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TRIPS AGREEMENT IMPLICATIONS FOR ASEAN PROTECTION OF COMPUTER TECHNOLOGY

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The new Trade-Related Aspects of Intellectual Property Agreement (the TRIPs Agreement), a result of the recent General Agreement of Tariffs and Trade (GATT) Uruguay Round, represents a major step toward providing the global trading system with more effective rules and enforcement procedures for the protection of all forms of intellectual property. The author presents a comprehensive analysis of the TRIPs Agreement requirements and of their ramifications for intellectual property protection and enforcement in the Association of East Asian Nations (ASEAN). The paper concludes with an assessment of the future of computer technology protection in the ASEAN countries.

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I. INTRODUCTION

One of the most significant results of the recent General Agreement on Tariffs and Trade (GATT) Uruguay Round is the new Trade-Related Aspects of Intellectual Property (the TRIPs Agreement) agreement which adds intellectual property rules to the global trading system. the TRIPs Agreement requires all members of the new World Trade Organization (WTO) to have substantive minimum patent, copyright, trademark, trade secret, layout design, and industrial design laws, as well as meaningful enforcement procedures.

This paper addresses the ramifications of the TRIPs Agreement on intellectual property protection and enforcement of computer technology within the Association of South East Asian Nations (ASEAN). Member nations — Thailand, Indonesia, the Philippines, Malaysia, Singapore, Brunei, and Vietnam¹ — are diverse in socio-economic, religious, ideological, and legal experiences, but together they form one of the most successful regional organizations in the world, with a population of about 450 million people.² ASEAN nations with the exception of Vietnam are WTO members and are directly obligated to comply with the TRIPs Agreement.³

The ASEAN region is experiencing rapid modernization and economic growth.⁴ The shift of the past few years from central governmental control and agricultural economies toward information-based and market-driven economies⁵ has fueled

1. Laos, Kampuchea, and Myanmar (formerly Burma) have achieved observer status.

2. ASEAN was established in 1967 to achieve political, economic, functional, and external relations security. Brunei joined in 1984 and Vietnam in 1995. *See* ASEAN Documents Series 1967-1988 45 (3rd ed.), and ASEAN, Twenty-Eighth ASEAN Ministerial Meeting, Brunei Darassalam 10-20 (July 28, 1995). *See also* JOHN NAISBITT, MEGATRENDS ASIA 121-122 (1996).

3. Observers Kampuchea and Laos are also not WTO members.

4. Five of ten emerging Asian economies are ASEAN members -- Indonesia, Malaysia, the Philippines, Singapore, and Thailand. *See* NAISBITT, *supra* note 2.

5. Vietnam's shift to market-driven forces is the most dramatic, with Malaysia proving to be an exceptional example of successful privatization and the Philippines leading in privatizing infrastructure. *See* NAISBITT, *supra* note 2, at 110-116, 164-187. *See also* Dhiraphol Suwanprateep, *Thailand*, IP ASIA 1994 HIGHLIGHTS 35 (1994).

unprecedented economic cooperation among ASEAN members and has resulted in a number of economic agreements, including the late-1995 ASEAN Framework Agreement on Intellectual Property Cooperation (ASEAN Framework Agreement).⁶ This agreement commits all ASEAN members including Vietnam to establish effective intellectual property protection regimes and to comply with the TRIPs Agreement.⁷

As South East Asia comes of age and becomes an increasingly significant economic region of the world, computer manufacturing, sales, and technology transfers are growing in importance. ASEAN's computer import and export markets are rapidly expanding and six of ten Asian "growth triangles" now involve ASEAN members.⁸ ASEAN and non-ASEAN investment in computer technology is expanding and this is likely to continue as interregional growth hubs play an increasingly significant role in the ASEAN economy.⁹

6. See ASEAN Framework Agreement on Intellectual Property Cooperation, (Dec. 15, 1995), 35 ILM 1072 (1996) [hereinafter ASEAN Framework Agreement].

7. *Id.* see also NAISBITT, *supra* note 2, at 108-145.

8. Growth triangles include the golden quadrangle (southwest China, Burma, Thailand and Laos); South China, Vietnam, Cambodia, Laos and northeastern Thailand; the straits growth triangle (Singapore, Malaysia's Johor state and Indonesia's Riau province); the northern growth triangle (northern Malaysia, southern Thailand, and northern Sumatra in Indonesia); the Sulu Sea-based growth circle (Borneo parts governed by Malaysia and Indonesia, northern Sulawesi, and the southern Philippines); and the growth circle (Sulawesi province, Indonesia and the Northern Territory, Australia). See NAISBITT, *supra* note 2, at 127 (quoting Asia Inc.). See also *id.* at 126.

9. John Naisbitt in his 1996 book, *Megatrends Asia*, notes:

Where is a new millionaire to invest? In Asia, the answer is often right next door. Malaysia, the Philippines, Indonesia, and Thailand, where costs are still low, attract their neighbors' wealth. The result is the creation of interregional growth hubs, each of which offers a critical element in support of industry. One such hub ties Singapore to Southern Malaysia and the Indonesian archipelago in support of a burgeoning electronics industry. Singapore brings the technological know how, and the telecommunications and transportation infrastructure, while Malaysia and Indonesia offer labor, water, and electric power. It's a dynamic triad, win-win-win situation. A similar effort links Malaysia and Indonesia to Thailand. NAESBITT, *supra* note 2, at 166. It should also be noted that Motorola and National Semiconductor are manufacturing in Singapore, and Hewlett-Packard also has a production and a research and development center there. Additionally, Hewlett-Packard has just moved its Palo Alto, California hard disk drive base to Penang, Malaysia. *Id.* at 110-111, 120, 122.

Part II of this paper explains the importance of ASEAN intellectual property protection of computer technology, ASEAN efforts to date, the TRIPs Agreement, and the recent ASEAN Framework Agreement.¹⁰ Part III addresses substantive ASEAN intellectual property laws, related TRIPs Agreement requirements, and the implications of the TRIPs Agreement for ASEAN protection of computer technology. Part IV analyzes ASEAN intellectual property enforcement laws and intergovernmental dispute resolution, related TRIPs Agreement requirements, and the implications of the TRIPs Agreement for ASEAN enforcement and dispute resolution. Part V summarizes and also predicts the future of ASEAN intellectual property protection and enforcement.

II. OVERVIEWS

A. IMPORTANCE OF ASEAN COMPUTER TECHNOLOGY

Computer technology is a major item of trade in the world today and this is true for ASEAN members as well. ASEAN nations seek to develop and maintain "home-grown" computer technology industries and attract much-needed investment.¹¹ They also wish to incorporate state of the art computer technology into their production methods, telecommunications infrastructures, and schools.¹²

One obstacle to achieving ASEAN's computer technology dream has been deficiencies in domestic intellectual property law. For years ASEAN nations have placed a low value on individual rights, including intellectual property rights.¹³ ASEAN intellectual property laws have also struggled to keep pace with rapidly changing technology.¹⁴ The largely national and

10. See *supra* note 6.

11. See Suwanprateep, *supra* note 5, at 35.

12. See NAISBITT, *supra* note 2, at 165-166, 183.

13. A common attitude has been that intellectual property belongs to the public. See Tara Kalagher Giunta & Lily H. Shang, *Ownership of Information in a Global Economy*, 27 GEO. WASH. J. INT'L & ECON. 327, 329 (1993-1994).

14. See J.H. Reichman, *Legal Hybrids Between the Patent and Copyright Paradigms*, 94 COLUM. L. REV. (1994). See also Paul Edward Geller, *New Dynamics in International Copyright*, 16 COLUM.-VLA J. L. & ARTS 461, 464-67 (1993).

territorial nature of intellectual property laws together with these struggles have resulted in wide variations, even within ASEAN, in the nature, scope, and adequacy of intellectual property protection and enforcement.¹⁵ For example, hard disk manufacturers can expect a high level of intellectual property protection from the well-developed Singaporean legal system; a moderate level from the rapidly changing Thai legal system; a low level from the Indonesian and Filipino legal systems;¹⁶ and a very low level from the piecemeal and corrupt Vietnamese legal system.¹⁷

As the value of intellectual property rights has skyrocketed during the past ten years¹⁸ computer technology companies and developed nations have become increasingly concerned about rampant piracy and counterfeiting of valuable computer technology.¹⁹ As a consequence, intellectual property protection and enforcement has become an important trade issue²⁰ and a source of significant tension between ASEAN nations and their principal trade partners — the United States, Europe, Japan, and China. A growing number of ASEAN computer technology companies have also become concerned.²¹

ASEAN nations are more and more realizing the significance of intellectual property rights. There is growing recognition that

15. Jeffrey Blatt, *Intellectual Property: Quantifying Global Innovation in COMP. INTELL. PROP. L. & TECHNOLOGY TRANSFER 2* (Chulalongkorn University, Bangkok, Thailand 1996).

16. Peter Popovich, *The Clinton Administration's Efforts to Protect U.S. Intellectual Property in the Pacific Rim*, Remarks to the HASTINGS INT'L & COMP L. REV. 10, 11 (Jan. 27, 1996).

17. Vietnam's People's Court system is notoriously unjust, particularly regarding its treatment of foreigners. Adam Schwarz, *Focus Vietnam: Trade & Investment -- The Problems of Progress*, FAR EAST. ECON. REV., Oct. 26, 1995, at 50.

18. Ironically, as the research and development costs of creating new computer technology and products have skyrocketed, new computer reproductive technologies have made copying less expensive. See Marshall A. Leaffer, *Protecting U.S. Intellectual Property Abroad: Toward a New Multilateralism*, 76 IOWA L. REV. 275 (1991).

19. Piracy connotes intentional and systematic misappropriation of intellectual property. Counterfeiting refers to the practice of passing off and false labeling of goods.

20. Jeffrey Blatt, *Comparative Intellectual Property Law and Technology Transfer*, Lecture at Chulalongkorn University (June 18, 1996).

