws.<sup>110</sup> The Act also established a presumption of foreign process infringement for use in actions under both section 337 and § 271(g).<sup>111</sup> Thus, following the

106. See *supra* note 98 (discussing problem of process patent protection in U.S. pharmaceutical industry).

107. See H.R. CONF. REP. NO. 576, 100th Cong., 2d Sess. 1085-90 (1988).

108. Omnibus Trade and Competitiveness Act of 1988, Pub. L. No. 100-418, 102 Stat. 1107 (codified as amended in scattered sections of 19 U.S.C. and 35 U.S.C.).

109. See 19 U.S.C. § 1337 (1988). The amended section provides in part:

(a) Unlawful activities; covered industries; definitions

(1) Subject to paragraph (2), the following are unlawful, and when found by the Commission to exist shall be dealt with, in addition to any other provision of law, as provided in this section . . .

(B) The importation into the United States, the sale for importation, or the sale within the United States after importation by the owner, importer, or consignee, of articles that . . .

(ii) are made, produced, processed or mined under, or by means of, a process covered by the claims of a valid and enforceable United States patent.

19 U.S.C. § 1337 (1988).

110. Process Patent Amendments Act of 1988, Pub. L. No. 100-418, § 9003, 102 Stat. 1563, 1563-64 (codified at 35 U.S.C. § 271(g) (1988)). Section 271(g) provides:

Whoever without authority imports into the United States or sells or uses within the United States a product which is made by a process patented in the United States shall be liable as an infringer, if the importation, sale, or use of the product occurs during the term of such process patent. In an action for infringement of a process patent, no remedy may be granted for infringement on account of the noncommercial use or retail sale of a product unless there is no adequate remedy under this title for infringement on account of the importation or other use or sale of that product. A product which is made by a patented process will, for purposes of this title, not be considered to be so made after—(1) it is materially changed by subsequent processes; or (2) it becomes a trivial and nonessential component of another product.

*Id.*

111. 35 U.S.C. § 295 (1988). Section 295 provides:

In actions alleging infringement of a process patent based on the importation, sale or use of a product which is made from a process patented in the United States, if the court finds—(1) that a substantial likelihood exists that the product was made by the patented process, and (2) that the plaintiff has made reasonable effort to determine the process actually used in the production of the product and was unable so to determine, the product shall be presumed to have been so made, and the burden of establishing that the product was not made by the process shall be on the party asserting that it was not so made.

*Id.*

The presumption of infringement also applies to section 337 actions, but again, procedural problems arise. Under § 271(g), the importer, and not the actual process infringer, may be deemed the "infringer." 19 U.S.C. § 271(g).

Thus, if a relationship exists whereby the legal infringer has access to the actual process, then the plaintiff must comply with the request for disclosure and reasonable-efforts requirements.

Trade Act, owners of U.S. process patents had both patent and trade law remedies against foreign process pirates.

In 1989, however, a GATT panel determined that the amended section 337 procedures violated GATT.<sup>112</sup> This determination highlights the tension between domestic laws such as section 337 and the free-trade spirit of GATT. As discussed previously, section 337 seeks to prevent unfair trade practices, such as importation of patent infringing products.<sup>113</sup> From a GATT perspective, however, section 337 was discriminatorily applied and thus constituted a barrier to free trade.<sup>114</sup> Recognizing the effectiveness of section 337 proceedings, Congress is considering legislation to conform section 337 with GATT

---

*See* W. Bradley Haymond, *The Process Patent Amendments Act of 1988: Solving an Old Problem, But Creating New Ones*, 1989 B.Y.U. L. REV. 567, 572-573 (1989) (detailing notice and request for disclosure requirements under Omnibus Trade and Competitiveness Act of 1988). Even if the plaintiff complies with the good faith request for disclosure and notice requirements, which potentially further expose patentees, the infringer may still deny infringement of the process. *See* H.R. REP. NO. 60, *supra* note 12, at 16-17. In discussing the ultimate burden of proof in the "reasonable efforts" requirement of § 9005 of the Omnibus Trade Act (codified at 35 U.S.C. § 295), the House Report states:

When a defendant meets the burden of producing evidence to rebut the plaintiff's showing of substantial likelihood of infringement, the burden of persuading the court will be on the patent owner. As in all civil litigation, the plaintiff bears the burden of establishing the truth of the complaint by a preponderance of the evidence in order to prevail.

*Id.*

The nature of the process prevents adequate discovery in a willful infringement of process patents.

Conversely, if no relationship exists between the legal infringer and the actual or true infringer, the court may lack personal jurisdiction over the foreign manufacturer. *See* *Asahi Metal Indus. Co. v. Superior Court*, 480 U.S. 102, 105 (1987) (finding that lower court's assertion of personal jurisdiction over foreign manufacturer violated traditional notions of fair play and substantial justice despite fact that foreign manufacturer released goods into stream of commerce); *supra* notes 32-46 and accompanying text (discussing procedural problems associated with foreign process infringement). *But see* *Lemelson v. Van Dorn Plastics Mach.*, 25 U.S.P.Q.2d (BNA) 2054, 2054 (Nev. 1992) (finding personal jurisdiction over Nissei Japan based upon Nissei's wholly owned subsidiary having direct contacts in forum state over whom Nissei of Japan "exercises sufficient control and management" and that a close relationship between parent and subsidiary may "justify a finding that parent did business in a jurisdiction through the acts of its subsidiary.").

112. *See United States—Section 337 of the Tariff Act of 1930, Report by the Panel Adopted on 7 November 1989 (L/6439)*, GENERAL AGREEMENT ON TARIFFS AND TRADE: BASIC INSTRUMENTS AND SELECTED DOCUMENTS 345, 396 (36th Supp. 1990) [hereinafter *GATT Panel Report*] (finding that treatment accorded foreign products under section 337 is inconsistent with national treatment obligations under GATT article III); *see generally* Robert G. Krupka et al., *Section 337 and the GATT: The Problem or the Solution?*, 42 AM. U. L. REV. 779 (1993) (discussing nature of section 337 practice and proposing means for aligning section 337 with GATT).

113. *See supra* notes 55-60 and accompanying text (discussing protection section 337 provides to patent owners).

114. *See GATT Panel Report, supra* note 112, at 396 (concluding that inconsistent treatment of foreign and domestic products under section 337 violates national treatment requirements of GATT article III, 4, and that section 337 proceedings do not fall within dispute resolution exceptions of GATT article XX(d)).

requirements.<sup>115</sup>

Section 271(g) may also receive close GATT scrutiny in light of a recent decision by the U.S. District Court for the Eastern District of Pennsylvania in *Allegheny Ludlum Corp. v. Nippon Steel Corp.*<sup>116</sup> By misinterpreting the language of § 271(g)'s grandfather clause, the court has applied § 271(g) in a manner that appears to discriminate against foreign manufacturers.<sup>117</sup> Given the district court's interpretation, this statute may also be open to international criticism for violating the GATT's national treatment spirit.<sup>118</sup>

### C. *State of the Art*

The 1988 Trade Act represents tremendous progress for U.S. process patent owners.<sup>119</sup> By strengthening domestic trade and patent laws, the Act protects an inventor's incentive to innovate and recognizes processing technologies' importance to the U.S. economy.<sup>120</sup> But in the face of widespread international process patent piracy,<sup>121</sup> domestic measures such as section 337 and section 271(g) remain inadequate in a number of respects.

First, neither section 337 nor § 271(g) prevents actual process infringement. Section 337, for example, only blocks the importation of infringing goods.<sup>122</sup> Furthermore, and despite the Omnibus Act's presumptive burden shifts,<sup>123</sup> triggering section 337 may still require

---

115. See 138 CONG. REC. S12,356 (daily ed. Aug. 11, 1992) (statement of Sen. Rockefeller) (presenting bill to amend section 337 to conform with GATT articles III and XX(d) in order to provide effective procedures to contend with unfair trade practices). The administration also backed plans to reform section 337. See, e.g., U.S. PATENT & TRADEMARK OFFICE, PTO PROPOSAL (Jan. 1991) (proposing numerous procedural amendments to section 337 actions).

116. 765 F. Supp. 224, 20 U.S.P.Q.2d (BNA) 1553 (E.D. Pa. 1991).

117. See Robert R. Deveza, Comment, *A Grandfather Clause, Due Process and the GATT: Whatever Happened to the Grandfather Clause of the Process Patent Act of 1988?*, 18 RUTGERS COMPUTER & TECH. L.J. 65, 82-94 (1992) (discussing *Allegheny Ludlum Corp. v. Nippon Steel Corp.*, 765 F. Supp. 224, 20 U.S.P.Q.2d (BNA) 1553 (E.D. Pa. 1991) and arguing that court's interpretation of § 271(g) provides discriminatory treatment and is therefore potentially violative of GATT).

118. *Id.*

119. See *supra* note 58 and accompanying text (discussing *Amtorg*, which gave no rights to process patent owners through patent or trade law). Fifty years later, with the enactment of the Omnibus Trade and Competitiveness Act in 1988, the process patent owner has two alternatives: trade law and patent law.

120. See *supra* notes 36-37 and accompanying text (defining nature of process patents and their role in critical U.S. technologies).

121. See *supra* note 98 and accompanying text (noting that pharmaceutical industry has lost millions of dollars to international piracy).

