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**PATENT WORKING REQUIREMENTS AND COMPLEX PRODUCTS:
AN EMPIRICAL ASSESSMENT OF INDIA'S FORM 27 PRACTICE AND
COMPLIANCE**

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Abstract

In India, if a patent is not locally worked within three years of its issuance, any person may request a compulsory license, and if the patent is not adequately worked within two years of the grant of such a compulsory license, it may be revoked. The potency of India's patent working requirement was demonstrated by the 2012 issuance of a compulsory license for Bayer's patented drug Nexavar. In order to provide the public with information about patent working, India requires every patentee to file an annual statement on "Form 27" describing the working of each of its issued Indian patents.

We conducted the first comprehensive and systematic study of all Forms 27 filed with respect to a key industry sector: mobile devices. We obtained from public online records 4,916 valid Forms 27, corresponding to 3,126 mobile device patents. These represented only 20.1% of all Forms 27 that should have been filed and corresponded to only 72.5% of all mobile device patents for which Forms 27 should have been filed. Forms 27 were missing for almost all patentees, and even among Forms 27 that were obtained, almost none contained useful information regarding the working of the subject patents or fully complying with the informational requirements of the Indian Patent Rules. Patentees adopted drastically different positions regarding the definition of patent working, while several significant patentees claimed that they or their patent portfolios were simply too large to enable the reporting of required information. Many patentees simply omitted required descriptive information from their Forms without explanation.

The Indian government has made little or no effort to monitor or police compliance with Form 27 filings, undoubtedly leading to significant non-compliance. However, some of the complaints raised by patentees and industry observers may have merit. Namely, that patents covering complex,

multi-component products that embody dozens of technical standards and thousands of patents are not necessarily amenable to the individual-level data requested by Form 27. We hope that this study will contribute to the ongoing conversation in India regarding the most appropriate means for collecting and disseminating information regarding the working of patents.

INTRODUCTION

In 2012, Natco Pharma. Ltd. (“Natco”) petitioned the Indian Patent Office (“IPO”) for a compulsory license to manufacture Bayer’s patented cancer drug Nexavar.¹ Natco cited numerous grounds in support of its petition, including Nexavar’s high cost and limited availability in India.² But along with these relatively common complaints in the global access to medicines debate,³ Natco raised a less typical theory: Bayer failed to “work” the patent sufficiently in India.⁴ In doing so, Natco invoked a seldom-used provision of Indian patent law that allows any person to seek a

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¹ Natco Pharma. Ltd. v. Bayer Corp., (2011) I.P.O. Order No. 1, at 6 (India).

² *Id.*

³ The Natco case is one in a long line of cases in the ongoing “access to medicines” dispute, in which developing countries seek compulsory licenses for local use of lifesaving drugs that are patented by western pharmaceutical firms. See, e.g., SRIVIDHYA RAGAVAN, PATENT AND TRADE DISPARITIES IN DEVELOPING COUNTRIES (2012); Charles R. McManis and Jorge L. Contreras, *Compulsory Licensing of Intellectual Property: A Viable Policy Lever for Promoting Access to Critical Technologies?*, in TRIPS AND DEVELOPING COUNTRIES – TOWARDS A NEW IP WORLD ORDER? (Gustavo Ghidini, Rudolph J.R. Peritz & Marco Ricolfi, eds. (2014)); Jerome H. Reichman, *Comment: Compulsory Licensing of Patented Pharmaceutical Inventions: Evaluating the Options*, 37 J. L. MED. & ETHICS 247, 250 (2009).

⁴ Natco Pharma. Ltd. v. Bayer Corp., (2011) I.P.O. Order No. 1, 6 (India).

compulsory license under an Indian patent that is not actively being commercialized by its owner within three years from the issuance of the patent.⁵

Patent working requirements exist in different forms throughout the world. Broadly speaking, to “work” a patent is to practice, in some manner, the patented invention within the country that issued the patent. Working requirements seek to balance a patent holder’s exclusive right to exploit an invention with the public enjoyment of that innovation.⁶ While patents are seen to create incentives for inventors to share their ideas, working requirements are intended to mitigate the exclusivity of patent monopolies by requiring the patent holder to disseminate its invention into the local market, thereby imparting knowledge and skills to the local community, enhancing economic growth, supporting local manufacturing, and promoting the introduction of innovative new products into the local market.⁷

While patent working requirements have existed in various jurisdictions for more than a century, working requirements have seldom been the subject of vigorous enforcement.⁸ The U.S.-Brazil dispute and the *Natco* case represent a revival of interest in patent working requirements. The agreement between the United States and Brazil⁹ is simply a temporary solution to the working requirement inquiry. Similarly, the *Natco* case has reintroduced questions of whether working requirements are, or should be, allowed under the TRIPS Agreement. Despite the issues encircling the compatibility of local working requirements and the TRIPS Agreement, India’s local working requirement has affected patent rights minimally thus

⁵ See The Patents Act, No. 39 of 1970, INDIA CODE (1970), chpt. XVI, § 84(1).

⁶ Rochelle Dreyfuss & Susy Frankel, *From Incentive to Commodity to Asset: How International Law Is Reconceptualizing Intellectual Property*, 36 MICH. J. INT’L L. 557, 576 (2015); Feroz Ali, *Picket Patents: Non-Working as an IP Abuse*, at *5, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2732521 (last visited Feb. 6, 2017); see also Bryan Mercurio & Mitali Tyagi, *Treaty Interpretation in WTO Dispute Settlement: The Outstanding Question of the Legality of Local Working Requirements*, 19 MINN. J. INT’L L. 275, 281 (2010).

⁷ Marketa Trimble, *Patent Working Requirements: Historical and Comparative Perspectives*, 6 U.C. Irvine L. Rev. 483, __ (2016). [*24–25]

⁸ *Id.* at *17.

⁹ See *infra* Section I(A) (summarizing the dispute between the United States and Brazil regarding Brazil’s working requirement).

far.¹⁰ However, India's somewhat recent publication of the Form 27 submissions, *i.e.* the annual form demonstrating the local working of a patent, and the *Natco* case have prompted commentators to speculate on India's Form 27 statutory requirement.

In prior work, Contreras and Lakshané have analyzed the domestic Indian patent landscape pertaining to mobile device technology.¹¹ The authors now extend that work to examine the working of those patents. This Article presents a detailed case study of the Indian patent working statutes and its procedures, particularly the requirement that all patent holders file an annual form (Form 27) to demonstrate that their patents are being worked in the country. We collected and reviewed all publicly available Forms 27 in the mobile device sector to assess the completeness and accuracy of the information disclosed. We then analyzed the results to assess the robustness of India's patent working requirement and its utility for complex information and communication-based products and technologies.

The remainder of this Article proceeds in four principal parts. Part I.A provides a brief history of patent working requirements. Part I.B describes the development of India's current working requirement and its novel Form 27 filing requirement. Part II describes our empirical study of India's Form 27 filings in the mobile device sector. Part III discusses our findings and analysis. We conclude with recommendations for further study and policy.

I. PATENT WORKING REQUIREMENTS

A. History of Patent Working Requirements

The origins of patent working requirements have been traced to the 1300s, when early patent privileges were granted in jurisdictions such as feudal England and the Republic of Venice with an expectation that foreign innovators would teach the invented art to local industry.¹² The underlying

¹⁰ Only five compulsory licenses have been granted under India's patent regime. Janice M. Mueller, *The Tiger Awakens: The Tumultuous Transformation of India's Patent System and the Rise of Indian Pharmaceutical Innovation*, 68 U. PITT. L. REV. 491, 517–18 (2007).

¹¹ Jorge L. Contreras and Rohini Lanshané, *Patents and Mobile Devices in India: An Empirical Survey*, 50 VAND. TRANSNATIONAL L.J. 1 (2017).