21. See NAISBITT, *supra* note 12, at 164-187. For example, major Thai exports are now computer parts and electronic integrated circuits, and software use and manufacturing are increasing. See Suwanprateep, *supra* note 5, at 35.

piracy and counterfeiting have a cost. They deprive ASEAN nations of licensing income, lower production, reduce trading and investment opportunities,²² and interfere with the attraction of much-needed foreign investment, innovation, and technology transfers. Strong, fair, and effective ASEAN intellectual property laws will stimulate foreign investment, technology transfers, and ASEAN success in the global trading system,²³ and offer long-term benefits of enhanced employment, economic development,²⁴ and innovation.²⁵

B. THE TRIPS AGREEMENT

Persistent efforts by developed nations and the business community in the framework of the Uruguay Round led to the conclusion of the WTO and the TRIPs Agreements, which add intellectual property rules to the global trading system.²⁶ Members must now meet significant standards of patent, copyright, trademark, trade secret, layout design of integrated circuits, and industrial design protection and provide national systems that ensure effective enforcement of these rights. The TRIPs Agreement builds on and works in conjunction with existing international treaties, requiring all WTO members to follow the Berne and Paris Conventions,²⁷ and the Washington

22. See Giunta & Shang, *supra* note 13, at 327, 331.

23. High levels of intellectual property protection and certainty are important prerequisites for many companies in determining whether and where to do business, invest, or engage in technology transfers.

24. Marco C.E.J. Bronckers, *The Impact of TRIPS: Intellectual Property Protection in Developing Countries*, 31 COMMON MKT. L. REV. 1279 (1994).

25. See Giunta & Shang, *supra* note 13, at 327, 331. Creators need to be able to recover their billions of dollars in research and development costs if they are to be willing to continue to develop new computer technology benefiting ASEAN members.

26. Ministerial Declaration on the Uruguay Round, Punta del Este, GATT B.I.S.D. (33rd Supp.) at 19, 25 (1986). Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations, Apr. 5, 1994, 33 I.L.M. 1143 (Uruguay of the General Agreement on Tariffs and Trade (GATT)), Agreement Establishing the World Trade Organization, 33 I.L.M. 1144 (1994); Understanding on Rules and Procedures Governing the Settlement of Disputes, Annex 2 to WTO Agreement, 33 I.L.M. 1226 (1994) [hereinafter DSU]; and The Agreement on Trade-Related Aspects of Intellectual Property Rights, Annex 1C to WTO Agreement, 33 I.L.M. 1197 (1994) [hereinafter TRIPs Agreement].

27. Long before the TRIPs Agreement, the Paris Convention for the Protection of Industrial Property, 828 U.N.T.S. 305 (1883, as revised 1967) [hereinafter Paris Convention], and Berne Convention for the Protection of Literary and Artistic Works, 828 U.N.T.S. 221 (1886, as revised 1971 and amended 1979) [hereinafter Berne

Treaty on Intellectual Property in Respect of Integrated Circuits.²⁸ In addition, the TRIPs Agreement requires detailed administrative, civil, and criminal remedies to protect individual rightholders,²⁹ and is the first multilateral intellectual property agreement that is enforceable between nations in dispute settlement proceedings.³⁰ National and most favored nation treatment are also required.

Developed countries were obligated to implement national treatment and most favored nation treatment by January 1, 1996. The TRIPs Agreement recognizes that others need technical assistance and expertise to comply fully.³¹ Developing countries and countries in transition from centrally-planned to market economies must implement the agreement by 2000³² and by 2005, for previously uncovered patent protection.³³ Thailand, Indonesia, the Philippines, Malaysia, and Brunei are classified as developing countries. Singapore is likely to be classified as developed and is already in substantial the TRIPs Agreement compliance.³⁴ Vietnam, though a non-WTO

Convention], began to establish minimum rights for intellectual property protection. The TRIPs Agreement does not require WTO members to implement Berne's moral rights provision.

28. Washington Treaty on Intellectual Property in Respect of Integrated Circuits, 28 I.L.M. 1477 (1989) [hereinafter Washington/IPIC Treaty]; TRIPs Agreement arts. 1(3), 2(1), 9(1). *See also supra* note 26.

29. TRIPs Agreement arts. 41-61.

30. Though the Paris and Berne Conventions, *supra* note 27, establish minimum levels of intellectual property protection, they lack enforcement mechanisms.

31. National treatment obligations require members to provide treatment to nationals of other members no less favorable than that accorded to their own nationals. Most favored nation obligations require members to accord to other members the advantages, favors, privileges, and immunities relating to the protection of intellectual property granted other nations. *See* TRIPs Agreement arts. 3 and 4. Customs unions and free-trade area exclusions permit lowered tariffs on wide categories of intra-ASEAN merchandise and the ASEAN-Free Trade Area (AFTA) planned by 2008. *See* GATT art. XXIV. *See also* ASEAN Free Trade Area, Flashfax Information Series, Doc. 2008, 1 (Sept. 1995).

32. TRIPs Agreement arts. 65 and 66.

33. Least developed countries are given still longer transition periods. *See* TRIPs Agreement art. 65.

34. The United Nations classification tables are likely to be defining. *See* UNCTAD, *The Least Developed Countries: 1993-1994 Report X* (1994). Singapore, one of Asia's four tigers, prefers to reap the benefits of being classified as developing but the United States and Europe now recognize it as developed because of its substantial gross national product and recent economic growth. *See* Yamaguchi, *Trade-Related Aspects of Intellectual Property*, 22 VAND. J. TRANSNAT'L L. 325, 326 (1989).

signatory, is obligated by the ASEAN Framework Agreement to comply with the TRIPs Agreement.³⁵ It is considered both a developing country and a nation in transition.³⁶

C. ASEAN FRAMEWORK AGREEMENT

The ASEAN Framework Agreement is one of several cooperative results of the 1995 Fifth ASEAN Summit.³⁷ This binding agreement creates a foundation on which ASEAN members can begin to work together toward enhanced intellectual property protection and enforcement, and compliance with the TRIPs Agreement. The ASEAN Framework Agreement emphasizes functional cooperation and consultation,³⁸ and offers the possibility of technical assistance and specialist development, automation, increased harmonization,³⁹ reciprocal recognition of intellectual property rights within ASEAN, and an ASEAN patent and trademark system.⁴⁰

III. SUBSTANTIVE PROTECTION OF COMPUTER TECHNOLOGY

Computer technology innovators, creators, and companies have traditionally been restricted to the limits of conventional

35. ASEAN Framework Agreement, *supra* note 6, art. 2(4).

36. Vietnam's membership is unlikely in the near future as its legal system is far from compliance with the TRIPs Agreement and other GATT obligations.

37. ASEAN Framework Agreement, *supra* note 6.

38. *Id.* preamble and arts. 1(1)(3)(6), 2(3), 3.

39. *Id.* arts. 3, 4.

40. *Id.* arts. 1(4)(5), 3(2). See also Sompong Sucharitkul, *Introductory Note, ASEAN: Bangkok Summit Declaration on the Progress of ASEAN Vietnam's Membership, Greater Economic Cooperation and Closer Political Cooperation in International Fora* (Dec. 15, 1995), 35 I.L.M. 1063 (1996). Ultimately, an ASEAN patent and trademark system will be created to provide an alternative to country by country registrations by establishing centralized filings and registrations with rights governed by one set of rules and granted for all ASEAN nations similar to the European Union's community-wide rights. See David Wilkinson, *The Community Trade Mark Regulation and Its Role in European Economic Integration*, 80 TMR 113 (March 1990 - April 1990). See also Council Regulation 40/94/EEC of December 20, 1993 on the Community Trademark, O.J. (L 11/1). It is likely that ASEAN intellectual property rights for the near future will continue to exist or not exist depending on national laws.

copyright, patent, trademark, and related trade secret laws.⁴¹ More recently some domestic laws and a few treaties have held forth the possibility of sui generis protection. This section addresses substantive ASEAN intellectual property laws, related TRIPs Agreement requirements, and the implications of the TRIPs Agreement on ASEAN domestic laws regarding the protection of computer technology.

A. SOFTWARE

There is an international debate over whether software programs are most appropriately protected by copyright laws, which generally protect original literary, dramatic, musical, and artistic works, or by patent laws, which generally protect ideas and not so much their expressions. For truly new and innovative software ideas, patent protection may best limit how fast the ideas can be replicated. For other software ideas, just protection of the expression by copyright protection is the apparent best path.

1. ASEAN Laws

Treatment of software has varied among ASEAN nations. Most, like Malaysia⁴² and Thailand, have offered copyright protection of creative software expressions⁴³ but deny patent protection.⁴⁴ For example, Vietnam grants copyright protection

41. This is not entirely true as technology companies traditionally have also used nonintellectual property mechanisms to make it difficult for others to pirate their work. For example, computer designers embed logic into the custom ASIC (Application Specific Integrated Circuit) so that by the time the ASIC is reverse engineered, it is often obsolete or cost ineffective. Another example is the use of copy protection by software publishers like Sony. Sony has taken steps to make its Play Station CD-Roms difficult to copy. Finally, software writers seldom make their source available. The executable code image is typically difficult to understand and use as a starting point for further development.

42. See Blatt, *supra* note 20 (June 19, 1996). See also Malaysia Copyright Act §3 (1987).

43. For example, Thailand excludes from "copyrightable" works ideas, procedures, processes, systems, methods, concepts, principles, discoveries, or scientific or mathematical theories. See Thai Copyright Act, B.E. 2537 (1994) [hereinafter Thai Copyright Act].

44. For example, Thai Patents Act, B.E. 2522 (1979 as amended by Patent Act (No. 2) 2535, (1992), art. 9 [hereinafter Thai Patents Act]. Ministry Regulations do provide for patentability of certain combinations involving software primarily tied to hardware.

for software⁴⁵ and grants patents only for software coupled with hardware.⁴⁶ Those who offer software copyright protection typically lack work-for-hire exceptions,⁴⁷ recognize moral rights,⁴⁸ and may define reproductions⁴⁹ and rentals for profit as infringing.⁵⁰ At least Myanmar offers no or unclear protection.⁵¹

Like other developing nations, most ASEAN nations have a number of copyright exclusions.⁵² Educational and research uses,⁵³ adaptations of software necessary for domestic uses,⁵⁴ personal uses of pirated software, and good faith violations may be defined as noninfringing.⁵⁵ Foreign software not domestically published within thirty days from first publications may be copyright excluded⁵⁶ or subject to compulsory licenses if not translated for domestic use.⁵⁷ Copyright protection for at least Berne members arises

45. Civil Code of Vietnam part 6, ch. I, art. 747(1)(n)(1995). *See also* Vietnam Decree No. 201/HDBT regulating the rights of authors (Nov. 14, 1986).