122. See *supra* notes 52-68 and accompanying text (describing remedies available under section 337).

123. See *supra* note 111 and accompanying text (discussing 35 U.S.C. § 295, which places burden of establishing absence of patent infringement on alleged infringer).

proof of the hidden process infringement.<sup>124</sup> Finally, section 337's status remains questionable following the determination that it violates GATT.<sup>125</sup>

Alternatively, a patent infringement action under § 271(g) remains attractive because it stops the importation and sale of infringing goods. Once again, however, proving the process infringement remains an obstacle despite presumptive shifts in burdens of proof.<sup>126</sup> Additionally, patent owners that cannot establish personal jurisdiction over foreign entities will have difficulty conducting discovery and eliminating the actual process infringement.<sup>127</sup>

Second, the theft of U.S. process technology jeopardizes more than just the individual patentee's incentive to innovate: it also puts at risk the international competitiveness of U.S. high-technology industry.<sup>128</sup> Under both section 337 and § 271(g), the foreign infringer remains free to continue using the process and gaining all of its associated competitive advantages internationally.<sup>129</sup> Thus, while improved domestic process patent protection helps to protect individual process patent rights, the failure to stop the actual infringement permits continued piracy and the consequent erosion of the U.S. high-technology base.<sup>130</sup> Elimination of the actual foreign process infringement requires an international solution, not just domestic action.<sup>131</sup> U.S. process patent owners, therefore, should consider NAFTA's international scope an important step in the protection of their process-based inventions.

Despite its disturbingly slow pace toward agreement, GATT still

---

124. See *supra* note 111 (discussing H.R. REP. NO. 60, which places ultimate burden of proof, after defendant rebuts plaintiff's showing of "substantial likelihood of infringement," on patent owner).

125. See *supra* note 117 and accompanying text (discussing GATT panel's conclusion that section 337 violates GATT obligations); see also *supra* note 115 and accompanying text (discussing proposed reform of section 337 to comply with GATT).

126. See *supra* note 111 (discussing inability to reach true infringer through section 337 or § 271(g), although presumption of infringement exists).

127. See *supra* note 111 (discussing *Asahi* and difficulty in asserting personal jurisdiction over foreign manufacturers).

128. See *Trade and Technology Hearings, supra* note 38, at 69 (statement of Gerald J. Mossinghoff, President of Pharmaceuticals Manufacturers Association) (suggesting need for increased protection in area of intellectual property due to huge economic losses resulting from patent piracy).

129. See *supra* notes 38-48 and accompanying text (discussing adverse effects on investment, technology base, employment, and security associated with foreign infringement in U.S. high-tech industries).

130. See *Materials Hearings, supra* note 39, at 84 (statement of Marc S. Newkirk, President and CEO, Lanxide Corporation) (calling for governmental support in key technologies in order to bolster domestic competition against foreign manufacturers); see also *supra* note 37 (noting need to prevent further erosion of U.S. technology base).

131. See *supra* note 12 and accompanying text (discussing congressional comments on international scope of process piracy).

offers hope for process patent holders because of its broad international scope.<sup>132</sup> With the Uruguay Round complete,<sup>133</sup> it appears that broader support for intellectual property as a trade issue is forthcoming.<sup>134</sup> But considering the nature and substance of process patents and their relation to a competitive trade posture, U.S. high-technology industry requires a faster response time than GATT currently provides for addressing its own structural shortcomings.<sup>135</sup> NAFTA may present U.S. industry with the responsive mechanism that it so clearly needs.

## II. NAFTA

### A. *An Overview*

NAFTA represents an important step in protecting the competitive position of U.S. high-technology industries by establishing international standards for the protection of intellectual property generally, and process patents specifically.<sup>136</sup> While some problems historically

---

132. See *Trade and Technology Hearings*, *supra* note 38, at 132 (testimony of David C. Mowery, Associate Professor, HAAS School of Business, University of California, Berkeley) (recognizing GATT as slow-moving organization that is unable to act decisively on major issues).

133. See *President Clinton's Submission to Congress of Documents Concerning Uruguay Round Agreement December 15, 1993*, Daily Report for Executives (BNA), Dec. 17, 1993 (reporting that "principal negotiating objectives" of Uruguay Round were achieved, including implementation of adequate intellectual property standards and effective dispute settlement procedures); *Draft Final Text of the Results of the Uruguay Round of Multilateral Trade Negotiations, Hearing Before the Subcomm. on Trade of the Comm. on Ways and Means*, 102d Cong., 2d Sess. 4 (1992) [hereinafter *Uruguay Round Hearing*] (statement of Rep. McGrath) (discussing U.S. industry's response to GATT Director Arthur Dunkel's proposed draft of December 20, 1991).

134. See *Uruguay Round Hearing*, *supra* note 133, at 88 (statement of Peter C. Richardson, Senior General Counsel and General Patent Counsel, Pfizer, Inc.) (stating that Dunkel Draft goes "a long way" in providing international intellectual property protection). Trade talks on intellectual property would be especially promising if GATT eventually manages to provide administrative and dispute resolution mechanisms that foster trust and support from the contracting parties. One commentator states:

As one looks at the context of these talks and the issues they will address, there is considerable room for doubt whether they can succeed without some serious reevaluation of the function of GATT in the international trading system and a concerted effort to improve the institutional mechanisms in GATT for decision-making, rule development, enforcement, and policy coordination.

Gadbaw, *supra* note 75, at 37.

135. See *Trade and Technology Hearings*, *supra* note 38, at 132 (statement of David C. Mowery, Associate Professor, HAAS School of Business, University of California, Berkeley) (cautioning against overemphasis on GATT as means for improved protection for intellectual property due to difficulty of defining standards needed for proper enforcement of newer, fast-developing technologies).

136. See GARY HUFBAUER & JEFFREY J. SCHOTT, *NAFTA: AN ASSESSMENT 90* (1993) (noting that "[i]n the intellectual property area, NAFTA stands as a model both for resolving outstanding disputes and for locking in reforms previously enacted").

associated with process patent protection will likely remain,<sup>137</sup> NAFTA signals a stronger U.S. commitment to protect domestic economic and security interests.<sup>138</sup> Similar to GATT, NAFTA's contracting parties will establish the rules by which they agree to trade.<sup>139</sup> Unlike GATT, however, NAFTA's contracting parties will have agreed at the treaty's inception on provisions relating to intellectual property protection, process patents, and other high-technology trade issues.<sup>140</sup> Like GATT, the basic structure of the agreement liberalizes trade among member nations.<sup>141</sup> NAFTA, however, includes only three contracting parties;<sup>142</sup> this important feature of the agreement should help facilitate consensus on a broader range of issues.<sup>143</sup>

In recognition of the problems associated with foreign process piracy, NAFTA also contains provisions specifically for process patents.<sup>144</sup> Now that it has been ratified, NAFTA may succeed in advancing the international enforcement of process patent rights.<sup>145</sup> NAFTA's success in enforcing international intellectual property

---

137. See *infra* notes 187-89 and accompanying text (outlining areas of potential problems in NAFTA's prevention of foreign process piracy even after ratification).

138. See HUFBAUER & SCHOTT, *supra* note 136, at 90 (noting NAFTA's accomplishments that have helped it become preferred standard for measuring accomplishments of GATT and other trade agreements); see also *Trade and Technology Hearings*, *supra* note 38, at 126 (statement of Gerald J. Mossinghoff, President, Pharmaceutical Manufacturer's Association) (discussing NAFTA's positive impact on intellectual property standards among Canada, Mexico, and United States).

139. See NAFTA, *supra* note 1, at art. 101 (providing "The parties to this Agreement, consistent with Article XXIV of the General Agreement on Tariffs and Trade, hereby establish a free trade area").

140. See ABA Meeting Looks at NAFTA and Intellectual Property Rights, 9 Int'l Trade Rep. (BNA) No. 17, at 724-25 (Apr. 22, 1992) (reporting similarity of NAFTA intellectual property provisions to proposed trade-related intellectual property text by GATT Director General Arthur Dunkel).

141. See NAFTA, *supra* note 1, at art. 102 (outlining objectives including facilitating cross-border movement of goods and services, promoting conditions of fair competition, and creating effective procedures for resolution of disputes among others).

142. See NAFTA, *supra* note 1, at annex 201.1 (listing Canada, Mexico, and United States as countries that are parties to NAFTA).

143. See Graham, *supra* note 75, at 10 (discussing GATT's early success with only "twenty-four mostly like-minded governments" that originally chartered agreement). GATT currently has 116 contracting parties, which creates difficulty in reaching complete consensus on issues such as intellectual property. See Schott, *supra* note 80, at 7-8 (discussing problems of reaching consensus in GATT and resultant shift to smaller free trade agreements that "are regarded as more effective and expeditious means to achieve trade liberalization among 'like-minded' trading partners").

144. See *infra* notes 172-97 and accompanying text (reviewing NAFTA provisions on process patent protection).

145. See HUFBAUER & SCHOTT, *supra* note 136, at 90 (noting that under NAFTA, "products and process inventions will be patentable in almost all fields of technology"). Hufbauer and Schott further emphasize that "the accomplishments of NAFTA are so striking that it has quickly become the preferred benchmark for evaluating the accomplishments of GATT and other trade agreements." *Id.*

standards ultimately will depend on its ability to resolve disputes.<sup>146</sup> As GATT aptly demonstrates, an inefficient dispute resolution system can destroy the parties' confidence in their agreement.<sup>147</sup>

NAFTA's dispute resolution system, which resembles the procedures used successfully in the Canada-United States Free Trade Agreement,<sup>148</sup> appears better equipped than GATT's system to foster satisfactory dispute resolution.<sup>149</sup> Further, with fewer parties, NAFTA is well positioned to maintain fair and efficient international proceedings, and is thus less likely to suffer GATT-like erosion of the agreement's cooperative spirit.<sup>150</sup> The efficient enforcement of the intellectual property rights of contracting parties may, in turn, lead to improved discovery procedures for patentees who suspect foreign process infringement.<sup>151</sup>

---

146. See Gadbow, *supra* note 75, at 46 (recognizing coordination, decisionmaking, and dispute settlement as keys to effectiveness of multilateral trade institution); see also HUFBAUER & SCHOTT, *supra* note 136, at 90 (noting that "[t]he value of NAFTA provisions on intellectual property rights will clearly depend on the effectiveness of enforcement").