¹² Trimble, *supra* note 7, at *7-8. In England, royal patents were granted to foreigners who would teach their art to the local population. *Id.* at *7, 20. Venice provided monopoly rights and tax holidays for foreign inventors to immigrate and improve local industrialization. RAGAVAN, *supra* note 3, at 3.

incentive for providing monopoly rights was thus tied to local industrialization.¹³ This incentive to share technology was directed not only to local citizens but even more so to foreign inventors.¹⁴ Countries issued patent privileges to encourage foreigners to migrate and develop or protect local industry by teaching their art to the local population.¹⁵ Local industrialization was thus considered a central means to economic development and technological advancement.¹⁶

Despite these early developments, by the late 19th and early 20th centuries, developed countries' conceptual understanding of a patentee's obligation and its relevance to national development began to shift away from local manufacturing.¹⁷ Thus, in many developed countries disclosure through importation became sufficient to meet the "informational goal" of patents, particularly patents that represented improvements to existing technologies.¹⁸

The 1883 Paris Convention for the Protection of Industrial Property prohibited the automatic forfeiture of a patent for a failure to work it locally.¹⁹ While developed and developing countries disputed the proper remedy for the failure to work a patent, there remained a consensus that failure to work a patent was inconsistent with the patent privilege.²⁰

A half century later, the 1925 Hague Conference which amended the Paris Convention recognized the failure to work a patent as an abuse that member states could "take necessary legislative measures to prevent."²¹ As

¹³ RAGAVAN, *supra* note 3, at 3; G.B. Reddy and Harunrashid A. Kadri, *Local Working of Patents – Law and Implementation in India*, 18 J. INTELL. PROP. RIGHTS 15, 15 (2013).

¹⁴ RAGAVAN, *supra* note 3, at 3; Trimble, *supra* note 7, at *7.

¹⁵ RAGAVAN, *supra* note 3, at 3; Reddy & Kadri, *supra* note 13, at 16.

¹⁶ Reddy & Kadri, *supra* note 13, at 17; Ali, *supra* note 6, at *9.

¹⁷ Paul Champ & Amir Attaran, *Patent Rights and Local Working Under the WTO TRIPS Agreement: An Analysis of the U.S.-Brazil Patent Dispute*, 27 YALE J. INT'L L. 365, 371 (2002).

¹⁸ Trimble, *supra* note 7, at *21 ("In the United Kingdom in the 18th century 'the requirement of compulsory working dropped into desuetude and its place was taken for all practical purposes, in particular in the practice of the law courts, by [the full disclosure] requirement'" (alterations in original) (internal citations omitted)).

¹⁹ Paris Convention for the Protection of Industrial Property, World Intellectual Property Organization, art. 5(A)(1), March 20, 1883.

²⁰ Reddy & Kadri, *supra* note 13, at 17; Champ & Attaran, *supra* note 17, at 371; Trimble, *supra* note 7, at *15.

²¹ Hague Revision to Paris Convention for the Protection of Industrial Property, World Intellectual Property Organization, art. (5)(A)(2), 1925.

a remedy for non-working, drafters viewed compulsory licensing of non-worked patents as more palatable than outright forfeiture.²² Nevertheless, forfeiture of patent rights was still permitted under the Convention, though an action for forfeiture could not be brought until two years following the issuance of the first compulsory license covering the non-worked patent.²³ In the 1967 Stockholm amendments to the Convention, further limitations on compulsory licensing for non-working were introduced, notably prohibiting member states from permitting the grant of a compulsory license for failure to work until three years after the issuance of the allegedly non-worked patent.²⁴

Within the flexibilities allowed by the Convention, developing countries continued to adopt strict working requirements and to resist international requirements that favored developed countries.²⁵ For example, in the late 1970s and early 1980s, developing countries proposed revisions to the Paris Convention that would have allowed them to provide that mere importation did not satisfy local working requirements and to permit the expansion of sanctions for non-working beyond compulsory licensing.²⁶

The desire of developed countries for stronger international rules relating to intellectual property led to the formation of the World Trade Organization (“WTO”) in 1994, under which the Trade Related Aspects of Intellectual Property Rights (“TRIPS”) Agreement was negotiated.²⁷ While the TRIPS Agreement does not explicitly address patent working requirements, Article 2.1 incorporates Article 5A of the Paris Convention, *i.e.* the article related to compulsory licensing and the limitations on granting compulsory licenses discussed above, and Article 2.2 reinforces the

²² Champ & Attaran, *supra* note 17, at 372. *See also* Trimble, *supra* note 7, at *11-15 (tracing history of remedies for failure to meet working requirements, including forfeiture).

²³ London Revision to Paris Convention for the Protection of Industrial Property, World Intellectual Property Organization, art. 5(A)(4), 1934. *See* Trimble, *supra* note 7, at *15.

²⁴ Stockholm Revision to Paris Convention for the Protection of Industrial Property, World Intellectual Property Organization, art. 5(A)(2), 1967.

²⁵ Trimble, *supra* note 7, at *16; Mueller, *supra* note 10, at 517–18.

²⁶ Trimble, *supra* note 7, at *16.

²⁷ RAGAVAN, *supra* note 3, at 65–66; *see generally* TRIPS: Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1c, 1869 U.N.T.S. 299, 33 I.L.M. 1197 (1994), *reprinted in* WORLD TRADE ORGANIZATION, THE RESULTS OF THE URUGUAY ROUND OF MULTILATERAL TRADE NEGOTIATIONS 365 (1995) [hereinafter “TRIPS Agreement”].

existing obligations of members of the Paris Union.²⁸ Additionally, Article 27.1 of the TRIPS Agreement, which establishes requirements for patentable subject matter, prohibits “discrimination as to the place of invention, the field of technology and whether products are imported or locally produced,” raising a question as to whether countries with local working requirements must recognize importation as an acceptable manner of satisfying those requirements.²⁹ However, Article 30 of the TRIPS Agreement permits a member state to allow exceptions to the exclusive rights of a patent holder. And Article 31 allows a state to issue a “compulsory” license under one or more patents without the authorization of the patent holder “in the case of national emergency or other circumstances of extreme urgency or in cases of public non-commercial use.”³⁰ Given these mixed signals, commentators are divided on whether, and how, the TRIPS Agreement may affect local working requirements.³¹

To date, the only WTO dispute challenging the validity of national working requirements has been between the United States and Brazil.³² In 2000, the Clinton administration, responding to concerns raised by the American pharmaceutical industry, initiated a WTO dispute proceeding to challenge Brazil's local working requirement.³³ The United States argued that Article 68 of Brazil's 1996 Industrial Property Law violated Articles 27(1) and 28(1)³⁴ of the TRIPS Agreement for discriminating against U.S. owners of Brazilian patents whose products were imported, but not locally produced, in Brazil.³⁵

²⁸ Additionally, those countries that were not members of the Paris Union but are members of the WTO are therefore obligated to comply with the Paris Convention and its revisions under Article 2.2 of the TRIPS Agreement.

²⁹ TRIPS: Agreement on Trade-Related Aspects of Intellectual Property Rights, art. 27(1), Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 U.N.T.S. 299, 33 I.L.M. 1197 (1994), *reprinted in* WORLD TRADE ORGANIZATION, THE RESULTS OF THE URUGUAY ROUND OF MULTILATERAL TRADE NEGOTIATIONS 365 (1995) [hereinafter “TRIPS Agreement”].

³⁰ TRIPS Agreement, art. 31. *See generally* RAGAVAN, *supra* note 3; McManis and Contreras, *supra* note 3.

³¹ *See, generally*, Trimble, *supra* note 7, at *18, Shamnad Basheer, *Making Patents Work: Of IP Duties and Deficient Disclosures*, 7 QUEEN MARY J. INTELL. PROP. 3, 16-17 (2017).

³² World Trade Organization, Dispute DS199, *Brazil—Measures Affecting Patent Protection*, June 8, 2000; Reddy & Kadri, *supra* note 13, AT 17; Trimble, *supra* note 7, at *18–19.

³³ Champ & Attaran, *supra* note 17, at 380.

³⁴ Article 28(1) of the TRIPS Agreement defines the rights that may be conferred on patent owners.

³⁵ Champ & Attaran, *supra* note 17, at 381–82.

Despite the pending WTO litigation, the Brazilian Ministry of Health adopted an aggressive stance toward reducing the price of antiretroviral medications and threatened to issue compulsory licenses for the local manufacture of two such drugs, both patented by U.S. companies, if they were not discounted by 50%.³⁶ In response to political and public pressures, the United States and Brazil settled the dispute before any definitive opinion was issued by the WTO.³⁷

B. The Evolution of India's Patent Working Requirement

1. Background

As a British colony, India's pre-independence patent laws were modeled largely on then-prevailing English law.³⁸ India gained its independence from Great Britain in 1947 and almost immediately began to consider the adoption of patent laws reflecting emerging national goals of industrialization and economic development.³⁹ Thus, in early 1948, a committee known as the Tek Chand Committee was appointed to review and reconcile India's patent laws with its national interests.⁴⁰ The committee's efforts resulted in the Chand Report, which recommended the use of compulsory patent licenses to stimulate India's industrial economy.⁴¹

A second major report, known as the Ayyangar Report, was issued in 1959.⁴² The Ayyangar Report suggested that India should deviate from the "unsuitable patent policies of industrialized nations" because patent regimes operate differently in developing versus developed nations.⁴³ Recognizing that a significant weakness in developing nations "is that

³⁶ Champ & Attaran, *supra* note 17, at 381. The two patented drugs that the Brazilian Ministry of Health threatened to grant compulsory licenses on were efavirenz and nelfinavir. These drugs are antiretroviral drugs used to treat AIDS. Geoff Dyer, *Brazil Defiant Over Cheap AIDS Drugs*, FIN. TIMES, at 10 (Feb. 9, 2001).