46. *See* Blatt, *supra* note 20 (June 21, 1996). *See also* Civil Code of Vietnam, part 6, ch. II.

47. For example, Thai law recognizes that employees, absent written contracts to the contrary, retain copyrights for their creations. *See* Thai Copyright Act, *supra* note 43, arts. 9, 10 and 14. *See also* Mark Radcliffe, 12 *Legal Issues in New Media Technologies*, THE COMPUTER LAWYER, at 5-6 (Dec. 1995).

48. For example, Thai Copyright Act, *supra* note 43, art. 18. *See also* Radcliffe, *supra* note 47, at 14-15. Moral rights involve the right of attribution. Creators, even after complete assignments, retain some ongoing legal control over their works regarding adaptations, abridgements, damages to reputations, and prestige.

49. Single personal back-up copies do not infringe. *See, e.g.*, Civil Code of Vietnam, part 6, ch. II, art. 761(1)(a)(1995).

50. *See, e.g.*, Thai Copyright Act, *supra* note 43, arts. 30 and 31.

51. *See* John F. Pierce, *Doing Business in Myanmar*, ASIA LAW SUPP. 28 (Oct. 1996). *See also* James Finch & Usausge Phone Myint, *Myanmar Moves Forward, but IP Lags Behind*, ASIA LAW 20-21 (Aug. 1997).

52. *See* Blatt, *supra* note 20 (June 21 and 29, 1996). *See also, e.g.*, Thai Copyright Act, *supra* note 43, arts. 30, 31, 32 and 35.

53. *See, e.g.*, Thai Copyright Act, *supra* note 43, arts. 7 and 32. *See also* Blatt, *supra* note 20 (June 29, 1996)

54. *See, e.g.*, Thai Copyright Act, *supra* note 43, art. 35.

55. *See, e.g.*, Thai Copyright Act, *supra* note 43, art. 30. Good faith excludes acts by those with actual or constructive knowledge they are infringing. *See id.* art. 31. *See also* the Copyright Act 1987, Ch. 63 of the Statute of the Republic of Singapore §35-53 (1987).

56. For example, Malaysia and Indonesia have these restrictions.

57. *See, e.g.*, Thai Copyright Act, *supra* note 43, arts. 54 and 55. Compulsory licenses involve the use of intellectual property rights without authorization by governments or third parties authorized by governments on payment of statutory fees.

automatically,⁵⁸ extends for fifty years plus creators' lives,⁵⁹ and recognizes reciprocal rights for foreign member authors.⁶⁰

2. The TRIPs Agreement

All GATT signatories must protect software (whether in source or object code) and databases, to the extent they are "intellectual creations," as copywritten literary works under certain Berne Convention provisions for minimum terms of creators' lives plus fifty years.⁶¹ Moral rights are allowed⁶² and the Berne provisions that permit educational and research exceptions from copyright protection appear to continue in force.⁶³ Software rentals are precluded except if legitimate copies and economic rights of authors are protected,⁶⁴ and nations which presently offer software patent protection may continue to do so in conjunction with software copyright protection.

58. At least Thailand, Malaysia, and Singapore are members and Vietnam has drafted a copyright law which appears to anticipate its membership. See Berne Convention, *supra* note 27. See also U.S. Department of Commerce, *Intellectual Property Rights in the Socialist Republic of Vietnam*, Flash Fax Information Series, Document No. PACRIM9947/VBIS3007, 5 (May 25, 1994) [hereinafter IP Rights in Vietnam]. Registration is not required but can help preserve and protect rights after the fact.

59. For example, Thai Copyright Act, *supra* note 43, art. 19.

60. Berne Convention, *supra* note 27.

61. The TRIPs Agreement requires software protection under the Berne Convention, *supra* note 27, arts. 1-21 and the 1971 Appendix. See TRIPs Agreement, arts. 9, 10, 10(1) and 12. Berne rights include rights to reproduce, adapt, distribute, publicly perform, and publicly display.

62. TRIPs Agreement art. 10. See also Thai Copyright Act, *supra* note 43, art. 18. These provisions give creators ongoing control regarding adaptations, abridgements, damages to reputation, and prestige.

63. Paul Edward Geller, *Intellectual Property in the Global Marketplace: Impact of TRIPs Dispute Settlements?*, 29 INT'L LAW. 373 (Summer 1995).

64. TRIPs Agreement art. 11. It is difficult to envision legitimate personal computer software rental situations because software is easily misappropriated by home installation followed by return of disks to rental agents. In contrast, corporations need ongoing support and may be less likely to misappropriate. They may legitimately benefit from rentals or licenses, especially when needs are short term or software is rapidly changing.

3. Implications

The TRIPs Agreement has significant ramifications for both ASEAN Berne nonmembers⁶⁵ and members. Nonmembers are now obligated by the TRIPs Agreement and the ASEAN Framework Agreement to come into compliance with Berne, and members are now explicitly required to extend copyright protection to software. This follows the consensus of Japan, Europe, and the United States⁶⁶ and helps ensure that hard-fought battles regarding national treatment and minimum standards need not be fought again.⁶⁷ The TRIPs Agreement also effectively restricts ASEAN members from permitting software rentals, and in some nations both patent and copyright protection will be possible.

Certain problems remain unresolved. Though the TRIPs Agreement copyright protection should impede wholesale duplication of computer software and codes,⁶⁸ it appears to do little to prevent production of similar or functionally equivalent variations by third parties, particularly unprotectable functional components of software like databases.⁶⁹ The TRIPs Agreement also permits moral rights, with resulting implications for ASEAN software licensing.⁷⁰ Finally, the TRIPs Agreement fails to address or effectively limit certain

65. Blatt, *supra* note 20 (June 18, 1996).

66. Michael Lehmann, *Symposium: Toward a Third Intellectual Property Paradigm: Comments: TRIPs, the BERNE Convention, and Legal Hybrids*, 94 COLUM. L. REV. 2622.

67. While copyright protection of software continues to be controversial, the TRIPs Agreement's choice of copyright versus patent protection of software is probably the better choice because it preserves competition versus temporary monopolies and avoids the more significant international differences in patent laws. Bronckers, *supra* note 24, at 1262-1263. See also Lehmann, *supra* note 66, at 2625-2626. Protection is especially significant because advances in technology are making copyright infringement much easier and less expensive. See Michael L. Doane, *TRIPs and International Intellectual Property Protection in an Age of Advancing Technology*, 9 AM. U.J. INT'L L. & POL'Y 465 (Winter 1994).

68. Geller, *supra* note 63, at 372.

69. ASEAN members, like the United States, may refuse copyright protection and claim the "intellectual creations" standard has not been met. See *Feist Publications, Inc. v. Rural Tel. Serv. Co.*, 111 S.Ct. 1282 (1991). Functional components have also been ineligible for classical trade secret protection. See Geller, *supra* note 63, at 372-373.

70. Blatt, *supra* note 20 (June 29, 1996).

ASEAN copyright exclusions, which suggests that the negative economic effects of these exclusions will continue.

B. HARDWARE

Hardware includes circuit boards, electronic components, disk drives, and physical apparatus in data processing or computer assemblies.

1. ASEAN Laws

Where hardware patent protection is available, ASEAN nations generally confer patent rights on new, useful, and nonobvious processes and products.⁷¹ Co-inventing is recognized⁷² and patent rights are acquired on a first to file basis,⁷³ with varying but typically short patent terms⁷⁴ calculated from filing dates. Preconditions to patent grants include requirements that patent applications be sufficiently self-contained to permit others with appropriate skills to carry out the inventions⁷⁵ and most require absolute novelty,⁷⁶ with patents being unavailable to those who make public disclosures or utilizations prior to first filings.⁷⁷

Malaysia, Singapore, and Vietnam belong to the Paris Convention,⁷⁸ which grants important rights of priority regarding patent applications arising from signatory states. Other ASEAN nations like Thailand grant rights of bilateral

71. See, e.g., Thai Patents Act, *supra* note 44, arts. 5 and 36, and IP Rights in Vietnam, *supra* note 58; Malaysian Patents Act §11 (1983).

72. See, e.g., Thai Patents Act, *supra* note 44, art. 15.

73. See, e.g., Thai Patents Act, *supra* note 44, arts. 6(2) and 16.

74. See John G. Byrne, *Changes on the Frontier of Intellectual Property Law: An Overview of the Changes Required by GATT*, 34 DUQUESNE L. REV. 92 (1995) (testimony of Ira S. Shapiro, General Counsel, Office of the United States Trade Representative).

75. See, e.g., Thai Patents Act, *supra* note 44, art. 19. The TRIPs Agreement article 29 permits members to require applicant disclosure of the best mode for carrying out the invention.

76. E.g. Malaysia, Thailand, and Singapore. See Blatt, *supra* note 20 (June 29, 1996).

77. There are a few exceptions to the absolute novelty requirement. For example, Thailand excepts disclosures under trade secret agreements, for testing purposes, and at official exhibits. See Thai Patents Act, *supra* note 44, arts. 6(2), 6 and 19. See also Blatt, *supra* note 20 (June 21, 1996).