147. See Schott, *supra* note 80, at 4 (noting skepticism of GATT's efficacy following 1982 Ministerial and increasing need for alternative approaches to protect U.S. trading interests). The 1982 Ministerial was a meeting of GATT trade ministers called by the United States. *Id.* at 4 n.4. The purpose of this event was to prepare for a new round of trade negotiations. *Id.* The failure of this meeting provoked further skepticism of the GATT process. *Id.*

148. See HUFBAUER & SCHOTT, *supra* note 136, at 102 (noting NAFTA's dispute resolution mechanism similar to Canada-U.S. FTA). The similarities include selecting panelists to judge disputes and establishment of a "trilateral Trade Commission" in order to resolve disputes and administer the agreement); see also MEXICO, INVESTMENT AND TRADE: PROGRESS AND PROSPECTS 80, 384-85 (Practicing Law Institute 1993).

149. See Schott, *supra* note 80, at 320 (comparing dispute settlement mechanism of Canada-United States Free Trade Agreement with that of GATT and noting that "[t]he bilateral mechanism is arguably superior to the GATT mechanism in a number of ways, not the least of which are the right to initiate a panel, and procedural deadlines establishing an orderly timetable"); cf. Gadbow, *supra* note 75, at 42-43 (comparing pragmatist and legalist views of multilateral dispute settlement). Essentially, the United States favors the legalist view of dispute settlement. Gadbow, *supra* note 75, at 43. This view emphasizes that GATT is "a set of legal rules intended to provide fairly precise limits on natural actions." *Id.* at 42. The legalist view is contrasted with the pragmatist view, which deemphasizes the structure of GATT rules and interprets the rules to be "guidelines that can be read only in the light of the underlying consensus." *Id.*

The United States prefers a consistent approach to intellectual property. For example, the parties cannot take the pragmatist approach, agree on rules, and then renegotiate the contract if consensus is lost. Considering the strong rules proposed in NAFTA's intellectual property provisions, it appears that NAFTA avoids the pragmatist approach. See *id.* at 43. Notably, however, when one actually looks to the practice of dispute settlement in the respective countries, particularly in the United States, the characterizations become blurred. The United States, in handling disputes, often conducts a more pragmatic approach. *Id.* Conversely, the EEC has recently shown signs of a more legalist approach. *Id.*

150. See Schott, *supra* note 80, at 8-9 (explaining that trade agreements with fewer countries yield certain benefits, such as streamlined dispute settlement procedures).

151. See NAFTA, *supra* note 1, at art. 1803 (providing mechanism for contracting parties to request and receive information from another party). In cases of suspected process infringement, the United States could request information which might aid in determining the process used by the foreign manufacturer. See *id.* at art. 2014-15 (providing retention of experts and scientific review boards to address "any factual issue concerning environmental, health,



Finally, the contracting parties might use these NAFTA innovations to affect future GATT negotiations.<sup>152</sup> It is difficult to determine what impact, if any, NAFTA's October 1993 passage had on the conclusion of the Uruguay Round in December. While GATT negotiators adopted the Dunkel Text with only minor changes,<sup>153</sup> this may have occurred despite NAFTA's passage. NAFTA, however, certainly demonstrates the United States' determination in furthering its trade interests in areas not traditionally addressed by the GATT. Although using bilateral agreements to negotiate leverage in multilateral talks involves risks,<sup>154</sup> the United States certainly recognizes the bargaining power of the three-member nucleus.<sup>155</sup> Thus, if NAFTA is successful in its broadening of intellectual property rights

---

safety or other scientific matters raised by a disputing party"); see also *infra* note 219 and accompanying text (discussing Article 1719 regarding cooperation and technical assistance).

152. See *World Economy Hearings*, *supra* note 100, at 5 (testimony of James D. Robinson III, Chairman & CEO, American Express, Chairman, Business Roundtable Task Force on International Trade and Investment). Mr. Robinson stated:

A comprehensive agreement with the Canadians would create a powerful market-oriented free trade zone. We have to face the possibility that the European Community may one day tighten its ranks against the rest of the world and that the GATT negotiations may not succeed. And in such a world, the Canadian Market would be even more important to the United States.

If we are successful in Canada, we can use those talks as a model for multilateral agreements in GATT. And if we fail in Canada, which is our largest trading partner and neighbor, how can we hope to be successful at the GATT table?

*Id.*

Although the Canada-United States Free Trade Agreement was not in effect at the time of this testimony, the Canadian agreement recognizes the leverage needed to forge consensus in GATT negotiations, and how NAFTA, with Canada and Mexico, represents a powerful trading group capable of dealing with Japan and the consolidating European Community. Japan remains somewhat perplexed by the concept of a "borderless Europe," and is concerned with the emerging system of regional trading blocs. See Charles Leadbeater, *Life in the Single Market: Europe's Compulsion to Unify Mystifies the Japanese*, FIN. TIMES, Jan. 4, 1993, § 1, at 6 (noting Japanese concern over possibility of facing "Western alliance" in event that EC and United States form closer trade relationship). *The Financial Times* quotes Toshio Tanaka of Tokyo's Kieo University as stating: "Two against one—that is what we fear." *Id.*

153. See *supra* note 133 (discussing adoption of Dunkel text in Uruguay Round of GATT negotiations).

154. See Gadbow, *supra* note 75, at 38-39 (discussing erosion of GATT system through fragmentation of agreements). NAFTA can be characterized as a "mini-GATT," working in conjunction with GATT, yet undermining enthusiasm for achieving broad multilateral consensus through GATT. *Id.* at 39; see also Schott, *supra* note 80, at 53 (arguing that bilateral agreements are often approached as substitutes for, rather than compliments to, multilateral talks). Whereas the United States appears to be using bilateral agreements to "close the leaks" in multilateral talks such as GATT, there is concern that a continued lack of progress in GATT could lead the United States to substitute bilateral arrangements for GATT. See *id.* at 2-3 (discussing dilemma of U.S. trade policy regarding tactical trade-offs between bilateral and multilateral negotiations).

155. See HUFBAUER & SCHOTT, *supra* note 136, at 116 (recognizing NAFTA as improvement in international competitive posture for members, which increases their negotiating leverage in GATT, rather than as shift in U.S. trade policy toward regionalism). But see Emily Thornton, *Will Japan Rule a New Trade Bloc?*, FORTUNE, Oct. 5, 1992, at 131, 132 (predicting that Japan-led Pacific Rim trading bloc would be unlikely unless "the U.S. and Europe turned markedly more protectionist against both the Japanese and the rest of Asia").

and resolution of disputes, it will undoubtedly influence the structure and results of future GATT negotiations beyond the Uruguay Round.<sup>156</sup>

## B. NAFTA Provisions Relating to Intellectual Property

### 1. Preliminary provisions

Chapter 17 comprises NAFTA's twenty-one articles addressing intellectual property issues.<sup>157</sup> The first articles establish ground rules that apply to all provisions under chapter 17.<sup>158</sup> The ambitious scope of the chapter is embodied in article 1701, paragraph 1, which states: "Each Party shall provide in its territory to the nationals of another Party adequate and effective protection and enforcement of intellectual property rights, while ensuring that measures to enforce intellectual property rights do not themselves become barriers to legitimate trade."<sup>159</sup> Although laudable in theory, achievement of NAFTA's goals in intellectual property protection and enforcement depends on reliable administration and dispute resolution among its parties.<sup>160</sup> Without the confidence of its contracting parties, NAFTA will erode as did GATT.<sup>161</sup>

Article 1702, which establishes NAFTA's provisions as minimum standards, allows the parties to maintain additional domestic intellectual property protections.<sup>162</sup> The significant step of creating

---

156. See *supra* note 140 (reporting on NAFTA's use of Dunkel Draft). If NAFTA implements its provisions more successfully than the GATT implements the Dunkel Draft provisions, it will represent a strong signal that the United States intends to press on with its agenda, with or without GATT. As a result, other GATT members would be faced with a strong incentive to follow the U.S. lead or form other regional trading blocs. See Schott, *supra* note 80, at 3 (discussing use of bilateral agreements to "goad other countries to move the GATT talks forward"). But see *id.* at 50-53 (discussing general limitations of bilateral free trade agreements in influencing multilateral talks through GATT).

157. See NAFTA, *supra* note 1, at ch. 17 (providing intellectual property provisions regarding substantive rights, procedural standards, and border practices).

158. See NAFTA, *supra* note 1, at arts. 1701-04 (setting forth scope, national treatment, and domestic control provisions for intellectual property).

159. NAFTA, *supra* note 1, at art. 1701.

160. See REPORT OF IFAC-3 ON THE INTELLECTUAL PROPERTY CHAPTER AND OTHER INTELLECTUAL PROPERTY-RELATED ELEMENTS OF THE NORTH AMERICAN FREE TRADE AGREEMENT 4 (1992) [hereinafter IFAC-3] ("NAFTA's actual intellectual property protection can be no greater than the willingness of the signatories to enforce that protection."); Gadbow, *supra* note 75, at 48 (concluding that GATT cannot address trade disputes arising from socioeconomic differences among members without stronger institutional framework for dispute resolution).

161. See Ahearn, *supra* note 71, at 21 (discussing lack of support for GATT following Tokyo Round's inability to resolve structural differences).