³⁷ Barbara Crossette, *U.S. Drops Case Over AIDS Drugs in Brazil*, WORLD, N.Y. TIMES, <http://www.nytimes.com/2001/06/26/world/us-drops-case-over-aids-drugs-in-brazil.html> (June 26, 2001).

³⁸ KALYAN C. KANKANALA, ARUN K. NARASANI & VINITA RADHAKRISHNAN, INDIAN PATENT LAW & PRACTICE 1 (2010).

³⁹ See Mueller, *supra* note 10, at 509–511; RAGAVAN, *supra* note 3, at 31.

⁴⁰ Shri Justice N. Rajagopala Ayyangar, REPORT ON THE REVISION OF THE PATENTS LAW (September 1959) [hereinafter "Ayyangar Report"]; RAGAVAN, *supra* note 3, at 31–33.

⁴¹ P. NARAYANAN, PATENT LAW 5 (4th ed. 2006).

⁴² Ayyangar Report, *supra* note 40.

⁴³ RAGAVAN, *supra* note 3, at 35.

foreign patent owners do not work the invention locally,” the Ayyangar Report recommended compulsory licensing as “the remedy to redress the handicap of foreigners not working the invention locally.”⁴⁴

2. The Patents Act, 1970

The India Patents Act, 1970, was enacted in 1972.⁴⁵ Among other things, it sought to address foreign dominance of the patent landscape in India, as recommended by the Chand Report and the Ayyangar Report.⁴⁶ Accordingly, Section 83 of the 1970 Act provides certain policy-driven justifications for India's working requirements, explaining:

- (a) that patents are granted to encourage inventions and to secure that the inventions are *worked* in India on a commercial scale and to the fullest extent that is reasonably practicable without undue delay; and
- (b) that they are not granted merely to enable patentees to enjoy a monopoly for the *importation* of the patented article.⁴⁷

These provisions make clear that working a patent in India is both an important policy goal and consists of something more than importation of the patented article into India. Some additional knowledge transfer must occur so that manufacturing of other steps necessary for commercialization are carried out in India.

Following the Ayyangar Report's recommendations, section 84(1) of the 1970 Act provided for compulsory licensing of patents as follows:

At any time after the expiration of three years from the date of the sealing of a patent, any person interested may make an application to the Controller⁴⁸ alleging that the reasonable requirements of the public with respect to the patented invention have not been satisfied or that the

⁴⁴ *Id.* at 39–40.

⁴⁵ The Patents Act, No. 39 of 1970, INDIA CODE (1970), chpt. XVI, § 5.

⁴⁶ See RAGAVAN, *supra* note 3, at 42–45 (summarizing changes effected by the 1970 law).

⁴⁷ The Patents Act, 1970, § 83 (emphasis added).

⁴⁸ The Indian Controller General of Patents, Designs & Trade Marks, who will be referred to herein as the Controller for simplicity.

patented invention is not available to the public at a reasonable price and praying for the grant of a compulsory licence to work the patented invention.⁴⁹

These requirements, particularly the availability of the patented article to the public at a “reasonable price” seek to address issues raised in the debate over access to medicines, and particularly the high pricing maintained by many Western pharmaceutical firms in developing countries.

However, working of patents more generally is incorporated into the compulsory licensing regime through Section 90, which clarifies when the “reasonable requirements of the public” will be deemed not to have been satisfied. In particular, Section 90(c) specifies that, for purposes of compulsory licensing under Section 84, “the reasonable requirements of the public shall be deemed not to have been satisfied ... if the patented invention is not being worked in India on a commercial scale to an adequate extent or is not being so worked to the fullest extent that is reasonably practicable.”⁵⁰ Thus, local working of patents are tied to the public interest and become express grounds for requesting a compulsory license in India.

In addition to giving applicants the right to seek a compulsory license under non-worked patents, the 1970 Act also gave the Controller the power to *revoke* a patent on the grounds that the reasonable requirements of the public were not being satisfied or the patented invention was not available to the public at a reasonable price.⁵¹ Under Section 89(1), any interested person could apply to the Controller for such an order of revocation no earlier than two years following the grant of the first compulsory license under the relevant patent.⁵²

⁴⁹ The Patents Act, 1970, § 84(1) (emphasis added). The three-year time period reflected in the Act is derived from Section 5(A)(4) of the Paris Convention (current numbering). See note 24, *supra*.

⁵⁰ The Patents Act, 1970, § 90(c).

⁵¹ *Id.* § 89(3). While the language of Section 89 is couched in terms of the “reasonable requirements of the public”, it is interesting to note that the caption of the section reads “Revocation of patents by the Controller for non-working”, thus focusing more explicitly on the working requirement.

⁵² The Patents Act, 1970, § 89(1). The two-year time period reflected in the Act is derived from Section 5(A)(3) of the Paris Convention (current numbering). See note 23, *supra*, and accompanying text.

3. India's Current Working Requirement

India became a member of the World Trade Organization on January 1, 1995, also making India a party to the TRIPS Agreement.⁵³ In order to reconcile India's 1970 Act with the TRIPS Agreement, India amended its Patents Act in 1999, 2002, and 2005.⁵⁴ Most relevant to this Article, the 2002 amendments modified India's compulsory licensing and working requirements.⁵⁵

India has retained a strong working requirement in its Patents Act, including the authority of the Controller to revoke patents that are not worked.⁵⁶ Section 83 of the Act, as amended in 2002, adds several additional justifications for India's patent working requirement beyond the two noted above. These new justifications include a recognition that patents are intended to support the "transfer and dissemination of technology ... in a manner conducive [sic] to social and economic welfare".⁵⁷ Several of the new justifications emphasize that patents should support, and not impair, the public interest, particularly "in sectors of vital importance for socio-economic and technological development of India".⁵⁸

Against this backdrop, the amended Act makes explicit the availability of compulsory licenses for non-worked patents. Section 89 explains that one of the "general purposes" of the Controller in granting compulsory licenses is to ensure that "patented inventions are worked on a commercial scale in the territory of India without undue delay and to the fullest extent that is reasonably practicable."⁵⁹ And the language of Section 84(1), authorizing third parties to seek compulsory licenses, is expanded to

⁵³ See World Trade Organization, India and the WTO, http://www.wto.org/english/thewto_e/countries_e/india_e.htm (last visited Feb. 18, 2017); see generally TRIPS Agreement.

⁵⁴ India amended its 1970 Act in three amendments, corresponding to the transition periods permitted by the TRIPS Agreement. India played a significant role in establishing the TRIPS' multi-year transition periods. Mueller, *supra* note 10, at 518. For a discussion of India's political and economic considerations underlying its support of compulsory licensing under TRIPS, see Omar Serrano and Mira Burri, *Making Use of TRIPS Flexibilities: Implementation and Diffusion of Compulsory Licensing Regimes in Brazil and India*, World Trade Inst. Working Paper No. 1 (Mar. 2016).

⁵⁵ The Patent (Amendment) Act, No. 38 of 2002, INDIA CODE (1970).

⁵⁶ *Id.* § 85.

⁵⁷ *Id.* § 83(c).

⁵⁸ *Id.* § 83(d)-(f).

⁵⁹ *Id.* § 89.

include as an express basis for seeking a compulsory license “that the patented invention *is not worked* in the territory of India”.⁶⁰

Thus, under new Section 84(1)(c), working of a patent is established as an independent ground for seeking a compulsory license, in addition to the grounds under Sections 84(a) and (b) that the patented technology is not reasonably meeting public needs. This approach contrasts with the original 1970 formulation, discussed above, in which non-working of a patent formed a basis for seeking a compulsory license, but only as an element of the “reasonable requirements of the public”, rather than an independent ground in itself.

Section 84(6) goes on to specify factors that the Controller will take into account when considering an application for compulsory license, including:

- (i) the nature of the invention, the time which has elapsed since the sealing of the patent and the measures already taken by the patentee or any licensee to make full use of the invention;
- (ii) the ability of the applicant to work the invention to the public advantage;
- (iii) the capacity of the applicant to undertake the risk in providing capital and working the invention, if the application were granted;
- (iv) as to whether the applicant has made efforts to obtain a licence from the patentee on reasonable terms and conditions and such efforts have not been successful within a reasonable period as the Controller may deem fit [i.e., not ordinarily exceeding a period of six months]⁶¹

The provisions of Section 84(6) appear to represent a concession to patent holders, making clear that compulsory licenses will only be granted to applicants that are able to exploit the licensed patent rights in a manner that is likely to remedy the failure of the patent holder to work the patent.