78. Paris Convention, *supra* note 27.

reciprocity.⁷⁹ Applicants filing in joint Paris Convention or reciprocal nations within twelve months of original filings receive the benefit of the original filings for purposes of determining patent registrability.⁸⁰ ASEAN nations granting only reciprocity⁸¹ give competing computer technology different values depending upon their countries of origin.⁸²

Most ASEAN nations require publication of patent applications⁸³ and, like other developing countries, have a number of exclusions from patentable subject matter and patent exclusivity. Exclusions may include inventions contrary to the vague socialist morality, utilizations for non-commercial purposes, grey market circulations, educational uses, and good faith infringements.⁸⁴ Compulsory licensing provisions are also common.⁸⁵

2. The TRIPs Agreement

All GATT signatories are required to follow the Paris Convention⁸⁶ and provide patent protection for hardware products and processes⁸⁷ which are new, capable of industrial application, and involve inventive steps.⁸⁸ The TRIPs Agreement further requires terms of no less than twenty years from filing⁸⁹ and provisional application procedures whereby applicants may establish the earliest possible dates of inventions, defer examinations, file "continuations in part" to

79. Thai Patent Act, *supra* note 44, art. 19.

80. For example, Thai Patent Act, *supra* note 44, arts. 20 and 6(2). Neither the Paris Convention nor reciprocal rights modify domestic ASEAN laws. *See* note 77.

81. *See, e.g.*, Thai Patent Act, *supra* note 44, arts. 14 and 19bis. Reciprocity protects others' innovations to the extent there is reciprocal national treatment.

82. Geller, *supra* note 63, at 101.

83. Blatt, *supra* note 20.

84. *See, e.g.*, IP Rights in Vietnam, *supra* note 58, at 2-3; Thai Patent Act, *supra* note 44, art. 36. Grey market uses may be excluded or, as with Vietnam, defined as noninfringing. Vietnam Civil Code, part II, art. 803.

85. Compulsory licenses involve government authorized uses by third parties. *See, e.g.*, Civil Code of Vietnam ch. II, art. 802.

86. *Supra* note 27.

87. TRIPs Agreement arts. 27(1) and 28(1).

88. TRIPs Agreement arts. 25(1) and 27.

89. TRIPs Agreement art. 33.

incorporate new matters, and benefit from priority filing dates of earlier provisional applications.⁹⁰

Protection must be without regard to where products are invented, produced, or implemented, provided that these acts occur within WTO nations,⁹¹ and all patent applications must be published within eighteen months of filings. Exceptions to patent exclusivity are permitted but must not unreasonably conflict with or prejudice rightholders, taking into account the rights of third parties.⁹² There are fifteen compulsory licensing prerequisites.⁹³

3. Implications

The TRIPs Agreement represents a significant step toward establishing ASEAN and international patent hardware standards by addressing problems common to the patent systems of many developing nations. The TRIPs Agreement reduces local working requirements, limits patent exclusions,⁹⁴ increases and standardizes typical ASEAN patent terms,⁹⁵ and resolves ASEAN's differing hardware treatment depending on the country of origin by requiring signatories to follow the Paris Convention.⁹⁶ It also resolves the more and more frequent problems of localizing the origins of creations⁹⁷ and the territories of infringements.⁹⁸ While rightholders should find reassuring the TRIPs Agreement's lessening of the pressure to "work" patents, some of the TRIPs Agreement restrictions are

90. Paris Convention rights of priority are calculated from provisional application filing dates.

91. TRIPs Agreement art. 27.

92. TRIPs Agreement art. 30.

93. TRIPs Agreement art. 31.

94. See Doane, *supra* note 67.

95. This should please multinational companies investing in or doing business with ASEAN. Contrast Thailand's patent term of 20 years from filing which already complies with the TRIPs Agreement. See, Thai Patents Act, *supra* note 44, art. 35.

96. See *supra* notes 78 to 84 and 86 and accompanying text.

97. Technology is increasingly developed by simultaneous collaboration in many countries. Countries limiting protection to mutual reciprocity have had to localize innovations to one country, sometimes deny protection or create legal fictions. Geller, *supra* note 63, at 101-102.

98. *Id.*

still vague and easily subjectable to abuse,⁹⁹ and domestic exceptions to patentability are inadequately addressed.¹⁰⁰

Many ASEAN nations already require publication,¹⁰¹ the TRIPs Agreement reinforces this. Mandatory publication reduces the problem of submarine patents¹⁰² but forces inventors to choose between seeking trade secret protection or seeking patent protection with the risk of patent rejection and mandatory publication which negates trade secret status.¹⁰³ The TRIPs Agreement, like all ASEAN patent laws, protects those first to file.

C. INTEGRATED CIRCUITS

The past twenty years have seen a rapid change in integrated circuits, related mask works, semiconductor chips, and certain new technologies¹⁰⁴ which do not conveniently fit into traditional forms of intellectual property protection. As a consequence, traditional protection has proven inadequate and incorporation of new technologies into domestic laws and the Paris-Berne regime has lagged behind.¹⁰⁵

99. For example, the TRIPs Agreement prohibits patent interferences which "unreasonably conflict." See TRIPs Agreement art. 30.

100. For example, the TRIPs Agreement leaves unresolved issues like whether Thailand may permit good faith infringements. See note 55.

101. For example, Thailand. See Blatt, *supra* note 15, at 6.

102. Submarine patents are those which are continued without disclosure for a period prior to grant, surfacing only when subsequent applicants independently invent the same technology after frequently having spent valuable time and effort developing products only to discover than the earlier applicants have become the valid patent holders as prior inventors. See Blatt, *supra* note 20.

103. This decision is further complicated by the fact that civil law ASEAN members do not typically offer trade secret protection though the TRIPs Agreement requires them to do so by year 2000. See TRIPs Agreement art. 39(2) and see Giunta & Shang, *supra* note 13, at 344. See also Blatt, *supra* note 15, at 6.

104. See Doane, *supra* note 67, at 469. See also *Aerospace: Future of Defense*, N.P.R. radio broadcast (May 28, 1992).

105. Most semiconductor products are said to lack the sufficient inventiveness required by patent law and are barred from copyright law because they are essentially utilitarian. Doane, *supra* note 67, at 488.

1. ASEAN Laws

Semiconductor chip protection by ASEAN nations is unclear, but it is likely some have extended intellectual property rights to semiconductor chips while others have failed to grant rights or resolve gaps in protection. The Treaty on Intellectual Property in Respect of Integrated Circuits (Washington /IPIC Treaty) offers semiconductor protection but fails to cover articles incorporating integrated circuits and to prohibit compulsory licensing. It extends protection for only eight years. Developing countries have strongly opposed it.¹⁰⁶

2. The TRIPs Agreement

The TRIPs Agreement remedies some serious gaps in domestic and Paris-Berne protection by following the Japanese and United States *sui generis* solution to semiconductor chip protection.¹⁰⁷ It requires signatories to protect unpatented functional designs of integrated circuits,¹⁰⁸ semi-conductors,¹⁰⁹ and articles incorporating integrated circuits for a minimum of ten years, subject to a good faith exception,¹¹⁰ and to follow the Washington/IPIC Treaty.¹¹¹ Minimum protection is extended to ten years.¹¹² Rights of priority and compulsory licensing restrictions are identical to those for hardware.¹¹³

106. See *Third World Questions the Need for Integrated Circuit Treaty*, 34 PAT. TRADEMARK & COPYRIGHT J. (BNA) 59-60 (May 21, 1987). See also Washington/IPIC Treaty, *supra* note 28 and Michael Kirk, *TRIPS: Intellectual Property Protection in the Pacific Rim Countries*, Address at CLE International Seminar 10 (March 17, 1994).

107. The United States leads the way with the Semiconductor Chip Protection Act of 1984, 17 U.S.C. sections 901-914 (Supp. II 1984). This act includes a reciprocity clause which requires other nations, to receive the benefits of the act, to grant the same or similar protection. Japan and then the Washington/IPIC Treaty followed. See Doane, *supra* note 67.

108. Also known as "mask works", "lay-out designs", and "semiconductor chip topographies". See the TRIPs Agreement part I, section 6, arts. 35-38.

109. TRIPs Agreement art. 36.

110. TRIPs Agreement arts. 36-38.

111. TRIPs Agreement arts. 35-38. See also Washington/IPIC Treaty, *supra* note 28. Members must not permit commercial importing, selling or distributing of the protected items. TRIPs Agreement art. 36.

112. TRIPs Agreement arts. 35-38.

113. See TRIPs Agreement arts. 38 and 37(2). See also *supra* notes 84-91 and accompanying text.

3. Implications

It seems no one likes the TRIPs Agreement integrated circuit requirements. One problem is that the TRIPs Agreement is an improvised or partial patch of the Paris-Berne regime¹¹⁴ and the United States and Japan, by far the world's largest producers of semiconductor chips, object to the Washington/IPIC Treaty's failure to compensate for innocent infringement.¹¹⁵ Whether the TRIPs Agreement resolves some of these concerns, it fails to address good faith infringement. Still others question the need for integrated circuit protection.¹¹⁶ Perhaps half a loaf is better than none. ASEAN and American semiconductor industries should overall benefit from the TRIPs Agreement explicit sui generis protection.

D. FUTURE TECHNOLOGY AND HYBRIDS

In this age of rapid technological advances, hybrids are becoming increasingly important. Though in most cases computer technology is readily identifiable as hardware or software, hybrid situations exist. For example, user interfaces are hybrids of hardware and software, as are certain software programs that are closely coupled with computer hardware circuits and modern microprocessors using micro-code.¹¹⁷

1. ASEAN Laws

Hybrids have posed difficulties for ASEAN nations and non-ASEAN nations alike. Laws have typically been static and rigid, and also vulnerable to becoming outmoded and useless.

114. See Geller, *supra* note 63, at 103.

115. Presumably concerns regarding remedies and dispute resolution are in part resolved by the TRIPs Agreement's enforcement provisions and the new WTO Dispute Settlement Understanding (DSU)'s conflicting and superseding provisions. See *U.S., Japan Refuse to Sign Treaty to Protect Integrated Circuits*, 3 WORLD INTELL. PROP. REP. 156 (1989). See also *infra* Part IV regarding the TRIPs Agreement enforcement and the DSU and Kirk, *supra* note 106.

116. A computer engineer expressed to this author his view that chips that are truly new and innovative are patentable and other chips are getting so complicated and large in capacity, it is questionable how much protection is needed. Furthermore, by the time chips are reverse engineered, the technology has moved on, in the present climate.

117. Blatt, *supra* note 15, at 5.

For example, the problem of software closely tied to hardware has been resolved by some by extending patent protection.¹¹⁸ Others may provide no or uncertain protection. The issue has been one of patent versus copyright protection and where the line is between ideas and expressions of ideas. Past conventions have neither addressed hybrids nor provided flexible mechanisms for addressing changes in technology.