162. NAFTA, *supra* note 1, at art. 1702 ("A Party may implement in its domestic law more extensive protection of intellectual property rights than is required under this Agreement, provided that such protection is not inconsistent with this Agreement"). It is difficult to

international standards for intellectual property remained unrealized in GATT until December 1993 because of the lack of consensus among its many members.<sup>163</sup> NAFTA remains similar to GATT, however, in that any additional domestic protections must not be inconsistent with the agreement's goal of reducing trade barriers.<sup>164</sup> Undoubtedly, defining what is "not inconsistent" with the agreement will fuel much debate. Considering the GATT Panel's findings concerning section 337,<sup>165</sup> however, one may assume that nondiscriminatory treatment among member nations is essential to any determination of consistency.<sup>166</sup>

Finally, article 1703, paragraph 1 of NAFTA defines national treatment standards for nondiscriminatory treatment of contracting parties.<sup>167</sup> Under article 1703, which is similar to GATT's article XX, parties are expected to protect and enforce intellectual property rights in a nondiscriminatory manner.<sup>168</sup> Paragraph 3 of article

harmonize patent laws in international agreements because of the differing needs and tradition of individual nations. Glenn E.J. Murphy, Note, *The Process Patent Amendments Act of 1988*, 9 J.L. & COM. 267, 283 (1989). NAFTA acknowledges this dissonance by permitting the parties to maintain their individual patent systems, while requiring mutual respect of each party's rights. See NAFTA, *supra* note 1, at art. 1702-1703. *id.* at art. 1709, para. 6-7 (allowing parties to maintain certain patent protections so long as they are not applied prejudicially or discriminatorily against other parties). This flexibility is particularly important in light of the U.S. "first to invent" system, which differs from the "first to file" systems of most other countries, including Canada. Compare *The Advisory Commission on Patent Law Reform; A Report to the Secretary of Commerce* 1, 43-55 (1992) (comparing different patent systems and reporting on proposed reforms to U.S. patent system, such as adoption of first to file system which "provides an overall benefit to U.S. interests") with Gabriel P. Katona, *First-To-File—Not in the United States*, 73 J. PAT. [& TRADEMARK] OFF. SOC'Y 399, 399-403 (1991) (arguing against adoption of first-to-file system).

163. See Schott, *supra* note 80, at 7-9 (discussing complexity of GATT negotiations and difficulty in achieving consensus among member countries). Negotiations among small groups of "like-minded" governments allow bilateral and multilateral agreements such as NAFTA to reach consensus on specifically targeted interests. *Id.* at 8-9. Thus, NAFTA's intellectual property provisions can be tailored to meet the needs of its three members. *Id.* at 9.

164. See *supra* notes 112-15 (describing section 337's violation of GATT requirement of consistent national treatment). Generally, NAFTA permits differences in substantive and procedural domestic law; the differences, however, may not treat parties inconsistently. See NAFTA, *supra* note 1, at art. 1703 (requiring national treatment for citizens or entities of other state parties).

165. See *supra* note 117 and accompanying text (discussing GATT panel's finding that section 337 violated national treatment requirements of GATT article III).

166. See 35 U.S.C. § 104 (1988) (providing effective filing dates for inventions made abroad for which inventor seeks U.S. patent); Katona, *supra* note 162, at 400 (discussing certain U.S. patent laws that discriminate against foreigners, thus violating national treatment principles).

167. NAFTA, *supra* note 1, at art. 1703, para. 1 (providing that "[e]ach Party shall accord to nationals of another Party treatment no less favorable than it accords to its own nationals with regard to the protection and enforcement of all intellectual property rights").

168. NAFTA, *supra* note 1, at art. 1703, para. 1; see General Agreement on Tariffs and Trade, Oct. 30, 1947, 61 Stat. A3, A60-61, 55 U.N.T.S. 187, 262, reprinted in 4 GENERAL AGREEMENT ON TARIFFS AND TRADE: BASIC INSTRUMENTS AND SELECTED DOCUMENTS 37-38 (1969) (exempting from GATT compliance national measures designed to enforce patents, as long as such measures "are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail").

1703, however, permits the contracting parties to avoid the national treatment provisions of paragraph 1 under certain circumstances, such as domestic enforcement of intellectual property rights.<sup>169</sup> Article 1703 raises questions regarding the potentially discriminatory application of section 337 exclusion orders against foreign patent infringers.<sup>170</sup> Once amended, however, section 337 will most likely survive both NAFTA and GATT scrutiny.<sup>171</sup>

## 2. *Provisions relating to patents*

Paragraphs 1 through 4 of article 1709 provide standards for patentable subject matter.<sup>172</sup> Paragraph 1 defines a broad range of patentable subject matter, including both products and processes,<sup>173</sup> conditioned on three basic requirements<sup>174</sup> that parallel U.S. patent law.<sup>175</sup> Paragraphs 2 and 3 set forth exceptions to the general scope of paragraph 1. Under paragraph 2, a party may refuse to grant a patent that would endanger life, health, morality, public order, or the

---

169. NAFTA, *supra* note 1, at art. 1703, para. 3. Paragraph 3 provides in pertinent part: A Party may derogate from paragraph 1 in relation to its judicial and administrative procedures for the protection or enforcement of intellectual property rights . . . provided that such derogation: (a) is necessary to secure compliance with measures that are not inconsistent with this Chapter; and (b) is not applied in a manner that would constitute a disguised restriction on trade.

*Id.*

By comparison, GATT article XX(d) provides in part that "nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures . . . (d) necessary to secure compliance with laws or regulations which are not consistent with the provisions of this Agreement, including those relating to . . . protection of patents . . .". General Agreement on Tariffs and Trade, Oct. 30, 1947, 61 Stat. A3, A60-61, 55 U.N.T.S. 187, 262, *reprinted in* 4 GENERAL AGREEMENT ON TARIFFS AND TRADE: BASIC INSTRUMENTS AND SELECTED DOCUMENTS 37-38 (1969).

170. *See supra* note 112 and accompanying text (describing GATT panel's finding that that section 337 violates of articles III and XX).

171. *See* NAFTA, *supra* note 1, at art. 1702 (permitting implementation of more extensive domestic protection). As for GATT, the interpretation of "implement" will be critical for procedures such as section 337 to avoid GATT violation. *See* Clark, *supra* note 63, at 1177 (discussing how Omnibus Trade Act amendment to section 337 led to GATT violation).

172. *See* NAFTA, *supra* note 1, at art. 1709, paras. 1-4 (requiring parties to adopt broad definition of patentable subject matter with exceptions for specific forms of invention).

173. NAFTA, *supra* note 1, at art. 1709, para. 1.

174. NAFTA, *supra* note 1, at art. 1709, para. 1. Paragraph 1 provides:

[E]ach Party shall make patents available for any inventions, whether products or processes, in all fields of technology, provided that such inventions are new, result from an inventive step and are capable of industrial application. For the purposes of this Article, a Party may deem the terms "inventive step" and "capable of industrial application" to be synonymous with the terms "non-obvious" and "useful," respectively.

*Id.*

175. *See* 35 U.S.C. §§ 101-103 (1988) (listing utility, novelty, and non-obviousness as basic requirements for patentability under U.S. patent law).

environment.<sup>176</sup> Similarly, paragraph 3 permits the contracting parties to exclude inventions and processes affecting life forms.<sup>177</sup> The exceptions listed in paragraph 3 are similar to those found in the patent laws of some European countries, and they trouble some commentators who recognize the large capital outlays needed to develop "higher life forms."<sup>178</sup> Generally, however, process patents are protected under NAFTA's provisions.

Paragraph 4 standardizes product patent protection for pharmaceutical and agricultural chemicals.<sup>179</sup> This protection is a significant improvement in the international protection of pharmaceutical and agrichemical products derived from microbiological processes.<sup>180</sup> This provision ensures that contracting parties either accept these specific technologies as patentable subject matter or provide ad hoc product patent protection to inventors for the patent's term.<sup>181</sup> Such protection is particularly important for U.S. process patentees in the pharmaceutical industry who have suffered tremendous financial losses from process patent piracy.<sup>182</sup>

Paragraph 5 of article 1709 sets forth rights of exclusivity for both products and processes.<sup>183</sup> Subparagraph (b) boldly protects process patentees by granting them the right to exclude others from

---

176. NAFTA, *supra* note 1, at art. 1709, para. 2 (providing exception to paragraph 1 in specific areas "not based solely on the ground that the Party prohibits commercial exploitation in its territory of the subject matter of the patent").

177. NAFTA, *supra* note 1, at art. 1709, para. 3 (providing exception from patentability requirement of paragraph 1 in cases of (1) various methods of treatment of humans and animals, (2) plants and animals other than microorganisms, and (3) biological processes other than microbiological processes).

178. See IFAC-3, *supra* note 160, at 16-17 (noting that "[f]or those North American companies . . . spending large sums of money in research of transgenic plants, seeds and animals, [paragraph 3] is very disquieting").

179. NAFTA, *supra* note 1, at art. 1709, para. 4; see IFAC-3, *supra* note 160, at 17 (describing provision as "pipeline" protection based on requirement that contracting parties provide first-time protection on subject matter that is "in the pipeline," that is, already patented elsewhere).

180. See IFAC-3, *supra* note 160, at 17 (noting that protection of such subject matter is significant improvement over Dunkel Draft of GATT trade related intellectual property issues).

181. See NAFTA, *supra* note 1, at art. 1709, para. 4 (requiring timetable for introduction of patentable subject matter directed toward pharmaceutical and agricultural chemicals and products obtained through microbiological processing intended for food and medicines). Paragraph 4 of article 1709 will collide with Article 1704's mandatory licensing, which allows parties to specify in domestic law "licensing practices or conditions that may in particular cases constitute an abuse of intellectual property rights having an adverse effect on competition in the relevant market." See NAFTA, *supra* note 1, at art. 1704.