While a formal definition of working is not provided under the statute, the language of Section 83 suggests that the patented invention must be manufactured locally to the extent possible and that importation would

⁶⁰ *Id.* § 84(1) (emphasis added).

⁶¹ *Id.* § 84(6).

be acceptable only if local manufacturing is unreasonable.⁶² Additionally, the statutory language suggests that if importation is necessary, only the patent holder or its chosen licensees may import the patented invention.⁶³ The statute also fails to establish any circumstances that may be excused from India's patent working requirement. This omission may have been intentional, perhaps suggesting that any technology that is worth patenting in India should also be capable of being worked in India.

In short, India's patent working requirement is intended to be taken seriously. The penalties for failing to work a patent include the issuance of a compulsory license beginning three years after patent issuance, and if that does not fulfill public requirements for the patented article, possible revocation of the patent. Moreover, there is evidence that Indian courts may be reluctant to grant injunctive relief to patent holders that do not work their patents.⁶⁴

C. The Indian Working Requirement and Natco Pharma. Ltd. v. Bayer Corp.

India's patent working requirement was featured prominently in Natco's recent compulsory license request with respect to Bayer's Indian patent covering sofebanilol tosylate, a kidney and liver cancer drug marketed by Bayer as NexavarTM. Bayer obtained an Indian patent covering Nexavar in 2008. Between 2008 and 2010, Bayer imported approximately 14,400 doses of Nexavar into India, with a monthly dose priced at approximately U.S. \$5,608.⁶⁵ Natco, an Indian generic drug manufacturer, claimed that demand in India for Nexavar was in the range of 23,000 doses per month, and that Bayer's supply of the product was far too low to meet that

⁶² Thomas Cottier, Shaheza Lalani, & Michelangelo Temmerman, *Use It or Lose It: Assessing the Compatibility of the Paris Convention and TRIPS Agreement with Respect to Local Working Requirements*, 17 J. INT'L ECON. L. 437, 441 (2014).

⁶³ See The Patents Act, No. 39 of 1970, INDIA CODE (1970), § 90(2) ("No license granted by the Controller shall authorise the licensee to import the patented article or an article or substance made by a patented process from abroad where such importation would, but for such authorisation, constitute an infringement of the rights of the patentee.").

⁶⁴ See Basheer, *supra* note 31, at 9.

⁶⁵ Madhave "Mira" Chopra, *Of the Big Daddy, the Mother Hen, and the Scapegoats: Balancing Pharmaceutical Innovation and Access to Healthcare in the Enforcement of Compulsory Patent Licensing in India, Its Compliance with TRIPS, and Bayer v. Natco*, 13 SANTA CLARA J. INT'L L. 333, 360 (2015).

demand.⁶⁶ Natco attempted to negotiate a license with Bayer to manufacture and sell Nexavar in India.⁶⁷

However, when negotiations were unsuccessful, Natco applied to the Drug Controller General of India for regulatory approval to manufacture a generic version of Nexavar in India.⁶⁸ The approval was granted, and Natco commenced manufacture of the drug.⁶⁹ Bayer responded with a patent infringement suit against Natco.⁷⁰

Natco then petitioned the Controller of Patents under Section 84 of the Patents Act for a compulsory license to manufacture a generic version of Nexavar.⁷¹ Natco offered several reasons in support of its application for a compulsory license, including Nexavar's high cost and limited availability in India.⁷² In addition, Natco argued that Bayer had failed to work its patent in India within three years of its issuance, as required under Section 84(1)(c) of the Patents Act. Specifically, Natco argued that "[t]he patented product is being imported into India and hence the product is not worked in the territory of India to the fullest extent that is reasonably practicable."⁷³ Additionally, Natco argued that Bayer faced "no hurdle[s] preventing [it] from working the Patent in India" because Bayer already had "manufacturing facilities in India for several products."⁷⁴

Bayer responded that it actively imported Nexavar into India, which demonstrated sufficient working, and that India's working requirement did not require manufacture of the patented product in India.⁷⁵ In evaluating Natco's petition, the Controller considered the legislature's intent, the Paris Convention, the TRIPS Agreement, and India's Patents Act.⁷⁶ In view of these authorities, the Controller interpreted the term "worked" to mean that the patented invention must be manufactured or licensed within India, reasoning that "[u]nless such an opportunity for technological capacity

⁶⁶ Esparza 216.

⁶⁷ *Id.*

⁶⁸ *Id.*

⁶⁹ Natco Pharma. Ltd. v. Bayer Corp., (2011) I.P.O. Order No. 1, 5–7 (India).

⁷⁰ Bayer Corp. & Anr v. Natco Pharma. Ltd, Delhi High Court, C.(OS) No. 1090 of 2011 Court (India).

⁷¹ *Id.* at 361.

⁷² *Id.*

⁷³ Natco Pharma. Ltd. v. Bayer Corp., (2011) I.P.O. Order No. 1, 37 (India).

⁷⁴ *Id.*

⁷⁵ *Id.* at 38.

⁷⁶ *Id.* at 40.

building domestically is provided to the Indian public, they will be at a loss as they will not be empowered to utilise the patented invention, after the patent right expires.”⁷⁷ Under this interpretation, the Controller concluded that Bayer had not worked its patent in India since importation is not sufficient to constitute “working” a patent.⁷⁸ Accordingly, in 2012 the Controller issued a compulsory license to Natco under Bayer’s patent covering Nexavar.⁷⁹

Bayer unsuccessfully appealed the Controller’s decision to the Indian Intellectual Property Appellate Board (IPAB).⁸⁰ The IPAB affirmed the Controller’s decision, but disagreed with the Controller’s interpretation of the term “worked.”⁸¹ Instead of ruling that working categorically excludes importation of the patented product into India, the IPAB concluded that determining whether a patented invention is worked must be considered on a case by case basis.⁸² Thus, the term “worked” does not necessarily exclude importation, but it also does not strictly require manufacturing in India.⁸³

In affirming the decision of the IPAB, the Bombay High Court confirmed that “working of a patented drug in India does not mean it has only to be manufactured in India”.⁸⁴ However, the court implied that working a patent *without* local manufacture could be a high hurdle to clear, reasoning that the patent holder must then “establish those reasons which makes it impossible/prohibitive for it to manufacture the patented drug in India.”⁸⁵ It is only when the patent holder satisfies the authorities that “the patented invention could not be manufactured in India” that it can be

⁷⁷ *Id.* at 43.

⁷⁸ *Id.* at 45 (“I am therefore convinced that ‘worked in the territory of India’ means ‘manufactured to a reasonable extent in India.’”).

⁷⁹ Natco Pharma. Ltd. v. Bayer Corp., (2011) I.P.O. Order No. 1, 60 (India).

⁸⁰ Natco Pharma. Ltd. v. Bayer Corp., (2013) I.P.A.B. Order No. 45 (India). Bayer subsequently appealed to the Bombay High Court, which upheld the IPAB’s decision. The Indian Supreme Court declined to take up the case. See Samanwaya Rautray, *Nexavar License Case: SC Dismisses Bayer’s Appeal Against HC Decision*, ECONOMIC TIMES, Dec. 13, 2014,

<http://economictimes.indiatimes.com/industry/healthcare/biotech/pharmaceuticals/nexavar-licence-case-sc-dismisses-bayers-appeal-against-hc-decision/articleshow/45500051.cms>.

⁸¹ Natco Pharma. Ltd. v. Bayer Corp., (2013) I.P.A.B. Order No. 45 (India).

⁸² *Id.*

⁸³ Natco Pharma. Ltd. v. Bayer Corp., (2011) I.P.O. Order No. 1, at 43 (India).

⁸⁴ Bayer Corp. v. Union of India, Writ Petition No. 1323 of 2013, Judgment at 21 (Jul. 15, 2014).