2. The TRIPs Agreement

The TRIPs Agreement provides an ongoing fluid mechanism for the adjustment and expansion of international intellectual property law to meet new computer technologies. It creates the TRIPs Council and authorizes it to undertake biannual reviews of current protection and new developments which may warrant modifications or amendments to the TRIPs Agreement.¹¹⁹ Regarding software coupled with hardware, the TRIPs Agreement ensures at least copyright protection.¹²⁰

3. Implications

Unlike previous conventions, the TRIPs Agreement makes a general statement of authority to negotiate for changes in current forms and new *sui generis* forms of protection. By providing a flexible international mechanism, the TRIPs Agreement helps ensure that ASEAN, regional, and global intellectual property systems will evolve with computer technology. Though the impact of these provisions for new technology and emerging hybrids on ASEAN intellectual property laws is unclear, the TRIPs Agreement ensures that at least the hybrid of software tightly coupled with hardware will receive copyright protection.¹²¹

118. See, e.g., Thai Patents Act, *supra* note 44, art. 9. Vietnam also allows for the possibility of patent protection. See Blatt, *supra* note 20 (June 21, 1996). See also Civil Code of Vietnam part 6, ch. II.

119. TRIPs Agreement art. 71.

120. See *supra* note 61 and accompanying text.

121. *Id.*

E. TRADE SECRETS

Trade secret protection is related to intellectual property protection. Trade secrets extend beyond ideas protectible by patent law to secret concepts or ideas of value to the owners of the secrets. Confidential information may represent crucial business assets, though often it is nonregistrable.

1. ASEAN Laws

Not all ASEAN jurisdictions presently have legal mechanisms by which confidential information related to computer technology can be protected. In general, ASEAN common law systems like those of Singapore and Malaysia protect trade secrets and fiduciary obligations if information is of competitive value, is confidential, and the owners have taken affirmative steps to keep the secrets.¹²² In contrast, ASEAN civil law systems like Thailand and Vietnam typically afford no trade secret protection or, when they do, protection is by statute with gaps that case law does not fill well.¹²³ For example, Thailand's new trade secret law will not be implemented for five to ten years. During the interim Thailand lacks a good mechanism for penalizing wrongful disclosure of confidential information,¹²⁴ though it will to some degree recognize trade secret protection which arises as a matter of contract.¹²⁵

2. The TRIPs Agreement

All GATT signatories are required to protect "undisclosed information" with commercial value, not in the public domain, and subject to "reasonable steps under the circumstances" to

122. See Blatt, *supra* note 20 (June 21, 1996). See also Singapore, Intellectual Property Protection in Asia Issue 4, 8-58 (Arthur Wineburg, ed. 1995).

123. See Blatt, *supra* note 20 (June 18, 1996).

124. See Blatt, *supra* note 20 (June 29, 1996). See also Christopher Moore, *Thailand -- Confidentiality and Non-Disclosure Agreements under Thai Law*, WORLD REPORTS, Item 1289, 74 (Oct.-Dec. 1993).

125. See Christopher Moore, *Thailand -- Confidentiality and Non-Disclosure Agreements under Thai Law*, WORLD REPORTS, Item 1289, 74 (Oct.-Dec. 1993).

maintain confidentiality from unconsented disclosure, acquisition, or use contrary to "honest commercial practices."¹²⁶ Breaches of contract, breaches of confidence, inducements to breach, and acquisitions of undisclosed information through third parties with constructive knowledge are prohibited.¹²⁷ Self-help methods of reverse engineering are not expressly banned.¹²⁸

3. Implications

The TRIPs Agreement is the first international convention to expressly require protection of undisclosed information and it should lead to increases in ASEAN trade secret protection of computer technology. For some members trade secret protection will be new. For others, like Thailand, which presently enforce contractual confidentiality agreements but lack codified systems of trade secret protection, the TRIPs Agreement mandated formal system should provide the most effective means of protecting trade secrets.¹²⁹ As most high technology is not in the form of patents but proprietary information,¹³⁰ the TRIPs Agreement's trade secret protection should stimulate computer technology companies to license advanced technologies more frequently to ASEAN nations¹³¹ and to choose trade secret protection as an alternative to patent protection. Reverse engineering continues to be lawful in at least all ASEAN common law countries and this may not be a bad thing.¹³² Perhaps the effectiveness of the TRIPs

126. TRIPs Agreement art. 39(2). *See also* TRIPs Agreement part I, section 7.

127. TRIPs Agreement art. 39, note 10.

128. TRIPs Agreement art. 39(2), note 10.

129. *See* Giunta & Shang, *supra* note 22, at 342.

130. *See* Blatt, *supra* note 20 (June 21, 1996).

131. *See* Geller, *supra* note 63, at 379. *See also* TRIPs Agreement part I, art. 7. One high level computer engineer remarked to this author, "If IP trade secrets are not honored, (ASEAN) countries will be at a competitive disadvantage. There is no way (my corporation) would even consider working with a company that did not have to honor our non-disclosure agreements and trade secrets."

132. *See* Blatt, *supra* note 20 (June 21, 1996). Reverse engineering is part of the high tech world and every company may do it. Provided trade secrecy agreements and other ethical considerations are not violated, this may be acceptable.

Agreement's trade secrets protection will be limited by the need for plaintiffs in national courts to prove that those who allegedly misappropriated trade secrets acted "contrary to honest commercial practices".¹³³

F. TRADEMARKS

Trademarks (marks) are valuable business assets that advertise, distinguish, and identify the unique commercial identities of computer technology products and corporate names.¹³⁴ For example, Apple Computers uses an apple to identify the source and value of its products.

1. ASEAN Laws

Words, names, phrases, symbols, and logos which are capable of distinguishing goods or services of one undertaking from those of other undertakings are capable of constituting trademarks in ASEAN and most nations of the world. ASEAN civil law marks are acquired by being the first to file¹³⁵ and ASEAN common law marks are acquired by use.¹³⁶ Malaysia, Singapore, and Vietnam belong to the Paris Convention which grants important rights of priority regarding trademark applications arising from joint signatory states.¹³⁷ Other ASEAN nations like Thailand grant reciprocity. As with patents and sui generis protection, those making additional filings in joint Paris Convention¹³⁸ or reciprocal nations within six months of original filings receive the benefit of the original filing dates for purposes of determining registrability of

133. See Preston Gates and Ellis, Mary Williamson, Kim Newby, *Intellectual Property Issues*, ASIA LAW SUPP. 6 (Oct. 1996).

134. RICHARD BERNACCHI, ANDRE BRUNEL & GARY N. FRISCHLING, A GENERAL PRIMER ON TRADEMARKS 1 (1993-1994).

135. ASEAN nations protect without regard to who first created the trademarks, unlike the United States. See, e.g., Thai Trademarks Act, B.E. 2534 art. 4 (A.D. 1991) [hereinafter Thai Trademarks Act].

136. See Blatt, *supra* note 20 (June 21, 1996). Registration is still advisable to help preserve and enforce trademark rights.

137. They receive the benefit of original filing dates for purposes of determining registrability of trademarks. See TRIPs Agreement art. 16. See also *supra* notes 78-82.

138. For example, Thai Trademarks Act, *supra* note 135, art. 20. Neither the Paris Convention nor reciprocal rights modify domestic ASEAN laws.

trademarks.¹³⁹ As neither the Paris Convention nor reciprocal rights modify domestic laws, trademark terms and renewability vary.¹⁴⁰ Infringement is defined by ASEAN nations, and worldwide, as third party misuse of same or confusingly similar marks.¹⁴¹

2. The TRIPs Agreement

Registrable subject matter includes that allowed by present ASEAN laws. The TRIPs Agreement also requires express protection of color combinations, combinations of signs, and marks which lack inherent meanings but have acquired distinctiveness through use.¹⁴² Signatories may require subsequent use, but may not require use as prerequisites to registration.¹⁴³ Registrations may be refused and marks invalidated if they are contrary to morality or public order, deceptive, involve unfair competition, are not published before registration or promptly thereafter,¹⁴⁴ or for other grounds which do not derogate from the Paris Convention.¹⁴⁵ Registrations must be effective for unlimited renewable terms of at least seven years¹⁴⁶ and declarations of use must be filed if uses are required to maintain registrations.¹⁴⁷

Protection must be exclusive and extend to marks used by unauthorized third parties on dissimilar goods or services if confusion is likely with owners' registered marks.¹⁴⁸ Markholders are still subject to limitations imposed by national laws, though the legitimate interests of trademark owners and

139. See, e.g., Thai Trademarks Act, *supra* note 135, art. 28. See also Geller, *supra* note 63, at 101, and *supra* notes 81 and 82.

140. For example, Vietnam allows for ten year terms with single ten year extensions. See IP Rights in Vietnam, *supra* note 58, at 5. See also Vietnam Decree No. 241/CP (regarding the extended time limit with respect to trademark registration) (June 30, 1992).

141. See Thai Trademarks Act, *supra* note 135, arts. 20-27.

142. TRIPs Agreement art. 15(1).

143. TRIPs Agreement art. 15(3).

144. TRIPs Agreement art. 15(5). See also *supra* note 79.

145. TRIPs Agreement art. 15(2).

146. TRIPs Agreement art. 18.

147. TRIPs Agreement art. 19.

148. TRIPs Agreement art. 16(1).

third parties must be considered.¹⁴⁹ Permitted restrictions include conditions on licensings and assignments, allowances for fair uses, and invalidations for three years of uninterrupted failures to use.¹⁵⁰ Compulsory licenses are no longer permitted.¹⁵¹

3. Implications

The TRIPs Agreement has few implications for ASEAN trademark protection of computer technology, as trademark law is already fairly well harmonized among ASEAN members and elsewhere in the world.¹⁵² While the TRIPs Agreement does not require significant changes in ASEAN substantive mark protection, it makes clear that unauthorized third party uses of confusingly similar marks on unrelated goods and services¹⁵³ and of widely known marks are infringements. ASEAN computer technology manufacturers and retailers may also benefit from recent ASEAN efforts which exceed the TRIPs Agreement's present requirements. Soon trademark registrations will result in automatic recognition by other ASEAN nations.¹⁵⁴ The ASEAN Framework Agreement suggests at least the possibility of a future ASEAN trademark system.¹⁵⁵

G. LIMITATIONS ON RIGHTS

Intellectual property rights are sometimes granted for computer technology but then restricted by domestic intellectual property and other laws, and technology transfer restrictions. These limits may cause rights to be revoked or

149. TRIPs Agreement art. 17. Special requirements which cause unjustifiable encumbrances are prohibited. *See* TRIPs Agreement art. 20.