182. See *supra* note 98 (describing effects of process patent piracy on U.S. pharmaceutical industry).

183. NAFTA, *supra* note 1, at art. 1709, para. 5 (providing in part that "where the subject matter of a patent is a process, the patent shall confer on the patent owner the right to prevent other persons from using that process . . . without the patent owner's consent") (emphasis added).

using the patented process.<sup>184</sup> Unlike domestic remedies that prevent distribution of imported goods<sup>185</sup> or make importation, use, or sale of products produced by a patented process an infringement,<sup>186</sup> NAFTA strikes at the true infringer by establishing international recognition of process patent rights.<sup>187</sup> If NAFTA's administrative mechanism succeeds in eliminating the actual infringement, it will have overcome the most difficult procedural problem associated with foreign piracy: achieving jurisdiction over the citizens of another sovereign.<sup>188</sup> Even assuming that NAFTA's procedural system is capable of eliminating the actual foreign process infringement, the question still remains as to whether the system could respond before critical U.S. industries became irreparably damaged or lost.<sup>189</sup>

In paragraph 11 of Article 1709, a presumption of process infringement shifts the burden of proof to a defendant in an infringement proceeding.<sup>190</sup> Similar to the presumption of § 271(g),<sup>191</sup> a defendant must show that "the allegedly infringing product was made by a process other than the patented process."<sup>192</sup> As a domestic law, however, § 271(g) does not provide personal jurisdiction over a foreign national.<sup>193</sup> Moreover, the foreign infringer may simply rebut the presumption, thus making discovery impossible. To compensate for these shortcomings, the parties have agreed to minimum standards of intellectual property protection.<sup>194</sup> Thus, while no sovereign party actually submits to the jurisdiction of another, each party consents to provide the domestic procedures

---

184. NAFTA, *supra* note 1, at art. 1709, para. 5(b).

185. See 19 U.S.C. § 1337(d) (1988) (excluding foreign-made articles that violate U.S. patent law from U.S. market).

186. See 35 U.S.C. § 271(g) (1988).

187. NAFTA, *supra* note 1, at art. 1709, para. 5 (conferring on patent owners right to preclude use, sale, or importation of product obtained by patented process).

188. See *supra* notes 136-56 and accompanying text (describing need for international cooperation to permit discovery between nations with different civil procedures before true determination of infringement is possible).

189. See *supra* notes 35-48 and accompanying text (describing detrimental effect of process piracy on U.S. high-technology industries).

190. NAFTA, *supra* note 1, at art. 1709, para. 11 (providing for rebuttal of presumption of infringement by defendant's showing that "(a) the product obtained by the process is new; or (b) a substantial likelihood exists that the allegedly infringing product was made by the process and the patent owner has been unable through reasonable efforts to determine the process actually used").

191. See *supra* note 111 and accompanying text (detailing criteria for presumption of foreign process infringement under 35 U.S.C. § 295).

192. NAFTA, *supra* note 1, at art. 1709, para. 11.

193. See *supra* note 111 and accompanying text (describing jurisdictional deficiencies among sovereign nations and their impact on enforcement of § 271(g)).

194. See HUFBAUER & SCHOTT, *supra* note 136, at 146-47.

necessary to protect the agreed-upon rights of all other parties.<sup>195</sup> Further, unlike § 271(g), NAFTA contains the additional limitation that “[i]n the gathering and evaluation of evidence, the legitimate interests of the defendant in protecting its trade secrets shall be taken into account.”<sup>196</sup> This provision seeks to prevent abuse of the discovery procedures in order to learn a competitor’s trade secrets.<sup>197</sup> For example, a U.S. manufacturer that owns a process patent could not file an infringement suit against a foreign manufacturer and use the presumptive burden shift to force the foreign manufacturer to disclose its trade secrets to prove that the manufacturer did not use the patented process.

### 3. Provisions relating to enforcement of rights

GATT demonstrates that an agreement’s credibility ultimately rests on its ability to resolve disputes.<sup>198</sup> The success of NAFTA’s intellectual property provisions and their impact on future GATT negotiations thus turn on enforcement.<sup>199</sup> NAFTA’s enforcement procedures for intellectual property are found in Articles 1714-1719. Article 1714 is the general enforcement provision, requiring “expeditious remedies” to prevent and deter infringements and incorporating the consistent application rule set forth in Article 1701, paragraph 1.<sup>200</sup> Paragraphs 2 through 4 of Article 1714 address questions of fairness and due process, such as reasonable procedural time limits in an enforcement proceeding, requirements that administrative agencies

---

195. See PAUL REUTER, *INTRODUCTION TO THE LAW OF TREATIES* 3 (1989) (discussing “basic principles” of international treaties and explaining that “only final consent is legally binding, but agreed formalities may act as milestones marking the procedural stages leading up to final consent”); see also NEALE & STEPHENS, *supra* note 23, at 11 (identifying consent as principal pillar of international law).

196. NAFTA, *supra* note 1, at art. 1709, para. 11.

197. See NAFTA, *supra* note 1, at art. 1711, para. 1(a) (defining “trade secret” as “information . . . secret in the sense that it is not, as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to persons that normally deal with the kind of information in question”).

198. See Gadbow, *supra* note 75, at 42-45 (reviewing evolution of GATT’s dispute resolution mechanisms and concluding that effectiveness of enforcement is linked to “willingness of the offending country to comply with GATT rules”).

199. See HUFBAUER & SCHOTT, *supra* note 136, at 90.

200. NAFTA, *supra* note 1, at art. 1714, para. 1. Paragraph 1 of article 1714 provides:

Each Party shall ensure that enforcement procedures, as specified in this Article and Articles 1715 through 1718, are available under its domestic law so as to permit effective action to be taken against any act of infringement of intellectual property rights covered by this Chapter, including expeditious remedies to prevent infringements and remedies to deter further infringements. Such enforcement procedures shall be applied so as to avoid the creation of barriers to legitimate trade and to provide for safeguards against abuse of the procedures.

issue their decisions in writing, and opportunity for appeal.<sup>201</sup> These procedural provisions represent an ambitious standard for international cooperation, and, if effective, will provide a benchmark for future GATT negotiations.<sup>202</sup>

Article 1715 sets forth specific procedures for the enforcement of rights.<sup>203</sup> Of particular interest is paragraph 2, which sets forth discovery standards.<sup>204</sup> By setting standards that enable the parties to use their own civil discovery procedures, NAFTA may provide enough sovereign control to prevent abuses.<sup>205</sup> Paragraph 7, however, is problematic, especially in cases of process patent infringement. By limiting liability in infringement actions to an "adequate remuneration,"<sup>206</sup> which prevents recovery of punitive damages, paragraph 7 eviscerates the incentive to avoid infringement.<sup>207</sup> Unlike punitive damages, compensatory damages do not

---

201. See NAFTA, *supra* note 1, at art. 1714, paras. 2-4 (requiring fair and equitable procedures, avoidance of unnecessary delays, and adherence to due process considerations such as written decisions, opportunity to be heard, evidentiary considerations, and opportunity for judicial review of decisions).

202. See HUFBAUER & SCHOTT, *supra* note 136, at 90 ("In the intellectual property area, NAFTA stands as a model . . . for resolving outstanding disputes . . . . [T]he accomplishments in NAFTA are so striking that it has quickly become the preferred benchmark for evaluating the accomplishments of GATT and other trade agreements."); cf. *Trade and Technology Hearings*, *supra* note 38, at 24-25 (statement of Charles O. Verrill, Jr., Partner, Wiley, Rein & Fielding, Adjunct Professor of International Trade Law and Regulation, Georgetown University Law Center) (portraying rules of origin in Canada-United States Free Trade Agreement as benchmark for rules of origin in Uruguay Round negotiations).

203. See NAFTA, *supra* note 1, at art. 1715, para. 1 ("Each Party shall make available to right holders civil judicial procedures for the enforcement of any intellectual property right covered by this Chapter.")

204. NAFTA, *supra* note 1, at art. 1715, para. 2(a). Paragraph 2(a) of article 1715 provides: Each Party shall provide that its judicial authorities shall have the authority: (a) where a party in a proceeding has presented reasonably available evidence sufficient to support its claims and has specified evidence relevant to the substantiation of its claims that is within the control of the opposing party, to order the opposing party to produce such evidence, subject in appropriate cases to conditions that ensure the protection of confidential information.

*Id.*

205. Essentially, the NAFTA system requires a good-faith effort on the part of each party's judiciary to uphold NAFTA's standards. Absent personal jurisdiction over the alleged infringer, the U.S. process patent holder has no right to discover a foreign process. By signing NAFTA, however, each party promises to use its domestic civil procedure pursuant to the agreement. The effectiveness of process protection depends on each party's adherence to and faith in the system. See HUFBAUER & SCHOTT, *supra* note 136, at 90 (noting that NAFTA's enforcement responsibilities fall on member nations).

206. NAFTA, *supra* note 1, at art. 1715, para. 7 (stating that in infringement action, sued party may limit its liability to "adequate remuneration in the circumstances of each case, taking into account the economic value of the use").

207. See 134 CONG. REC. H2291 (1988) (statement of Rep. Hyde) ("The strength of incentives for invention . . . provided by U.S. patent rights depends upon providing rights to the patent owner to exclude competitors from practicing the invention. A right merely to receive a royalty from others who practice the patented invention is a much weaker incentive for future research and development."); Haymond, *supra* note 108, at 570-71 (discussing limitation of



provide infringers with adequate disincentive to avoid the infringement.<sup>208</sup> For process patents in critical technologies, such weak patent protection does little to advance the United States' competitive position.

Articles 1716 and 1717 establish standards for judicial authority and criminal penalties. Article 1716 sets forth measures designed to empower judicial authorities and to prevent abuses.<sup>209</sup> Specifically, each party must provide a mechanism for bringing complaints,<sup>210</sup> determining the complaints' merits,<sup>211</sup> and stopping the infringement.<sup>212</sup> Additionally, article 1717 requires each party to provide criminal procedures and penalties for wilful infringements.<sup>213</sup>

Article 1718 concerns enforcement of rights at the border.<sup>214</sup> Unlike section 337, which now contains a presumption of infringement following the Omnibus Trade Act,<sup>215</sup> NAFTA contains no presumption at the border.<sup>216</sup> Paragraph 2 of article 1718 is particularly burdensome for process patent owners who cannot determine process infringement from merely inspecting the imported product.<sup>217</sup> Paragraph 10 may solve this problem by detaining goods in suspect cases until evidence of infringement may be obtained.<sup>218</sup> Unfortunately, the problems associated with proving infringement do

---

damages provision found in early drafts of 35 U.S.C. § 271(g) and its subsequent elimination because of failure to provide strong enough incentives to avoid infringement).