⁸⁵ *Id.* at 48.

considered worked by import.⁸⁶

Apart from the working requirement, the Bombay court focused on whether Bayer had reasonably satisfied the requirements of the public, recognizing that those requirements might differ depending on the type of product covered by the patent. Thus, when assessing whether demand for the patented article was met to an “adequate extent”, the considerations pertaining, for example, to a luxury article would vary significantly from those pertaining to a lifesaving medicine. In the case of medicines, the court reasoned, meeting public demand to an adequate extent should be deemed to mean it is available to 100% of the market: “Medicine has to be made available to every patient and this cannot be deprived/sacrificed at the altar of rights of [the] patent holder.”⁸⁷

Following Natco's successful application for, and defense of, its compulsory license, other generic drug manufacturers sought compulsory licenses to manufacture patented pharmaceutical products in India. For example, in 2013, BDR Pharmaceuticals, Ltd., an Indian manufacturer, filed an application for a compulsory license to manufacture Bristol Meyers Squibb's anti-cancer drug dasatinib (marketed as SprycelTM), and the Indian Ministry of Health recommended that the Department of Industrial Policy and Promotion (DIPP) grant local manufacturers compulsory licenses for trastuzumab, a breast cancer drug marketed by Roche (HerclonTM) and Genentech (HerceptinTM) and ixabepilone (Roche's IxempraTM). To date, each of these petitions has failed for various reasons other than that pertaining to dasatinib, which remains under consideration by DIPP.⁸⁸

D. Form 27 and India's Reporting Requirement

The Indian patent working requirement under Section 84 of the Patents Act, as well as the availability of compulsory licenses for non-worked patents, is not unique to India, and other developing countries have

⁸⁶ *Id.* at 48-49.

⁸⁷ Bayer Corp. v. Union of India, Writ Petition No. 1323 of 2013, Judgment at 39 (Jul. 15, 2014).

⁸⁸ See Pankhuri Agarwal, *DIPP Drags the Dasatinib Compulsory License Drama: A Situation of 'Extreme Urgency'?*, SpicyIP blog (Sep. 24, 2016), <https://spicyip.com/2016/09/dipp-drags-the-dasatinib-compulsory-license-drama-a-situation-of-extreme-urgency.html>; IPO Order No. C.L.A. No.1 of 2015, In the matter of Lee Pharma Ltd vs AstraZeneca AB, dated January 19, 2016 (rejecting application due to lack of evidence presented under all three prongs of Section 84 analysis).

adopted similar legal requirements.⁸⁹ India has, however, enacted what appears to be a unique reporting structure associated with its patent working requirement.⁹⁰ India adopted a form submission requirement as a means to regulate the patent working requirement under the India Patents Act in 1970.⁹¹ Specifically, section 146(2) of the Patents Act provides that:

every patentee and every licensee (whether exclusive or otherwise) shall furnish in such manner and form and at such intervals (not being less than six months) as may be prescribed statements as to the extent to which the patented invention has been worked on a commercial scale in India.⁹²

In support of this statutory requirement, the patent rules adopted by the Indian Ministry of Commerce and Industry provide that the required statements of working must be submitted in a prescribed format (Form 27).⁹³ The rules also provide that such statements must be furnished to the Controller of Patents in respect of every calendar year within three months following the end of such year.⁹⁴

Form 27, a template of which is appended to the 2003 version of the Indian patent rules, requires the patent holder to disclose “the extent to which the patented invention has been worked on a commercial scale in India.”⁹⁵ To that end, Form 27 requires that the patent holder complete the following information:

⁸⁹ For example, Article 68 of Brazil's 1996 Industrial Property Law subjects a patentee to compulsory licensing if the patentee does not exploit “the object of the patent within the Brazilian territory for failure to manufacture the product or failure to use a patented process.” Industrial Property Law, Law No. 9,279 (Brazil), art. 68 (May 14, 1996). For additional examples, see Cottier et al., *supra* note 62, at 461–71.

⁹⁰ While form submissions to show the working of a patent are unique to India's patent law, a submission requirement to maintain intellectual property rights is similarly used in the United States for trademarks. In the United States, registered trademark owners must submit a declaration of use to avoid cancellation of the registration. See *infra* X; 15 U.S.C. § 1058.

⁹¹ The Patents Act, No. 39 of 1970, INDIA CODE (1970), § 146(2).

⁹² *Id.*

⁹³ The Patent Rules, Rule 131, India (2003).

⁹⁴ The Patent Rules, Rule 131, India (2003). There is an apparent discrepancy between section 146(2) of the India Patents Act, 1970 and Rule 131 of the Patent Rules, 2003. While section 146 suggests that patentees should file Forms 27 every six months, Rule 131 of the Patent Rules, 2003 requires the statements to be furnished in respect of every calendar year.

⁹⁵ The Patents Act, No. 39 of 1970, INDIA CODE (1970), § 146(2).

- (i) The patented invention:
 { } Worked { } Not worked [Tick (✓) mark the relevant box]
- a. if not worked: reasons for not working and steps being taken for the working of the invention.
 - b. if worked: quantum and value (in Rupees), of the patented product:
 - i. manufactured in India
 - ii. imported from other countries (give country wise details)
- (ii) the licenses and sub-licenses granted during the year;
- (iii) state whether the public requirement⁹⁶ has been met partly/adequately/to the fullest extent at reasonable price.⁹⁷

Under Section 122, failing to submit a Form 27 or providing false information on the form may lead to a significant fine, imprisonment, or both.⁹⁸

Though India's working requirement first appeared in the Patents Act in 1970, it appears to have been ignored until around 2007. In 2007, the Controller first mentioned the local working of patented inventions in his annual report.⁹⁹ The reports provided by the Controller between 2007 and 2009 indicate that, on average, less than 15 percent of Indian patents were

⁹⁶ The public requirement refers to "the reasonable requirements of the public with respect to the patented invention." The Patents (Amendment) Act, No. 38 of 2002, INDIA CODE (1970), § 84(1)(a). In other words, if the patentee must explain how he has or has not met his duties under section 83 and 84 of the Patents Amendment Act of 2002.

⁹⁷ Patents Rules, 2003, Form 27.

⁹⁸ The Patents (Amendment) Act, No. 38 of 2002, INDIA CODE (1970), § 122 provides:

1) If any person refuses or fails to furnish-

...

b) to the controller any information or statement which he is required to furnish by or under section 146,

he shall be punishable with [a] fine which may extend to twenty thousand rupees.

2) If any person, being required to furnish any such information as is referred to in sub-section (1), furnishes information or statement which is false, and which he either knows or has reason to believe to be false or does not believe to be true, he shall be punishable with imprisonment which may extend to six months, or with fine, or with both.

⁹⁹ Annual Report 2007-08, Office of the Controller General of Patents, Designs, and Trade Marks including GIR and PIS/NIIPM (IPTI), at 12; *see also* Reddy & Kadri, *supra* note 13, at 21.

being worked commercially.¹⁰⁰ In 2009, 2013 and 2015, the Controller issued public notices calling on patent owners to comply with their obligations to file statements of working on Form 27.¹⁰¹

While the penalties for failing to furnish information via Form 27 are steep, potentially resulting in fines or imprisonment,¹⁰² local critics claim that many patent holders fail to make the required filings and that the Indian government has never taken meaningful action to penalize this non-compliance.¹⁰³

On February 12 2013, the Indian Patent Office announced plans to make Form 27 submissions for the year 2012 available to the public via the IPO website.¹⁰⁴ As discussed in Part II.A below, that effort has met with limited success.

E. Theory and Criticism of Form 27

There is little legislative or administrative history explaining the genesis of India's unique Form 27 requirement. On one hand, a requirement that the details of patent working be disclosed by patent holders supports the goal of making unworked patents available for compulsory licensing in India, both to promote economic development and public access to patented products. A public registry of Forms 27 could also shift enforcement of India's working requirement from the IPO and Controller to private sector entities with the greatest incentive to monitor the working of patents in their respective industries. This shift could relieve India's resource-strapped

¹⁰⁰ Annual Report 2008–09, Office of the Controller General of Patents, Designs, Trade Marks and Geographical Indications, at 21; Annual Report 2007–08, Office of the Controller General of Patents, Designs, and TradeMarks including GIR and PIS/NIIPM (IPTI), at 12; *see also* Reddy & Kadri, *supra* note 13, at 21–22.

¹⁰¹ Controller Gen. of Patents, Designs and Trade Marks, Public Notice No. CG/PG/2009/179, Dec. 24, 2009; Controller Gen. of Patents, Designs and Trade Marks, Public Notice No. CG/Public Notice/2013/77, Feb. 12, 2013; Controller Gen. of Patents, Designs and Trade Marks, Public Notice No. CG/Public Notice/2015/95, _____, 2015.

¹⁰² A patentee may be imprisoned for submitting false information. The Patents Act, No. 39 of 1970, INDIA CODE (1970), § 122.

¹⁰³ Reddy & Kadri, *supra* note 13, at 22. *See also* Shamnad Basheer v. Union of India & Others, Writ Petition, at F (High Court of Delhi 2015) [hereinafter Basheer Writ Petition (2015)] (“[T]he Respondents authorities have never initiated action against any of the errant patentees.”).