150. TRIPs Agreement art. 19. Circumstances beyond markholders' control are an exception to the compulsory use requirement. These include import restrictions on the goods in question or other governmental requirements which impede use.

151. TRIPs Agreement art. 21.

152. For example, most of the world uses the likelihood of confusion test to determine infringement. *See* Blatt, *supra* note 20 (June 18 and 21, 1996).

153. This provision should reduce ASEAN misappropriation of trademarks and is a change from some ASEAN laws. *See, e.g.*, Civil Code of Vietnam, part 6, art. 785.

154. Statement of Professor Sompong Sucharitkul, First ASEAN Secretariat General, to author (June 18, 1996).

155. ASEAN Framework Agreement, *supra* note 6, arts. 1(4)(5) and 3(2).

restrict licensings and assignments of intellectual property rights.

1. ASEAN Laws

Different devices are used to restrict ASEAN intellectual property grants. Vague public health, morality, and welfare limitations give ultimate power to governments to deny rights. ASEAN members, like other developing nations, also provide for compulsory licenses. For example, mandatory patent licenses may be granted for failures of rightholders to engage in local production,¹⁵⁶ certain educational and research purposes,¹⁵⁷ and to improve earlier patents.¹⁵⁸ Certain domestic prerequisites will apply.¹⁵⁹

Vague and subjective ASEAN anti-competition laws interfere if intellectual property rights may unduly limit competition, and poorly developed ASEAN technology transfer restrictions will create obstacles particularly if proposed transfers are not likely to result in enhanced domestic economic output.¹⁶⁰ Varying restrictions on licensing further limit intellectual property rights.¹⁶¹ Licenses which involve unfair competition,¹⁶² lack

156. This is thought compatible with the Paris Convention which permits compulsory licenses for "nonworking" of patents. See Paris Convention, *supra* note 27, art. 5A(2). After the requisite period of time has passed, nonexclusive compulsory licenses are granted. See also Thai Patents Act, *supra* note 44, arts. 46 and 46bis, Singaporean Patents Act §55(2)(a); and Hadiputranto, Hadinoto & Partners, *Indonesia Revamps IP Laws*, ASIA LAW 70 (June/July 1997).

157. See Geller, *supra* note 63, at 372. See also *supra* notes 53-57 and accompanying text.

158. This type of compulsory license is not expressly permitted by the Paris and Berne Conventions. See, e.g., Thai Patents Act, *supra* note 44, art. 47 and Civil Code of Vietnam ch. II, art. 802(1)(3).

159. For example, Thai law requires that patent compulsory licenses be necessary, nonassignable, nonexclusive, aimed primarily at meeting domestic demand, and include adequate or reasonable compensation. See Thai Patents Act, *supra* note 44, arts. 48 and 52. See also Civil Code of Vietnam ch. II, art. 802(2).

160. See Blatt, *supra* note 20 (July 2, 1996). See also, e.g., Civil Code of Vietnam ch. III, arts. 808(a) and 809(1).

161. See, e.g., Thai Patents Act, *supra* note 44, art. 38.

162. See, e.g., Thai Patents Act, *supra* note 44, art. 38 and Thai Copyright Act, *supra* note 43, arts. 15 and 16. The undefined "unfair competition" is presumably defined by the Director General and is potentially problematic. See also Blatt, *supra* note 20.

unanimous co-inventor agreement,¹⁶³ fail to be government registered, or do not comply with other technology transfer restrictions may be denied.¹⁶⁴ Theories similar to the European exhaustion of rights doctrine may serve to further impede licensing.¹⁶⁵ Finally, limits on ASEAN intellectual property rights are reinforced by the ASEAN Framework Agreement's recognition that restraints on trade and adverse transfers of technology should be avoided.¹⁶⁶

2. The TRIPs Agreement

Signatories may act under domestic antitrust and anticompetition legislation against excessive price charging, unreasonable restraints on trade, and licensing conditions which adversely affect international transfers of knowledge.¹⁶⁷ Certain patent exclusions¹⁶⁸ and licensing conditions are permissible.¹⁶⁹ Exhaustion of rights is not addressed but presumably this and similar restrictions may continue.¹⁷⁰

Hardware and integrated circuit compulsory licenses now must comply with twelve requirements, including uses restricted primarily to domestic markets, failed prior attempts to negotiate with right holders, non-exclusivity, and payment of adequate royalties.¹⁷¹ Exploitation of dependent patents is now

163. See, e.g., Thai Patents Act, *supra* note 44, arts. 38 and 40.

164. See, e.g., Vietnam Decree No. 201/HDBT (promulgating the Ordinance on License Contracts) (Dec. 28, 1988). See also IP Rights in Vietnam, *supra* note 58, at 6; Blatt, *supra* note 20, (July 2, 1996).

165. European Union courts and directives have ruled that intellectual property owners cannot prevent grey market sales (unauthorized sales of goods or services by contractual licensees and distributees) because their rights have been "exhausted". See, e.g., *Centrafarm B.V. and Adriaan de Peijper v. Winthrop B.V.*, Case 16/74, E.C.R. 1183 (1974). See also First Council Directive 89/104/EEC of December 21, 1988 to Approximate the Laws of the Member States Relating to Trade Marks, 32 O.J. (L 40) (1989), art. 7. See also Blatt, *supra* note 20 (July 4, 1996).

166. ASEAN Framework Agreement, *supra* note 6, art. 2(5).

167. TRIPs Agreement arts. 8 and 40.

168. For example, nations may restrict patents to protect public morality. See TRIPs Agreement art. 27(2).

169. For example, governments may prohibit "no challenge" clauses. See TRIPs Agreement art. 40.

170. See *supra* note 165. Japan, while not following the exhaustion of rights doctrine, uses an anticompetition theory to classify unauthorized sales and distributions of grey market goods as noninfringing.

171. TRIPs Agreement arts. 31, 37(2) and 38.

limited¹⁷² and licenses for failure to "work" patents are now prohibited.¹⁷³ Software compulsory licenses are permitted for certain educational and research purposes¹⁷⁴ but trademark compulsory licenses are prohibited.¹⁷⁵

3. Implications

The TRIPs Agreement fails to effectively restrict ASEAN intellectual property abuses in several ways. It allows many discretionary and vague ASEAN anti-competition, technology transfer, and other restrictions to remain,¹⁷⁶ and makes it difficult to plan technology transfers with the needed certainty.¹⁷⁷ The TRIPs Agreement's broad and abusable exclusions from patentable and sui generis subject matter, and resulting inadequate "pipeline protection" of hardware and integrated circuits, may continue to dampen development of computer technology. Finally, compulsory licenses have been historically abused by developing countries. It appears ASEAN software abuses may continue, though the TRIPs Agreement should effectively reduce arbitrary and unfair compulsory licenses of hardware and integrated circuits.¹⁷⁸

IV. PROCEDURAL PROTECTION OF COMPUTER TECHNOLOGY

The increase in value of intellectual property has raised the level of concern regarding the adequacy of enforcement and

172. Dependent patents involve improvements on dominant, or underlying patents. The TRIPs Agreement art. 31(e).

173. TRIPs Agreement arts. 27 and 31.

174. See Geller, *supra* note 63.

175. TRIPs Agreement art. 21.

176. See Bronckers, *supra* note 24, at 1270. See also Blatt, *supra* note 20 (July 2, 1996).

177. See Blatt, *supra* note 20 (July 2, 1996).

178. For example, the TRIPs Agreement's requirement of adequate payment reduces the likelihood of de facto expropriations of patents and sui generis rights. Compulsory license abuses may be exaggerated as the consensus nature of ASEAN people typically results in parties agreeing to licensing terms without governmental assistance. See Blatt, *supra* note 20 (July 2, 1996).

remedies for infringement.¹⁷⁹ Intellectual property rights may be worthless without adequate enforcement.

A. PRIVATE ENFORCEMENT

Foreign rightholders seek to enforce ASEAN intellectual property rights and secure remedies for infringement through domestic enforcement mechanisms.

1. ASEAN Laws

Rightholders in ASEAN countries have often felt that although intellectual property laws exist, in actual practice they provide little relief.¹⁸⁰ Many ASEAN parties are members of the Berne and Paris Conventions, but neither supervises enforcement; five ASEAN countries — Thailand, Indonesia, Malaysia, the Philippines, and Thailand — have recently been considered by at least the United States government to be among Asia's most serious intellectual property offenders.¹⁸¹ There is hope that ASEAN enforcement will improve soon. For example, though Singapore was identified in 1989 as a frequent copyright violator, it is now fairly consistent in its intellectual property enforcement.¹⁸² Thailand has also made notable recent efforts to improve and has passed new copyright, patent, and trademark laws. Recent Thai legislation also establishes a specialized Intellectual Property and International Trade Court and expands enforcement.¹⁸³ Another example of improvement is Indonesia. While its laws lack enforcement, particularly regarding software, it has agreed to make diligent

179. See Blatt, *supra* note 20 (June 19, 1996).

180. For a discussion of the developing nation gap between substantive intellectual property laws and enforcement, see Bronckers, *supra* note 24, at 1273. See also *supra* notes 58 and 78, and accompanying text.

181. Dru Brenner-Beck, *Do As I Say, Not As I Did*, 11 UCLA PAC. BASIN L.J. 84 (1992). Thailand was cited in 1989, 1991, and 1992 by the United States government for severe intellectual property protection deficiencies. See Suwanprateep, *supra* note 5, at 35.