208. Cf. Michael Rustad & Thomas Koenig, *The Historical Continuity of Punitive Damages Awards: Reforming the Tort Reformers*, 42 AM. U. L. REV. 1269, 1318-20 (1993) (describing punishment and deterrence functions of punitive damages).

209. NAFTA, *supra* note 1, at art. 1716.

210. See NAFTA, *supra* note 1, at art. 1716, para. 1 (requiring that each party provide judicial authorities to prevent infringement of intellectual property rights).

211. See NAFTA, *supra* note 1, at art. 1716, para. 2 (stipulating that each party empower judicial authorities to summon, preserve, and consider relevant evidence and information).

212. See NAFTA, *supra* note 1, at art. 1716, para. 1 (providing that each party empower judicial authorities to prevent entry of violative goods into jurisdiction's commerce channels).

213. NAFTA, *supra* note 1, at art. 1717, paras. 1, 3.

214. See NAFTA, *supra* note 1, at art. 1718, para. 1 (directing parties to adopt procedures that enable right holders who suspect importation of violative goods to petition authorities to suspend release of goods by customs administration).

215. Omnibus Trade and Competitiveness Act of 1988, Pub. L. No. 100-418, 102 Stat. 1107 (1988) (codified at scattered sections of U.S.C.).

216. See NAFTA, *supra* note 1, at art. 1718 (failing to place burden on alleged infringer to enforce intellectual property rights at border).

217. See NAFTA, *supra* note 1, at art. 1718, para. 2. Paragraph 2 of article 1718 provides:

Each Party shall require any applicant who initiates procedures under paragraph 1 to provide adequate evidence: (a) to satisfy that Party's competent authorities that, under the domestic laws of the country of importation, there is *prima facie* an infringement of its intellectual property right; and (b) to supply a sufficiently detailed description of the goods to make them readily recognizable by the customs administration.

*Id.* In cases of process infringement, there may be no way to adhere to either provision without adequate time to analyze the product. Even then, proof of infringement may not be *prima facie*. See *supra* notes 18-34 (discussing problems of proof with process infringement).

218. NAFTA, *supra* note 1, at art. 1718, para. 10.

not necessarily dissolve with detention time.

Finally, article 1719 provides for cooperation and technical assistance among the parties.<sup>219</sup> The purpose of article 1719 is to eliminate trade in goods that infringe intellectual property rights.<sup>220</sup> By fostering communication among the contracting parties, NAFTA can perhaps avoid the stalemates that have frequently plagued GATT.<sup>221</sup> Without such cooperation, NAFTA will certainly follow GATT's path to reduced effectiveness.

### III. PROCESS PATENT PROTECTION BEYOND NAFTA

NAFTA's high degree of international cooperation is essential in resolving the longstanding problems of jurisdiction, discovery, and proof in foreign process infringement proceedings.<sup>222</sup> While the United States, Canada, and Mexico represent an impressive sphere of economic influence, a broad-based multilateral system remains necessary for intellectual property rights worldwide.<sup>223</sup> GATT's adoption of the Dunkel text<sup>224</sup> signifies substantial progress for process patent owners through that agreement's broad multilateral protection.<sup>225</sup> Unfortunately, GATT's intellectual property provisions are not as ambitious as those in NAFTA.<sup>226</sup> Additionally, as GATT has historically demonstrated, its ability to resolve disputes

---

219. NAFTA, *supra* note 1, at art. 1719, para. 1 ("The Parties shall provide each other on mutually agreed terms with technical assistance and shall promote cooperation between their competent authorities. Such cooperation shall include, but not be limited to, the training of personnel.").

220. NAFTA, *supra* note 1, at art. 1719, para. 2 ("The Parties shall cooperate with a view to eliminating trade in goods that infringe intellectual property rights. For this purpose, each Party shall establish and notify the other Parties of contact points in its federal government and shall exchange information concerning trade in infringing goods.").

221. See generally Gadbow, *supra* note 75, at 37-45 (reviewing institutional problems that have plagued GATT).

222. See HUFBAUER & SCHOTT, *supra* note 136, at 90 (concluding that value of NAFTA in arena of intellectual property rights is contingent on enforcement, which, in turn, is contingent on practices of member countries).

223. See *World Economy Hearings*, *supra* note 100, at 4 (statement of James D. Robinson III, Chairman & CEO, American Express, Chairman, Business Roundtable Task Force on International Trade and Investment) ("[I]f the total pie is to grow, we must have a multilateral framework, even if it is imperfect. . . . A world without GATT would be worse than New York City without traffic lights.").

224. See *supra* note 133 (detailing Dunkel text adoption by GATT negotiators).

225. Cf. *Trade and Technology Hearings*, *supra* note 38, at 91-93 (statement of Gerald J. Mossinghoff, President, Pharmaceutical Manufacturers Association) (discussing profundity of problem imposed on pharmaceutical industry due to dearth of international intellectual property protection and expressing industry's endorsement of efforts to achieve such protection through Uruguay Round and NAFTA).

226. See *supra* note 133 and accompanying text (discussing adoption of Dunkel text).

among members is questionable.<sup>227</sup> If NAFTA proves successful in protecting intellectual property rights, it may continue to influence future GATT negotiations.<sup>228</sup> For GATT to continue its intellectual property reforms, however, NAFTA's contracting parties must demonstrate their commitment and leadership through timely and efficient administrative and dispute resolution systems.<sup>229</sup>

A primary impediment to continued commitment to such trade agreements is national interest.<sup>230</sup> As GATT has historically demonstrated, the delicate balance between liberalized trade and national interest often turns on the parties' confidence in the agreement.<sup>231</sup> Without an administrative system capable of responding efficiently to political and economic fluctuations that affect the contracting parties, the costs of such trade agreements overshadow their perceived benefits.<sup>232</sup> Thus, a major difficulty in establishing a reliable trade mechanism among nations centers on the need to define national interests and to agree on adequate standards and procedures for their protection.<sup>233</sup> Further, with contractual agreements such as NAFTA or GATT, the true challenge for the parties is coordinating and prioritizing these national interests prior to, and in anticipation of, the actual negotiation process.<sup>234</sup>

Unfortunately, criticism of uncoordinated U.S. trade policy has

---

227. See *supra* notes 81-90 and accompanying text (discussing GATT's ineffectiveness at resolving disputes following Tokyo Round).

228. See *NAFTA*, 9 Int'l Trade Rep. (BNA) No. 51, at 2178 (Dec. 23, 1992) (quoting Commerce Department spokesperson as saying "NAFTA's provisions are superior to those being negotiated in the Uruguay Round . . . . The most obvious example is NAFTA's provisions on intellectual property rights . . . [which are] viewed as a model for other agreements around the world"); Alan J. Stoga, *A Strategy Laced with Contradictions*, L.A. TIMES, Dec. 24, 1993, at B7 (stating that next round of GATT talks may come sooner than most politicians would like because of largely unfinished issues such as intellectual property).

229. See *supra* note 163 and accompanying text (asserting that need for strong administrative functions in NAFTA is prerequisite for its acceptance as successful protection mechanism for intellectual property rights).

230. See Schott, *supra* note 80, at 9 (stating that main objective of U.S. trade policy in recent years has been managing political fallout and deflecting protectionist pressures in order to sustain support for free trade); see also O'Reilly, *supra* note 3, at 68 (discussing need to avoid "protectionist impulses" which increase during economic downturns and supporting GATT and NAFTA goals of maintaining open markets and increasing exports).

231. See Gadbow, *supra* note 75, at 37 (stating that "[i]t seems natural that parties to GATT consider once again the nature of their bargain and seek to restore the political goodwill that appears to be threatened by domestic economic difficulties").

232. See Gadbow, *supra* note 75, at 38 (noting that parties' adherence to GATT rules is function of perceived effectiveness of GATT system in enforcing rules against others).

233. See Schott, *supra* note 80, at 7 (noting protection and harmonization of national interests to be among obstacles confronting GATT).

234. See Schott, *supra* note 80, at 9 (describing U.S. interest in 1980s of reducing trade deficit and consequential U.S. actions in international arena).

existed at least since the Tokyo Round.<sup>235</sup> Although the United States called for negotiations on high-technology trade as early as 1982,<sup>236</sup> poor policy definition and lack of coordination prevented such talks from proceeding.<sup>237</sup> As a result, foreign governments operating under more coordinated government-industry structures<sup>238</sup> eroded the U.S. industrial base.<sup>239</sup> The United States' refusal to coordinate domestic technology policy following the Tokyo Round,<sup>240</sup> and the resultant lack of bargaining strength during the early 1980s,<sup>241</sup> led to inadequate protection for some U.S. high-technology industries.<sup>242</sup> This erosion of U.S. high technology through poor policy coordination is exemplified by piracy of process

---

235. See Graham, *supra* note 75, at 16 ("Incoherence is largely the result of a trade policy-making apparatus that remains from the days when the United States could take its commercial competitiveness at home and abroad for granted.")

236. See Graham, *supra* note 75, at 11-13 (reviewing Reagan administration's ardent effort to implement 1982 GATT Ministerial and listing high-technology trade among U.S. trade priorities for negotiation at Ministerial).

237. See Graham, *supra* note 75, at 13 (indicating that Reagan administration hastily called for Ministerial without regard for contingencies such as prospects of success for trade priorities).

238. See *Technology Policy and Competitiveness: The Government's Role: Hearing Before the Subcomm. on Government Information and Regulation of the Senate Comm. on Governmental Affairs*, 102d Cong., 2d Sess. 1 (1992) [hereinafter *Technology Policy Hearings*] (statement of Sen. Kohl) ("In Japan and Germany, government and industry work together to formulate technology policy. In the United States, government and industry do not work closely together."); *id.* at 11 (statement of Julie F. Gorte, Senior Associate, Office of Technology Assessment) (identifying two European examples of technology policy and noting that "every time we look across an ocean or across a border, we see a country whose Government is striving to be a partner with the private sector in technology and development [while the United States is] probably at the bottom of the list.")