¹⁰⁴ Prashant Reddy, *Patent Office Publishes All ‘Statements of Working’ – Finally!* SPICY IP, <https://spicyip.com/2013/06/patent-office-publishes-all-statements.html> (June 25, 2013).

administrative agencies of a potentially significant policing function, one that it does not appear they were actively enforcing in any event.

However, it is not clear that these goals are well served by the current Form 27 framework, which has been criticized by a number of local commentators.¹⁰⁵ For example, the IPAB ruled in *Natco* that the term “worked” must be decided on a case by case basis. How, then, should patent holders answer the first question posed in Form 27 and its sub-questions? How is a patent holder to know whether importation or licensing in a certain case will qualify as working a patent in India? If the Form is intended to increase transparency and certainty regarding the working of patents in India, it is hindered in so doing by the lack of a formal definition of working. This lack of clarity affects both patent holders, who are less able to order their affairs so as to ensure that they are meeting statutory working requirements, as well as potential compulsory licensees, who lack a clear assurance when a compulsory license petition will be successful.

Commentators have raised a variety of additional critiques of the Form 27 framework. The U.S.-based Intellectual Property Owners Association, in a formal 2014 submission to the U.S. Trade Representative, has referred to the Form 27 process as “highly burdensome” and warns that the information disclosed in publicly-accessible forms could “result in even greater pressure on Indian authorities to compulsory license [patented] products.”¹⁰⁶ Moreover, the association argues that Form 27 does not adequately recognize that some patents may be practiced by multiple products, or that multiple patents may be practiced by a single product.¹⁰⁷ Thus, it may be unrealistic for patent holders to attribute a “specific commercial value” to specific patented features of complex technologies.¹⁰⁸

Additionally, a number of Indian practitioners have raised concerns that the public disclosure of confidential plans for working patents through Form 27 may jeopardize or destroy valuable trade secrets and proprietary

¹⁰⁵ See, e.g., Basheer Writ Petition (2015), *supra* note 103 (raising numerous deficiencies with Form 27); SpicyIP, Report: RTI Applications and ‘Working’ of Foreign Drugs in India at 5 (Apr. 2011) (“Form 27 in its present format leaves much to be desired and we will be drafting a more optimal Form 27 and forwarding this to the government for consideration, so that the form can be a lot more clearer and can call for a greater range of information.”)

¹⁰⁶ Philip S. Johnson, President, Intellectual Property Owners Assn., Letter to Hon. Michael Froman, U.S. Trade Rep. at 5 (Feb. 7, 2014).

¹⁰⁷ *Id.*

¹⁰⁸ *Id.*

information.¹⁰⁹ This threat could cause patent holders to disclose as little specific or valuable information as possible in their Form 27 filings, a result that is suggested by the findings discussed in Part III below.

Based on studies of filed Forms 27, Professor Shamnad Basheer,¹¹⁰ has concluded that India's local working Form 27 submission requirements are not being taken seriously, particularly by international pharmaceutical companies.¹¹¹ As a result, in 2015 Professor Basheer initiated public interest litigation in the High Court of Delhi against the Indian government for failure to comply with India's patent laws.¹¹² The suit seeks a judicial order compelling the Indian government "to enforce norms relating to the disclosure of 'commercial working' of patents by patentees and licensees" and to take action "against errant patentees and licensees for failure to comply with the mandate."¹¹³ In 2016 an Indian patent attorney, Narendra Reddy Thappeta, filed an application to intervene in Basheer's public interest suit, among other things, in order to raise issues regarding the difficulty of complying with Form 27 requirement for information and communication technology providers.¹¹⁴

Despite its perceived problems, Form 27 has proven useful in Indian proceedings. Notably, the information disclosed in Bayer's Form 27 filings played an important role in the *Natco* case by helping to establish the low number of patients having access to the drug. Basheer refers to the working requirement as "a central pillar of the Indian patent regime" and views the disclosure requirements of Form 27 as essential tools to ensure that needed information is made public.¹¹⁵

¹⁰⁹ Prathiba Singh & Ashutosh Kumar, "When in Rome, do as the Romans do," IP PRO LIFE SCIENCES, Issue 004, at 17, http://ipprolifesciences.com/ipprolifesciences/IPPro%20Life%20Sciences_issue_04.pdf (Mar. 10, 2013).

¹¹⁰ Among other things, Prof. Basheer is the founder of the SpicyIP blog, a leading source of intellectual property news and commentary in India. See Part III.A, *infra*, for a discussion of the results of his studies of Form 27 compliance.

¹¹¹ Reddy, *supra* note 104, at 22.

¹¹² Basheer Writ Petition (2015), *supra* note 103.

¹¹³ *Id.* at 1, 8.

¹¹⁴ Shamnad Basheer v. Union of India, Writ Petition No. 5590 (High Court of Delhi 2015), Application Seeking Permission to Intervene in the Above Public Interest Litigation (2016). Some of the issues raised by Mr. Thappeta are discussed in Part IV below.

¹¹⁵ Basheer, *supra* note 31, at 17.

II. EMPIRICAL STUDY OF INDIAN FORM 27 DISCLOSURES IN THE MOBILE DEVICE INDUSTRY

In order to gain a better understanding of India's patent working requirement, particularly patent holders' compliance with the statutory requirement to declare information about the working of their patents through Form 27, we conducted an empirical study of all available Form 27 submissions for Indian patents in the mobile device sector. In this Part, we describe the objectives, background and methodology of this study.

A. Background: Existing Data and Studies

Every year, the Controller publishes an Annual Report containing statistics relating to patent filings in India. Since 2010, this report has contained data relating to Form 27 filings. This data indicates that a significant number of patent holders fail to file Form 27 as required. Below is a summary of this data as derived from the Controller's Annual Reports from 2010 to 2016:

Table 1
Indian Controller of Patents Form 27 Filing Data (2010-2016)

Year¹¹⁶	Patents in Force	Form 27 Filed	No Form 27 Filed	% Forms Missing	Reported as Working
2009-10	37,334	24,009	13,325	35.7%	4,189
2010-11	39,594	34,112	5,482	13.8%	6,777
2011-12	39,989	27,825	12,164	30.4%	7,431
2012-13	43,920	27,946	15,974	36.4%	6,201
2013-14	42,632	33,088	9,544	22.4%	8,435
2014-15	43,256	31,990	11,266	26.0%	7,900
2015-16	44,524	39,507	5,017	11.3%	8,589

¹¹⁶ Indian Patent Office reporting year.

Under the Patents Act, a Form 27 must be filed every year with respect to every issued patent in India. Accordingly, the discrepancy between the number of patents in force for a given year and the number of Forms 27 filed likely indicates non-compliance with the filing requirement. Interestingly, it appears that instances of non-compliance dropped noticeably in years immediately after the Controller issued its public reminders to file Form 27 in December 2013, February 2013 and _____, 2015.¹¹⁷ Even so, compliance has not been complete even in these years.

As noted above, Professor Shamnad Basheer has conducted two studies of Form 27 compliance in India. The first study, released in April 2011, focused on the pharmaceutical sector.¹¹⁸ The researchers selected seven pharmaceutical products directed at either cancer or hepatitis, all of which were subject either to Indian litigation or patent office oppositions and were patented in India between 2006 and 2008. They then collected Form 27 filings relating to each of these patents through a series of Right to Information (RTI) petitions to the Indian Patent Office.¹¹⁹ Based on the Forms produced by the IPO in response to these requests, the researchers found significant non-compliance with Form 27 filing requirements: some firms failed to file forms in some years, while some forms that were filed were incomplete.¹²⁰

Professor Basheer's second study had a broader scope, covering a total of 141 patents: 52 patents held by 13 firms in the pharmaceutical sector, 52 patents held by 7 firms in the telecommunications sector, and 37 patents held by 4 institutions which are claimed to have arisen from publicly-financed research.¹²¹ The researchers used series of RTI petitions to collect a total of 263 Forms 27 corresponding to these patents filed between 2009 and 2012.¹²²

Based on a total of 141 patents, full compliance with Form 27 filing requirements would have yielded 423 Forms 27 over the three-year period

¹¹⁷ See note 101, *supra*.

¹¹⁸ SpicyIP, *supra* note 105.

¹¹⁹ This study pre-dates the electronic availability of Forms 27.

¹²⁰ SpicyIP, *supra* note 105, at 7-8.