182. See Blatt, *supra* note 20 (July 2, 1996).

183. See Suwanprateep, *supra* note 5, at 31-35 (1994). See also, e.g., Thai Copyright Act, *supra* note 43, arts. 7 and 8.

efforts to enhance enforcement and even now is drafting new laws toward that end.¹⁸⁴

2. The TRIPs Agreement

With present domestic and international treaty limits in mind, the TRIPs Agreement devotes unusual detail to enforcement of private rights and attempts to create minimum standards in terms of harmonization for foreigners seeking relief. All signatories must ensure effective, expeditious, equitable, and impartial enforcement of substantive TRIPs rights.¹⁸⁵ Civil actions and damages, criminal penalties for commercial trademark and copyright infringements,¹⁸⁶ provisional and injunctive relief, seizure and exclusion of infringing imports, compulsory court processes, and discovery to force infringers to identify suppliers must be afforded.¹⁸⁷ Decisions must be on the merits and based only on evidence presented,¹⁸⁸ be "preferably" in writing, reasoned, and available to the parties; and include rights of judicial review for certain administrative decisions.¹⁸⁹ the TRIPs Agreement also requires recognition of third party liability,¹⁹⁰ legal assistance, and preservation of evidence.¹⁹¹

3. Implications

Enforcement provisions are the most significant and far-reaching provisions of the TRIPs Agreement. The TRIPs Agreement offers at least the possibility of real ASEAN enforcement mechanisms and should reduce domestic political pressures that support deficiencies in intellectual property enforcement. Two requirements of particular significance are the right of appeal, presently lacking in many ASEAN

184. See note 10, at 10.

185. TRIPs Agreement art. 41(2).

186. TRIPs Agreement art. 41.

187. TRIPs Agreement arts. 42-46 and 59-61.

188. TRIPs Agreement art. 41(3).

189. TRIPs Agreement arts. 44-46.

190. TRIPs Agreement art. 2, note 10.

191. TRIPs Agreement art. 41(1).

intellectual property systems,¹⁹² and the critical mandate that infringing goods be intercepted and seized.¹⁹³

While the TRIPs Agreement makes it more difficult for ASEAN nations to give just lip service to intellectual property protection, the TRIPs Agreement enforcement provisions have several limitations. The TRIPs Agreement does not require special resources nor separate legal systems to protect intellectual property,¹⁹⁴ and domestic laws prevail where the TRIPs Agreement remedies are inconsistent.¹⁹⁵ Though judicial authorities must be authorized to grant certain remedies, the TRIPs Agreement does not mandate their actual use and it is unlikely new remedies will be used in jurisdictions to which these remedies are foreign.¹⁹⁶

The TRIPs Agreement also does not and can not do much to address violations which lack complainants, nor ensure independent governmental initiative in wrestling with intellectual property violations. ASEAN intellectual property holders appear to be still vulnerable to unreasonably slow enforcement processes during which illegal activity may continue. Finally, though national and most favored nation treatment and the promise of technical assistance are part of the TRIPs Agreement, these mechanisms will likely prove incapable of addressing insidious discrimination against foreigners by enforcement officials, inadequate training and resources for enforcement, court decisions which are biased against foreigners, and judiciaries which are not independent of political influence and corrupt practices.

192. Blatt, *supra* note 20 (July 3, 1996).

193. TRIPs Agreement arts. 46 and 51.

194. TRIPs Agreement art. 41(5).

195. Declaratory judgments and "adequate compensation" must be available. See TRIPs Agreement art. 44(2).

196. While damages, injunctive relief, and civil and criminal penalties are not foreign to at least Thailand, jurisdictions awarding these remedies are likely to significantly vary in the use and scope of these remedies. See, e.g., Thai Copyright Act, *supra* note 43, arts. 62, 64 and 65.

B. INTERGOVERNMENTAL DISPUTE SETTLEMENT

During the past ten years the value of intellectual property has greatly increased, causing intergovernmental intellectual property disputes to become a prime trade issue.¹⁹⁷ Intergovernmental disputes arise when foreign intellectual property laws and private enforcement fail. Governments then look for mechanisms by which to resolve their disputes with "offending" nations.

1. ASEAN Laws

Past efforts to force ASEAN members to protect effectively intellectual property have been largely unsuccessful. One problem is that ASEAN's largest trading partners have addressed intellectual property disputes by resort to bilateral trade-based approaches. The United States has aggressively used its controversial Special 301 procedures and sanctions¹⁹⁸ to push trading partners like Thailand to offer higher levels of intellectual property protection and better protect United States technology.¹⁹⁹ The European Commission has invoked a new trade regulation²⁰⁰ against ASEAN intellectual property violators. Both have resorted to cross-retaliation.²⁰¹

Another problem in forcing ASEAN members to effectively protect intellectual property rights has been the lack of meaningful intergovernmental enforcement mechanisms. Paris

197. See Blatt, *supra* note 20 (June 19, 1996).

198. Omnibus Trade and Competitiveness Act of 1988, 19 U.S.C. §2242(a)(1)(B)(1988). The United States Trade Representative identifies a priority list of the most egregious national intellectual property offenders. These are potentially subject to sanctions and the withholding of generalized system of preferences (GSP) privileges. There also is a watch list of other national intellectual property offenders. See, *GATT's Dunkel Criticizes U.S. Section 301, Urges Strong Commitment to Uruguay Round*, 7 Int'l Trade Rep. (BNA) 766 (May 30, 1990).

199. See 19 U.S.C. section 1337 (1988). See also Omnibus Trade and Competitiveness Act of 1989, Pub. L. No. 100-418, 102 Stat. 1176-79, section 1302 (1989). The United States' initiation of proceedings against Thailand in 1991 in part caused the new Thai patent and copyright laws. See Myles Getlan, *TRIPs and the Future of Section 301: A Comparative Study in Trade Dispute Resolution*, 34 COLUMBIA J. OF TRANSNAT'L L. 173, 196-199 (1995).

200. Reg. 264184, 1984 O.J. (L 252/1). See also Getlan, *supra* note 199, at 218.

201. Cross-retaliation means retaliation in another sector (e.g., trade in goods) than the one in which the original problem (e.g., intellectual property) occurs.

and Berne have failed to provide real enforcement devices and, until the TRIPs Agreement, intellectual property has not been part of GATT. Though members can theoretically bring actions before the International Court of Justice (ICJ), this route to intellectual property dispute settlement has never been chosen.²⁰²

2. The TRIPs Agreement

The TRIPs Agreement provides a two-fold government-to-government enforcement mechanism to resolve intellectual property protection between nations. The first mechanism is the newly created TRIPs Council.²⁰³ It is charged with monitoring domestic implementation,²⁰⁴ providing a forum for consultations and assistance,²⁰⁵ and reviewing new developments which may warrant modifications to or amendments of the TRIPs Agreement.²⁰⁶

The second mechanism involves procedures to resolve intergovernmental disputes through the new Dispute Settlement Understanding (DSU)²⁰⁷ administered by the newly established WTO. The objective of the DSU is to resolve disputes within one year through a process of bilateral consultations, a Dispute Settlement Body (DSB), panels, investigations, panel reports, appeals, and compliance or settlement. All WTO members must abide by the same rules, be governed by the same procedures, and be subject to authorized sanctions if they fail to effectively act against counterfeiting and piracy.²⁰⁸ Retaliation may be authorized for failure to comply or settle but is typically limited to the same

202. Paris Convention, *supra* note 27, art. 28; Berne Convention, *supra* note 27, art. 33.

203. TRIPs Agreement art. 68.

204. TRIPs Agreement art. 63(2).

205. TRIPs Agreement arts. 64, 68 and 71.

206. TRIPs Agreement arts. 68 and 71(1).

207. The Uruguay Round in 1994 revamped the GATT international dispute resolution process. *See* DSU, *supra* note 26

208. The TRIPs Agreement requires intergovernmental disputes to be resolved by this new WTO process. *See* the TRIPs Agreement art. 64.

sector.²⁰⁹ Members injured by conflicting domestic proceedings may seek redress or nullification.²¹⁰

3. Implications

The TRIPs Agreement's two-fold dispute resolution mechanism should represent a substantial change from past intellectual property dispute practices. The new Council presents at least the possibility of an inherent mechanism by which *sui generis* protection can be provided as new technologies arise. Though the WTO dispute resolution process is new, and it remains to be seen whether its provisions will effectively enforce the TRIPs Agreement, the DSU system appears to be a significant improvement over the past GATT procedure. It provides needed streamlining²¹¹ and formalization of the dispute resolution process, and makes evasatory tactics less likely to succeed.²¹² The DSU mechanism is also more likely to be utilized by and against ASEAN nations than past systems²¹³ and may be more effective than the present bilateral trade-based approach to intellectual property dispute resolution.²¹⁴

It appears the DSU, together with the TRIPs Agreement, will facilitate new international agreements. One result is the ASEAN Framework Agreement which creates a more direct role for ASEAN as a regional organization in resolving intellectual property disputes at least among ASEAN members.²¹⁵ The TRIPs Agreement together with the DSU

209. DSU, *supra* note 26, arts. 3(7) and 22.

210. TRIPs Agreement art. 23(2).

211. GATT cases under the old dispute settlement mechanism frequently suffered from extreme politicization and long delays. See Leaffer, *supra* note 18, at 301-302. See also Getlan, *supra* note 199, at 212.

212. In the past, defendant states could block implementation of panel decisions. It is now more difficult to veto panel reports.

213. The new system has begun to function and a seven-member appellate World Trade Court has more than a dozen disputes now pending. See Thomas J. Schoenbaum, *The Concept of Market Contestability and the New Agenda of the Multilateral Trading System*, 11 ASIL INSIGHT 1 (1996).

214. The idea is that sanctions authorized by an international body have more clout. See Getlan, *supra* note 199, at 218.