239. See Ahearn, *supra* note 71, at 22 (discussing foreign practices promoting high-technology industries such as computers, fiber optics, aerospace, and telecommunications, and U.S. refusal to adopt such practices despite recognition of long-term global importance of such technologies); see also TYSON, *supra* note 47, at 4 (describing various nontraditional forms of governmental support for high-technology industry including "competition policies, R&D policies, intellectual property protection, standards and testing procedures"); Harvey Brooks, *Technology as a Factor in U.S. Competitiveness*, in U.S. COMPETITIVENESS IN THE WORLD ECONOMY 328, 331 (Bruce R. Scott & George C. Lodge eds., 1985) ("Except in the field of specific defense technologies, decisions about protecting domestic markets from foreign competition are not made as part of a technology-promotion strategy as they are in Japan and in an increasing number of European countries (most notably France)."); Hobart Rowan, *A Dangerous Slide Toward Protectionism*, WASH. POST, Jan. 24, 1993, at H1 (discussing Japanese acknowledgement of *gaiatsu*, or external pressure, required in persuading Japan to open its markets to foreigners).

240. See *Technology Policy Hearings*, *supra* note 238, at 7 (testimony of Erich Bloch, Distinguished Fellow, Council on Competitiveness) (emphasizing lack of U.S. technology policy over last four decades).

241. See *Technology Policy Hearings*, *supra* note 238, at 4 (testimony of Julie F. Gorte, Senior Associate, Office of Technology Assessment) (emphasizing loss of U.S. share of world exports, gain of U.S. share of imports, drop in real U.S. wages, reduction in U.S. standard of living, and ultimate erosion of U.S. competitiveness).

242. See *Critical Technologies Hearings*, *supra* note 48, at 3 (statement of Rep. Horn) ("Our nation is facing unprecedented competition from abroad in all areas of critical technologies. [The governments of Japan and Germany] plan to work hand-in-hand with their businesses toward their goals of being first in the world in those technologies. We have seen what their approach to government/private sector cooperation has brought them.")

patents on pharmaceuticals during the 1980s.<sup>243</sup>

In order to establish adequate standards for process patent protection through future international trade agreements, whether bilateral or multilateral, the United States must improve its coordination and prioritization of the assorted procedures and policies that affect high-technology trade.<sup>244</sup> As section 337 and § 271(g) illustrate, domestic law and policy often run afoul of an international trade agreement's free-trade spirit.<sup>245</sup> Improved coordination of domestic and international policies will better define and protect national interests during international trade negotiations,<sup>246</sup> prevent erosion of critical domestic high-technology industry,<sup>247</sup> and aid in streamlining domestic efforts.<sup>248</sup> As a result, the United States may regain its competitive advantage in critical high-technology industries. Thus, to protect its process-based technology interests, the United States must establish an improved mechanism for defining and coordinating its domestic and international high-technology trade issues.<sup>249</sup>

Historically, the United States has been reluctant to engage in government planning of economic matters or to establish a technology policy.<sup>250</sup> "Technology policy," a term cautiously avoided in the

---

243. See *Trade and Technology Hearings*, *supra* note 38, at 69 (testimony of Gerald J. Mossinghoff, President, Pharmaceutical Manufacturers Association) (emphasizing that pharmaceutical industry loses \$5 billion annually to foreign patent pirates, based on estimates by International Trade Commission and United States Trade Representatives).

244. See TYSON, *supra* note 47, at 286 (noting need for both trade and domestic technology policy in revitalizing U.S. technological edge); see also *Trade and Technology Hearings*, *supra* note 38, at 122 (statement of David C. Mowery, Associate Professor, HAAS School of Business, University of California, Berkeley) (discussing need for strong coordinating body for technology policy to organize numerous government agencies with different agendas).

245. See *supra* notes 109, 111-12 and accompanying text (discussing perception of section 337 and § 271(g) as contrary to GATT's national treatment requirements).

246. See Graham, *supra* note 75, at 15-16 (recommending U.S. clarification of international trade interests and priorities following Tokyo Round).

247. See Graham, *supra* note 75, at 16 (stating that "[o]nly by consolidating dispersed functions under one strong head can U.S. policy begin to take on the unity and precision that is needed to address effectively the decline of basic industries [and] the competitive impact of industrial policies").

248. See Graham, *supra* note 75, at 16 (discussing possibility of Cabinet-level department focusing on U.S. competitiveness issues).

249. See TYSON, *supra* note 47, at 9-14 (outlining "cautious activist" approach toward protection of high-technology industry).

250. See Graham, *supra* note 75, at 8 (discussing United States' avoidance of centralized economic planning and its tendency to "impos[e] a restriction here and negotiat[e] a deal there"); see also *Technology Policy Hearings*, *supra* note 238, at 12 (statement of Loren C. Schmid, Chairman, Federal Laboratory Consortium for Technology Transfer) (noting sentiment pervasive in 1960s and 1970s that "[g]overnment stays over here and industry stays over there, and you do not get together"); TYSON, *supra* note 47, at 2 (recognizing that "traditional approaches to trade and domestic policy that served the nation so well when American companies had an unrivaled technological lead are no longer adequate"); Brooks, *supra* note 239, at 331 (discussing U.S. technology policy as use of "protectionist instruments . . . largely as a case-by-

United States, has existed for years, however, under less formal names or centralized structures.<sup>251</sup> Given the importance of process-based technology, and its expanding role in global trade and international competitive positioning,<sup>252</sup> a technology policy is now a necessity.<sup>253</sup>

This Comment recommends a dual-role technology policy. First, the United States must define a consistent and detailed policy to improve its leadership in high-technology trade negotiations.<sup>254</sup> Second, by improving coordination among government, academia, and industry, the United States can streamline its commercialization of high technology by increasing productivity, eliminating duplicative efforts, and improving communication.<sup>255</sup> As the following recommendations illustrate, these two roles are closely related.

#### IV. RECOMMENDATIONS

The United States should establish a coordinating group for process-based technology within a broader federal technology or industrial policy mechanism.<sup>256</sup> Because so many critical technolo-

---

case response to domestic political pressures rather than as part of a coherent strategy for gestating or nurturing future competitive industries”).

251. See *Trade and Technology Hearings*, *supra* note 38, at 123 (testimony of David C. Mowery, Associate Professor, HAAS School of Business, University of California, Berkeley) (describing implicit technology policies pursued by United States through Department of Defense, National Institute of Health, and the National Aeronautic and Space Administration); see also *Technology Policy Hearings*, *supra* note 238, at 92 (statement of Julie F. Gorte, Senior Associate, Office of Technology Assessment) (noting government policies that supported “technology development and diffusion” in civil aeronautics and agriculture); Brooks, *supra* note 239, at 332-33 (describing U.S. industrial policy during Cold War as centering around defense technologies).

252. See *Technology Policy Hearings*, *supra* note 238, at 24 (testimony of Marc Newkirk, President and CEO, Lanxide Corporation) (asserting that process technologies developed by Lanxide foster performance advantages in several products and processes which compose basic underpinnings of U.S. economy, ultimately yielding U.S. advantage).

253. See TYSON, *supra* note 47, at 289 (“In the aftermath of the Cold War, the challenge is to find ways of reconfiguring the institutions and incentives of the nation’s military industrial policy to match the new realities of international competition.”); see also *Technology Policy Hearings*, *supra* note 238, at 15-16 (testimony of Erich Bloch, Distinguished Fellow, Council on Competitiveness) (emphasizing that “U.S. competitiveness depends on a consistent long-term technology policy”); Graham, *supra* note 75, at 9 (identifying Japanese and European governments as willing to competitively promote high-technology industries).

254. See O’Reilly, *supra* note 3, at 72 (recommending development of “a coherent government policy for promoting exports”).

255. See TYSON, *supra* note 47, at 286-96 (discussing need for complementary technology and industrial policies).

256. See, e.g., *Technology Policy Hearings*, *supra* note 238, at 17 (statement of Sen. Roth) (noting proposed “National Economic Council” that would provide governmental guidance in enhancing U.S. competitiveness); TYSON, *supra* note 47, at 289 (discussing development of “institutional mechanism for assessing competitive and technological trends in global high-technology industries”); Christopher Farrell et al., *Industrial Policy*, BUS. WK., Apr. 6, 1992, at 70 (positing that United States needs industrial policy to remain competitive). But see *Technology Policy Hearings*, *supra* note 238, at 17 (statement of Erich Bloch, Distinguished Fellow, Council on

gies are process based, such a coordinating group should target high-technology industries.<sup>257</sup> The agency should implement two primary goals: (1) the monitoring, evaluation, and promotion of U.S. process-based technology industries internationally; and (2) the efficient coordination of national resources to maintain U.S. competitiveness in such technologies.

Monitoring and evaluating international developments serves a number of purposes. Initially, it would prevent the agency from relying solely on information from special interests, thus avoiding the promotion of process-based technologies backed only by influential lobbyists.<sup>258</sup> Further, such a function would aid in defining national interests and policies, a necessary step in preparing for international trade negotiations on process patent rights.<sup>259</sup> In determining national interest, a coordinating agency should evaluate various process-based technologies and consider market demands, process feasibilities, and potential for multiple commercial applications.<sup>260</sup> Rather than select technological winners and losers, as critics of technology policy fear, the agency should define consistent and detailed requirements for the promotion of process-based, high-technology industries in both the international and domestic law contexts.<sup>261</sup>

---

Competitiveness) (evincing disapproval for proposed council for fear of “[a]dding to the bureaucracy”).