¹²¹ Basheer Writ Petition (2015), *supra* note 103, at Annexure P-11, Table I. It is not clear how the studied patents were selected. They do not represent the totality of patents in the designated industry sectors. Likewise, it is not clear how "publicly-funded research" is defined nor the amount of such funding behind the selected patents.

¹²² It appears that this study covered three "reporting years" at the IPO: 2009-10, 2010-11 and 2011-12.

studied. The total of 263 Forms identified indicates a non-compliance ratio of approximately 38%,¹²³ assuming that all filed forms were produced by the IPO. A review of the reported data¹²⁴ indicates that some firms, particularly in the pharmaceutical sector, were assiduous in filing Forms 27. For example, Genentech and Janssen Pharmaceuticals, with two patents each, each filed six Forms 27, suggesting full compliance. Other firms, however, fell far short of this measure. Apple, for example, with four patents, filed only one Form.

In addition to raw filing statistics, Prof. Basheer investigates the quality of the disclosures made in individual Forms 27. He finds that significant numbers of filed Forms “were grossly incomplete, incomprehensible or inaccurate.”¹²⁵ For instance, numerous forms failed to indicate how patents were being worked or the quantity, value or place of manufacture of patented products as required by the Form.¹²⁶ In addition, of forty-two Forms that disclosed non-working of a patent, twenty-eight (65%) failed to offer any reason for non-working.¹²⁷ Though the raw data underlying these conclusions does not appear to be publicly available, choice excerpts from a few Forms are offered.

While the prior studies cited above suggest that there are substantial non-compliance issues with Form 27 practice in India, additional data is required to develop a more complete understanding of this issue. The Controller's annual report data is provided only at a gross level and lacks any detail regarding compliance. Prof. Basheer's pioneering studies, while first alerting the public to the problems of non-compliance, cover only small, non-random samples of patents and end prior to the general online availability of Forms 27.

B. Methodology

In this study, we sought to assess annual Form 27 submissions across a comprehensive set of patents and a substantial time frame. To do so, we utilized a set of 4,052 Indian patents identified by Contreras and

¹²³ This figure is calculated as $1 - 263/421$. Prof. Basheer has reported this ratio as approximately 35%. Basheer, *supra* note 31, at 18.

¹²⁴ Basheer Writ Petition (2015), *supra* note 103, at Annexure P-11, Table I.

¹²⁵ *Id.* at 10.

¹²⁶ *Id.* at 10-16, Basheer, *supra* note 31, at 19.

¹²⁷ Basheer, *supra* note 31, at 12-13.

Lakshané as of February 2015 in a prior study of the Indian mobile device patent landscape (Landscape Study).¹²⁸ Another 367 patents pertaining to mobile device technology, which were not included in the original Landscape Study, were also identified by an independent contracted search firm. In the aggregate, we analyzed 4,419 Indian patents issued as of February 2015 in the mobile device sector, which we believe to represent the large majority of issued Indian patents in this sector as of the date selected.

We identified Form 27 filings with respect to each such patent through searches¹²⁹ of two public online databases maintained by the Indian Patent Office: Indian Patent Advanced Search System (“InPASS”) and Indian Patent Information Retrieval System (“IPAIRS”).¹³⁰ We manually eliminated duplicate results obtained from these two databases.

Our initial searches in 2015 yielded Form 27 submissions for only 1,999 out of 4,419 patents. These searches yielded no Forms 27 for some firms known to be significant patent holders in the mobile devices industry. To attempt to locate the missing forms, Lakshané, through the Centre for Internet and Society (CIS), submitted two formal requests to the IPO located in Mumbai under the Indian Right to Information (“RTI”) Act of 2005. The first RTI application was submitted on June 10, 2015, requesting Form 27 information for over 800 patents.¹³¹ On June 17, the IPO replied with generic instructions on how to find Form 27 submissions online.¹³² A

¹²⁸ See Contreras & Lakshané, *supra* note 11, at 27-28 (describing electronic search and case harvesting methodology).

¹²⁹ Searches were conducted and results were compiled by a contracted Indian service provider selected through a competitive bid process.

¹³⁰ While InPASS and IPAIRS retrieve Form 27 submissions from the same URL, we observed that the public databases sometimes displayed Form 27 submissions that were not on both websites. Thus, IPAIRS was used when Form 27 was not found for a queried patent on InPASS. InPASS has two features: Application Status¹³⁰ and E-Register.¹³⁰ At times, some forms were not available at E-Register that could be found through the Application Status table, and vice versa. Thus, both features were used. A detailed, step-by-step description of the search methodology used can be found at <http://cis-india.org/a2k/blogs/methodology-statements-of-working-form-27-of-indian-mobile-device-patents>.

¹³¹ RTI Application, “Request for Information under Section 6 of the Right to Information Act, 2005; regarding Form 27 Submissions for Patents” (June 10, 2015).

¹³² RTI Application Reply, “Supply of information sought under RTI – reg” (June 17, 2015).

second RTI application was filed on March 11, 2016.¹³³ The second request sought Form 27 filings pertaining to 55 of the remaining patents.¹³⁴ These 55 patents were selected to represent a sample of patents held by the full cross-section of patent holders identified in the Landscape Study. In April 2016, the IPO replied that, due to internal resource constraints, it could only provide CIS with Forms 27 for eight (8) of the requested patents.¹³⁵

Nevertheless, a few days after IPO's reply, Form 27 submissions pertaining to patents in the Landscape Study started appearing on InPASS and IPAIRS. We repeated the search for Forms 27 corresponding to all 4,419 patents in our dataset in August 2016 and obtained a total of 4,935 Forms 27 corresponding to a total of 3,126 patents (an increase of 1,127 patents over the initial search).

All Forms 27 that we accessed were downloaded as PDF files or original image files and manually entered into a text-searchable spreadsheet maintained at CIS.¹³⁶ All information from the Forms 27 was transcribed into the spreadsheet, including all textual descriptions of patent working and licensing. The results were then analyzed as described in Part III.A below.

C. Limitations

The present study was limited by the technical capabilities of the IPO's online Form 27 repository.¹³⁷ As described above, we found significant gaps in posted Forms 27 in our initial search, and it took a formal RTI application to spur the IPO to upload additional forms. Yet, we still identified 1,400 fewer Forms 27 than issued patents in the mobile devices category, and the degree to which these missing forms arise from abandoned or expired patents, or additional failures of the IPO to upload filed forms, is unclear. Other than the IPO web site, there is no practical way to identify or access Forms 27 filed with the IPO. Technical issues with the InPASS and IPAIRS databases were constant challenges during this study. The databases

¹³³ RTI Application, "Request for Information under Section 6 of the Right to Information Act, 2005; regarding Form 27 Submissions for Patents" (Mar. 11, 2016).

¹³⁴ *Id.*

¹³⁵ RTI Application Reply, "Supply of information sought under RTI, 2005 – reg" (Apr. 4, 2016).

¹³⁶ [to be published on CIS website]

¹³⁷ Similar deficiencies and frustrations with the IPO's online filing facility have been noted by Basheer. See Basheer Writ Petition (2015), *supra* note 103, at 17.

were frequently unavailable, they produced conflicting results, and were subject to numerous runtime errors and failures.

Despite these technical challenges, we believe that we have identified a large segment of filed Forms 27 covering Indian patents held by all major patent holders in the mobile device sector. We hope that this study will further encourage the IPO to improve the regularity and reliability of its Form 27 database.

III. FINDINGS

In this Section, we describe the findings of our empirical collection analysis of Forms 27 pertaining to Indian patents in the mobile device sector.

A. Aggregated Data – Forms Found and Missing

As noted above, we used a dataset comprising 4,419 Indian patents in the mobile device sector issued as of February 2015. Of these, at least 107 patents were likely expired prior to the date on which a Form 27 would have been filed,¹³⁸ leaving 4,312 patents as to which at least one Form 27 could have been filed.

We were able to identify and obtain a total of 4,916 valid Forms 27¹³⁹ which corresponded to 3,126 of these patents, leaving 1,186 Indian patents for which a Form 27 could have been filed, but was not found. This total represents 27.5% of the patents for which at least one Form 27 could

¹³⁸ Prior to the 2002 Amendments to the Patents Act, 1970 (effective May 20, 2003), the term of product patents in India was 14 years from the date of issuance. Patents Act (2002 Amendments), Sec. 53. Accordingly, any patent issued in 1995 or earlier would be expired by 2009. Based on the data provided by the Controller and Basheer, it appears that few, if any, Forms 27 were filed prior to 2009. Thus, it is unlikely that any patent that expired prior to 2009 would have a corresponding Form 27. As a result, for purposes of counting Forms 27 that were, and should have been filed, we disregarded 107 patents in our dataset that were issued in 1995 or earlier (the vast majority of which were owned by Siemens).