215. The ASEAN Framework Agreement provides a dispute settlement mechanism with several levels of consultation and cooperation. See ASEAN Framework Agreement, *supra* note 6, art. 5. This dispute resolution mechanism may be limited by the little or no history of ASEAN intergovernmental intellectual property dispute

mechanism has also facilitated a recent WTO agreement with WIPO.²¹⁶

While the DSU offers certain advantages it also may prove disadvantageous to developed nations and legitimate computer technology companies. One problem is that the new WTO system precludes unilateral action once the TRIPs Agreement is fully implemented and may preclude it during the transition period.²¹⁷ ASEAN members contend, and they may represent the WTO majority view, that the DSU entirely precludes unilateral economic sanctions to coerce intellectual property compliance²¹⁸ and that transition periods are grace periods.²¹⁹

Without bilateral pressure and the threat of unilateral sanctions ASEAN nations may not continue to step up intellectual property protection.²²⁰ Europe is impatient with intellectual property violations and weak enforcement; and the United States has already warned that it will press developing nations to accelerate the TRIPs Agreement implementation

resolution, lack of ASEAN supra-national authority, and lack of a requirement that ASEAN members submit all intellectual property proposals and laws for the TRIPs Agreement scrutiny and Framework Agreement compliance verification. Though the consultation method of dispute resolution helps ensure stable relationships among ASEAN members, it may also restrict movement forward.

216. The WTO and WIPO, a specialized agency of the United Nations which has administered multilateral agreements on intellectual property rights including the Paris and Berne Conventions, *see* Convention Establishing the World Intellectual Property Organization, 21 U.S.T. 1749; 828 U.N.I.T.S. 3 (1967), agreed in June 1996 to create a special emergency dispute resolution mechanism using the international arbitration center in Geneva. *See* Blatt, *supra* note 20 (July 4, 1996).

217. *See supra* notes 207-210 and accompanying text.

218. *See* TRIPs Agreement arts. 23(1) and 64(2). *See also* GATT art. XXIII(1)(b),(c) and DSU, *supra* note 26, art. 26.

219. Implementation deadlines are 2000 and 2005 for developing nations. *See supra* notes 31-36 and accompanying text. ASEAN developing nations are undoubtedly aware they may demand compensation or request authorizations to retaliate if Europe and the United States continue in their bilateral trade-based approaches. *See* TRIPs Agreement arts. 22 and 23.

220. The majority of Bangkok Chulalongkorn University law school professors believe Thai patent and copyright evolution of the past five years would not have occurred but for Section 301 coercion. *See* Blatt, *supra* note 20 (June 19, 1996). Some argue the WTO system will prove counterproductive by removing or impeding valuable coercion. *See* Doane, *supra* note 67, at 482. Others argue that the United States and Europe will achieve better results through utilizing the improved WTO dispute resolution process than through their unilateral retaliatory actions of the past. *See* Getlan, *supra* note 199, at 217.

and will continue to rely on Special 301 procedures to bilaterally confront nations until they have fully implemented the TRIPs Agreement.²²¹

The DSU may also prove disadvantageous to developed nations in other ways. It provides a state-to-state mechanism only, so private individuals with intellectual property grievances against ASEAN nations will still need to look to other less predictable enforcement mechanisms.²²² The DSU also may restrict the cross sector retaliation some believe is necessary to achieve ASEAN intellectual property protection of computer technology.²²³

V. THE FUTURE OF ASEAN COMPUTER TECHNOLOGY PROTECTION

The TRIPs Agreement represents a breakthrough in ASEAN and global intellectual property protection. By establishing minimal standards — a prerequisite and the foundation for future global and ASEAN harmonization — the TRIPs Agreement creates a framework by which ASEAN nations can work together to fulfill the requirements of the TRIPs Agreement and the ASEAN Framework Agreement.

More intellectual property barriers remain in Southeast Asia than in many other parts of the world.²²⁴ ASEAN members are required by the TRIPs Agreement to make significant changes in the way computer technology rights are protected and enforced. Patent, copyright, sui generis, and trade secret laws require substantial changes to comply with minimum

221. See note 10, at 5.

222. For example, private individuals may sue the offending nations, sue and seek enjoinder in their home countries, or seek seizures and exclusions of the offending goods at their domestic borders.

223. See Blatt, *supra* note 20 (June 19, 1996). Though the DSU requires same-sector retaliation as a starting point, this may be a non-limitator. Successful litigants may be entitled to apply cross-sectoral retaliatory sanctions to offset economic losses caused by intellectual property. See TRIPs Agreement arts. 64 and 68. See also DSU, *supra* note 26, arts. 3(7), 6-16, 17-20, 22(3), 22(3)(f)(iii) and 22(g)(iii).

224. Television interview of Mr. Kantor, United States Secretary of Commerce, *World Business Today*, CNN International (June 26, 1996).

substantive standards now required for all ASEAN members.²²⁵ The TRIPs Agreement procedural requirements will represent the largest changes.

The TRIPs Agreement and the ASEAN Framework Agreement recognize that technical assistance is critical to effective intellectual property laws,²²⁶ but technical assistance and strong laws alone will not be enough. ASEAN governments will need to devote significant resources and create adequate infrastructure if strong laws are going to have a real effect.²²⁷ They will also need to educate their people about these intellectual property laws and their benefits.

As pragmatism is necessary if ASEAN nations are to progress toward a high-technology future and attract much-needed foreign investment and trade,²²⁸ ASEAN intellectual property protection and enforcement will likely move from ideology²²⁹ to economic and political reality. The ASEAN Framework Agreement, other bilateral agreements,²³⁰ and recent ASEAN domestic law changes²³¹ create at least a strong positive appearance that ASEAN members are convinced of or resigned to the reality that adequate intellectual property protection is a

225. Vietnam is indirectly obligated to comply with the TRIPs Agreement by its ASEAN Framework Agreement obligations.

226. For example, Indonesia presently lacks intellectual property protection but has requested assistance. United States governmental experts are assisting it in drafting laws. *See supra* note 10, at 5 and 10. *See also* ASEAN Framework Agreement, *supra* note 6.

227. *See* note 10, at 5, 10-11.

228. *See* ASEAN Framework Agreement, *supra* note 6, preamble.

229. ASEAN cultural and economic factors have traditionally placed a low emphasis on intellectual property and other individual rights. *See supra* note 13 and accompanying text.

230. *See, e.g.*, Memorandum of Understanding on Bilateral Cooperation in the Field of Intellectual Property Between Thailand and Laos. A similar memorandum was established with Vietnam in 1994, and is being or has been established regarding China, Cambodia, and Burma. *See* TranBat Nguyen & Nghiem Xuan Bac Pham, *Vietnam, IP ASIA 1994 HIGHLIGHTS* 38 (1994).

231. Thailand's new and the Philippines' pending copyright, trademark, and patent laws together with at least Indonesia's and Thailand's commitment to comply with the TRIPs Agreement on an expedited basis are positive indicators ASEAN members are in fact serious about intellectual property protection of computer technology. *See supra* note 10, at 10. *See also* Thai Patents Act, *supra* note 44; Thai Trademarks Act, *supra* note 135, and Thai Copyright Act, *supra* note 43.

prerequisite for effective trade and investment competition in the global marketplace.²³²

Competition is fierce among countries to attract foreign investment²³³ and as ASEAN nations promise to be an increasingly large export market for United States and European products, intellectual property protection will become increasingly important. Though ASEAN's largest foreign investor, China,²³⁴ is an unlikely or ironic source of demands, other major trading partners²³⁵ are likely to insist on more fair and equal trade terms than they have in the past, particularly as computer technology industries play a greater role in national competitiveness.²³⁶ Growing demands may also come from ASEAN members like Singapore, Thailand, and Malaysia, which have discovered that they have their own homegrown computer technology to protect.

If there is reluctance to protect intellectual property among certain ASEAN members,²³⁷ perhaps they can learn from the experience of member Singapore which has significantly increased its intellectual property protection in recent years. Singapore has successfully leapfrogged over the industrial stage and has attracted investment by multinational computer and telecommunications giants Motorola, AT&T, Digital

232. Though some developing nations resent the TRIPs Agreement requirements largely imposed on them by developed nations and enjoy the benefits of maximum access to computer technology and the thriving parallel counterfeit and pirate markets, the Framework Agreement recognizes that economic progress and prosperity for members, entrepreneurs, and innovators will be fostered by enhanced intellectual property and related field protection together with closer cooperation and consultation among ASEAN parties for mutual gain in intellectual property and related fields. See ASEAN Framework Agreement preamble, art. 2(5). See also Sucharitkul, *supra* note 40; Bronckers, *supra* note 24, at 1246-1247 and 1249.

233. See NAISBETT, *supra* note 2, at 108-109.

234. Ethnic Chinese are the largest foreign investors in Thailand, Indonesia, the Philippines, Malaysia, and Vietnam and represent 81% of Thailand's and Singapore's, 73% of Indonesia's, 62% of Malaysia's, and 50% of the Philippine's listed companies. See NAISBETT, *supra* note 2, at 3-4.

235. For example, the United States, Japan and Europe.

236. See *supra* note 10, at 2, 3 (Jan. 27, 1996)

237. Some developing nations resent the TRIPs Agreement requirements largely imposed on them by developed nations and enjoy the benefits of maximum access to computer technology and the thriving parallel counterfeit and private markets. See Bronckers, *supra* note 24, at 1246-1247, 1249.

Equipment, Hewlett-Packard, IBM, and Matsushita. Though the selection of Singapore by these global companies has been for several reasons,²³⁸ Singapore has the unusual distinction of shifting from imports to indigenous technologies and attracting recent, serious foreign technology investment.²³⁹

Some issues remain. Though the TRIPs Agreement provides a mechanism for adjusting international intellectual property protection to meet the evolving needs of computer technology, the TRIPs Agreement, the ASEAN Framework Agreement, and other international organizations may not necessarily be able to develop standards to meet changes in future technology. Another concern is whether the TRIPs Agreement and the DSU will be able to effectively compel noncomplying ASEAN nations to recognize and enforce intellectual property rights. Only time will tell how these remaining issues will be answered and whether major ASEAN trading partners can rely on multilateral efforts, including the TRIPs Agreement and the Framework Agreement, to effectively improve ASEAN intellectual property regimes and achieve trade objectives regarding computer technology.

238. For example, Singapore has the best transportation infrastructure, research and development incentives, and tax structure of ASEAN members. *See* NAISBETT, *supra* note 2, at 175.

239. *See* Bronckers, *supra* note 24, at 172-173.