257. See *Critical Technologies Hearings*, *supra* note 48, at 6 (statement of Dr. William D. Phillips, Chairman of the National Critical Technologies Panel) (describing Federal Coordinating Council for Science, Engineering, and Technology (FCCSET) as “a powerful mechanism for coordinating and rationalizing technology programs across agencies of the federal government”); see also O’Reilly, *supra* note 3, at 72 (reporting formation of trade policy coordinating committee in 1990, headed by Secretary of Commerce, which lacked authority over budgets and programs of government agencies).

258. See TYSON, *supra* note 47, at 289-90 (describing series of U.S. trade policy initiatives instituted during 1980s based on influential U.S. corporations, whose information and analyses served as principal resources for “understaffed and underfunded” U.S. government officials operating without coordinated policy); see also *Technology Policy Hearings*, *supra* note 238, at 18 (statement of Julie F. Gorte, Senior Associate, Office of Technology Assessment) (noting likelihood of special or regional interests co-opting any government program that supported industrial effectiveness).

259. See TYSON, *supra* note 47, at 289 (stating that coordinated technology agency could provide “industry-specific information required to make wise decisions on a variety of trade policy questions”).

260. See TYSON, *supra* note 47, at 289 (describing tasks tailored to such agency including “evaluating the likely course of key American industries; comparing these baseline projections with visions of industry paths . . . and monitoring the activities of foreign governments and firms”); see also *Materials Hearings*, *supra* note 39, at 85-86 (supporting creation of regulatory agency that promotes movement of capital-intensive, high-technology materials from laboratory to defense applications through government funding and incentives).

261. See TYSON, *supra* note 47, at 290 (recommending numerous agencies capable of coordinating tasks); see also Graham, *supra* note 75, at 16 (discussing need for U.S. Department of Trade and Industry to coordinate functions presently administered by Commerce

Based on such technology evaluations, the agency could achieve the second goal of improved coordination and allocation of national resources.<sup>262</sup> Federal laboratories<sup>263</sup> and U.S. academic institutions<sup>264</sup> represent the best opportunity to coordinate efforts in matters of basic research.<sup>265</sup> Industry could then provide the window to the commercial world and help determine market applications for innovative process-based technologies.<sup>266</sup> Furthermore, a coordinated policy should include an incentive system which would reduce duplicative efforts among and within groups, control funding, and foster cooperation regarding equipment and expertise.<sup>267</sup> For example, financial incentives for startup manufacturing could be established.<sup>268</sup> Companies abandon many process-based technologies because of their capital-intensive nature and perceived low returns.<sup>269</sup> Conversely, large companies often own large numbers of exploitable inventions, but choose other, higher profit

---

Department, International Trade Commission, U.S. Trade Representative, and State Department to prevent ad hoc reactions of dispersed policymaking system).

262. See *Critical Technologies Hearings*, *supra* note 51, at 32 (statement of Jon B. DeVault, President, Composite Products Group, Hercules Advanced Materials and Systems Co.) (recommending "emphasis on market pull-through, defined by key industry/government teams, versus a traditional technology push through [of] national laboratories").

263. See Lee Smith, *What the U.S. Can Do About R&D*, *FORTUNE*, Oct. 19, 1992, at 76 (discussing human resources of federal laboratories including 100,000 researchers representing 20% of engineering and science doctorates in United States); see also *Technology Policy Hearings*, *supra* note 238, at 21 (testimony of Jack Simon, Manager, Government R&D Programs, General Motors) (emphasizing significant role of federal laboratories by describing such labs as "crown jewels of American technology").

264. Smith, *supra* note 263, at 75-76 (comparing American research universities to European and Japanese counterparts which "lack the diversity and creative tumult of American campuses").

265. Smith, *supra* note 263, at 76 (suggesting gradual elimination of redundant and substandard federal labs and "[p]utting the genius of the great labs at the disposal of business"); see also *Technology Policy Hearings*, *supra* note 238, at 8 (statement of Erich Bloch, Distinguished Fellow, Council on Competitiveness) (emphasizing inadequacy of participation of industry in government technology programs); TYSON, *supra* note 47, at 290 (recommending shift of federal R&D spending from military focus to civilian or "dual use" focus in basic research).

266. See Smith, *supra* note 263, at 75 (discussing industrial R&D focus toward "down-to-earth matters" and improving existing systems); see also *Technology Policy Hearings*, *supra* note 238, at 8 (statement of Sen. Kohl) ("It is through R&D and the commercialization of technology that new markets and new jobs are made.").

267. See Smith, *supra* note 263, at 76 (discussing cooperation between Argonne lab, which is building \$800 million X-ray source, and various industrial sponsors that are paying from \$5 to \$15 million for access rights); see also TYSON, *supra* note 47, at 290 (listing recommendations to develop foresighted coordinated policy to support high-technology industries).

268. See *Trade and Technology Hearings*, *supra* note 38, at 116 (discussing problems domestic firms face in obtaining start-up capital); see also Brooks, *supra* note 239, at 356 (recognizing inability to exploit U.S. innovations until capital for market expansion becomes less cost prohibitive).

269. See TYSON, *supra* note 47, at 286 (discussing advanced display technology invented in United States but dominated in commercial markets by Japanese companies due to high cost and "limited patience" of capital providers).



technologies based on corporate size.<sup>270</sup> Regional high-technology centers provide an ideal environment to bring these underutilized innovations out of the laboratory and into the commercial marketplace.<sup>271</sup> Here, the opportunity exists to coordinate government funding and pure science research, academic applied science research, and industry funding and manufacturing expertise to incubate new high-technology industries based on innovative processing<sup>272</sup> while fostering technically skilled employment and training in these jobs of the future.<sup>273</sup>

The second goal focuses on improving product development to prevent U.S. high-technology industries from discounting competitive technology.<sup>274</sup> A critical weakness in U.S. competitiveness centers on the inability of the United States to apply its own innovation to useful commercial products.<sup>275</sup> As has been discussed throughout this Comment, domestic process patents are particularly susceptible

---

270. See Smith, *supra* note 263, at 75 (reporting on General Electric's Schenectady, New York laboratory, where scientists must have financial support of G.E. operations business before conducting particular research).

271. See *Trade and Technology Hearings*, *supra* note 38, at 116 (discussing regional concentrations of U.S. high-technology industry, including Research Triangle in North Carolina, Silicon Valley in California, and Route 128 outside Boston). Other such concentrations are forming. For example, Corning Glass and Alfred University have recently initiated the Ceramics Corridor Program whereby plant space, tax incentives, licensing, and other services are provided to entrepreneurs for a fixed period of time to "incubate" high technology ceramics companies. See Kevin Kelly et al., *Hot Spots*, *BUS. WK.*, Oct. 19, 1992, at 80, 84-86 (assessing various U.S. regions experiencing high growth resulting from cooperation among academia, business, and government).

272. See *Critical Technologies Hearings*, *supra* note 48, at 46-47 (statement of Dr. John Kardos, Chairman, Department of Chemical Engineering, Washington University) (outlining five-point policy regarding consortia that would: (1) require government involvement when industry alone lacks adequate resources to remain competitive; (2) focus consortia on commercially realizable goals with low risk; (3) provide funding based on merit as determined by appropriate review by "people who are experts in the area of focus;" (4) improve transfer and commercialization of technology; and (5) involve government, industry and academia).

273. See *Technical Education, Work Force Training, and U.S. Competitiveness, Hearing Before the Subcomm. on Technology and Competitiveness of the House Comm. on Science, Space, and Technology*, 102d Cong., 1st Sess. 16-17 (1991) (statement of Rep. Price) (discussing National Science Foundation (NSF) program for training and education in advanced technologies and need to expand NSF-sponsored research at two- and four-year academic institutions). In North Carolina's Research Triangle, businesses have already reported a lack of skilled workers and unfilled positions. *Id.* at 17.

274. See Smith, *supra* note 263, at 75 (discussing industrial shifting of R&D funding away from basic research toward development of "better, more competitive products").

275. See *Trade and Technology Hearings*, *supra* note 43, at 130 (discussing poor U.S. performance in "rapid and effective adoption of existing technologies"); see also *Technology Policy Hearings*, *supra* note 238, at 7 (testimony of Erich Bloch, Distinguished Fellow, Council on Competitiveness) (emphasizing tremendous success of 40-year U.S. science policy despite absence of companion technology policy to realize applications); *id.* at 13 (statement of Loren C. Schmid, Chairman, Federal Lab Consortium for Technology Transfer) (noting numerous instances of foreign governments' capitalization on U.S. laboratories' achievements once U.S. industry has displayed disinterest in them).

to foreign exploitation.<sup>276</sup> By coordinating technology policy, the United States could create a system of basic research and product development where government and industry could respond simultaneously to commercial needs and developments.<sup>277</sup> By moving innovation out of the laboratory and into the stream of commerce, both the individual's incentive to invent and the nation's competitive position would flourish.

### CONCLUSION

In many ways, process patents represent our country's future. This form of intellectual property signifies one of our national strengths: innovation at the cutting edge of technology. Process patents also illustrate a national weakness: an inability to protect a national strength. Process patents present this nation with the challenge of renewing U.S. competitiveness based on the increased importance of high-technology trade.

While the domestic and international intellectual property protections available today may help the United States to regain its competitive edge, the lessons of the past decade must not escape scrutiny. The United States must continue to lead efforts to improve protection of intellectual property. The United States must also create an internal structure for the efficient coordination of U.S. technology as a national resource. The United States must act quickly and from a position of coherence and strength: as process patents have illustrated, the competition never sleeps.

---

276. See *supra* notes 10-13 and accompanying text (describing nature and consequences of foreign piracy problem); see also *supra* notes 27-33 and accompanying text (providing hypothetical illustration of foreign pirate exploiting protected domestic process technology); *supra* notes 43-46 and accompanying text (emphasizing consequences of piracy).

277. See Smith, *supra* note 263, at 74-75 (discussing formation of civilian agency able to "invest in businesses willing to develop technologies where the U.S. lags behind").