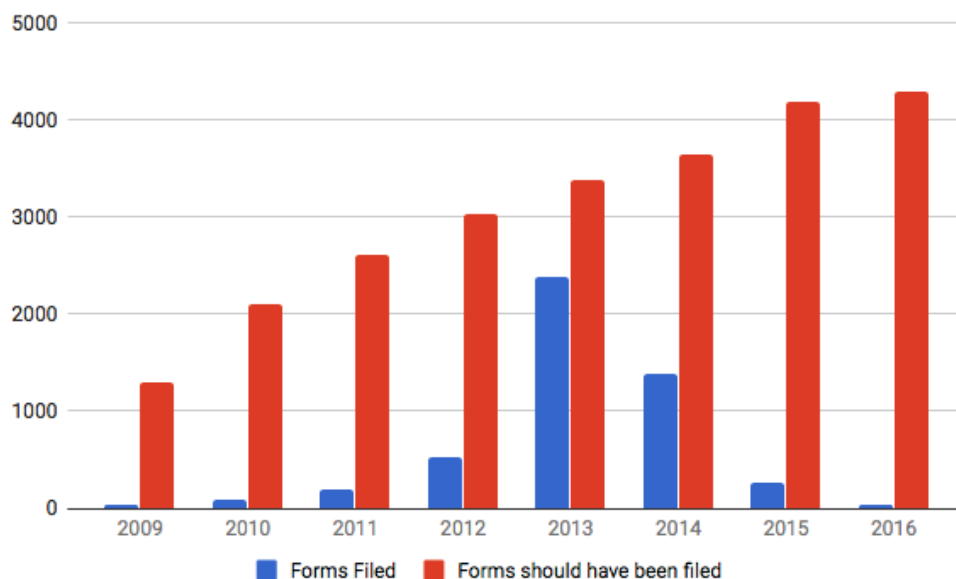
¹³⁹ A total of 4,935 Forms 27 were identified by our search. In 2013, Motorola filed 19 Forms 27 that were back-dated to 2004 and 2005. These Forms corresponded to patents issued between 2008 and 2010, and apparently reflected the patentee's incorrect belief that Form 27 must be filed as of the date of the filing of a patent application rather than the issuance of the patent. Because the patentee also filed Forms 27 dated as of 2013 for these patents, we have disregarded these spurious filings.

have been filed: a significant portion of the total number of patents in the field, and within the general range of missing Forms identified by both the Controller and Basheer (2015).

Based on the year of grant of each of the 4,312 patents identified in the mobile device sector as to which a Form 27 could have been filed, we determined that a total of 24,528 Forms 27 should have been filed with respect to these patents.¹⁴⁰ This figure represents the sum of total Forms 27 that could have been filed for each such patent, which ranges from a low of one to a high of eight Forms 27 per patent. In our sample, no single patent was associated with more than five Forms 27. As noted above, we obtained a total of 4,935 Forms 27 filed with respect to 3,126 patents, representing only 20.1% of the total Forms 27 that should have been filed and made available with respect to the 4,312 patents studied. Figure 1 below compares the number of Forms 27 filed in each year since 2009 with the number of Forms 27 that should have been filed each year based on the number of mobile device patents in force from year to year.

¹⁴⁰ Based on the data provided by the Controller and Basheer, it appears that few, if any, Forms 27 were filed prior to 2009. Thus, we assumed that Forms 27, if filed, would only have begun to be filed in 2009. As discussed in note 138, *supra*, the first patents that could be expected to have a filed Form 27 were issued in 1996 (i.e., one Form filed in 2009, the year of the patent's expiration). Thus, beginning with patents issued in 1996, we calculated the total number of Forms 27 that could have been filed with respect to such patents beginning in 2009 and ending in 2016 (noting that we ended our study in August 2016). Thus, for patents issued in 1996 and expiring in 2009, one Form 27 could have been filed. For patents issued in 2002 to 2008, and expiring well after 2016, a total of eight Forms 27 could have been filed, in each case beginning in 2009 and ending in 2016. Patents issued in 2015 could have at most one Form 27 filed. Though Form 27 is not required to be filed until the year after a patent has been granted, some patentees have made filings in the year of grant. We counted these filings, but did not count year-of-grant filings in determining the maximum number of filings that could be made for a particular patent.

Figure 1
Actual vs. Required Form 27 Filings, by year
(based on number of mobile device patents in force)



As shown in Figure 1, Form 27 filings have fallen well below the required number every year. In 2009, the first year in which Forms 27 were filed in any numbers, only 36 Forms were filed, representing only 2.8 % of the 1,302 Forms that should have been filed based on the number of mobile device patents in force that year. By 2013, the number of Forms filed rose to 2,389, representing 70.7% of the 3,379 Forms that should have been filed. This ratio declined again in 2014 to 1,392 Forms out of a total of 3,639 (38.3%). Data for 2015 and 2016 are likely incomplete given the February 2015 cutoff for patents in our study. We also expect that many of the 1,186 “missing” Forms 27 are more recently filed and have not yet been uploaded by the IPO in a searchable format.

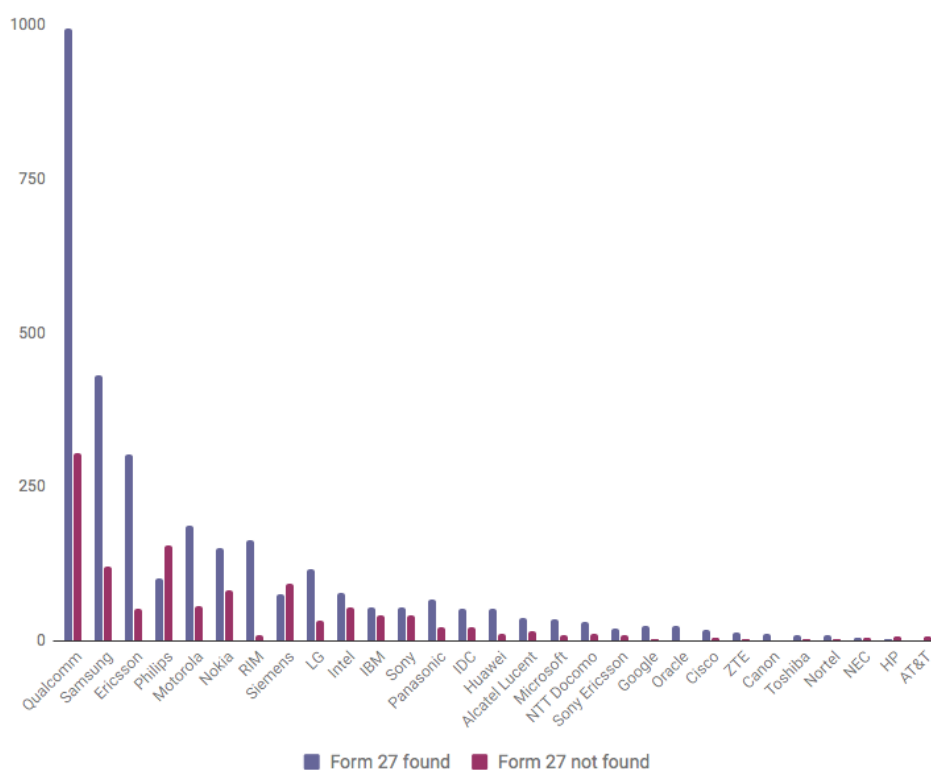
One possible explanation for the beginning of filing in 2009 and the significant jump in filings in 2013 may be the Controller’s public notifications of the need to file Forms 27 in 2009 and 2013.¹⁴¹

Figure 2 below illustrates the number of issued *patents* in the mobile device sector for which Forms 27 were found and missing,

¹⁴¹ See note 101, *supra*, and accompanying text.

categorized by patent holder (assignee). Complete data is contained in the Appendix, Table A1.

Figure 2
Forms 27 (Identified and Missing) Per Assignee



As shown in Figure 2, missing Forms were distributed among most holders of Indian patents in the mobile device sector. Of the 40 firms identified as holding issued mobile device patents, Forms were missing for 37 of these (92.5%). In most cases, more Forms were found than missing. In a few cases, however (most notably Philips), more Forms 27 were missing than found. In the case of four large patent holders (Qualcomm, Siemens, Philips and Samsung), more than 100 Forms 27 were missing. Forms were missing for patents with issuance dates ranging from 2004 to 2015.¹⁴²

¹⁴² It is not surprising that no forms were available for patents issued prior to 2007, the first year that the Indian Controller of Patents drew attention to the Form 27 requirement. See Part x, *supra*.

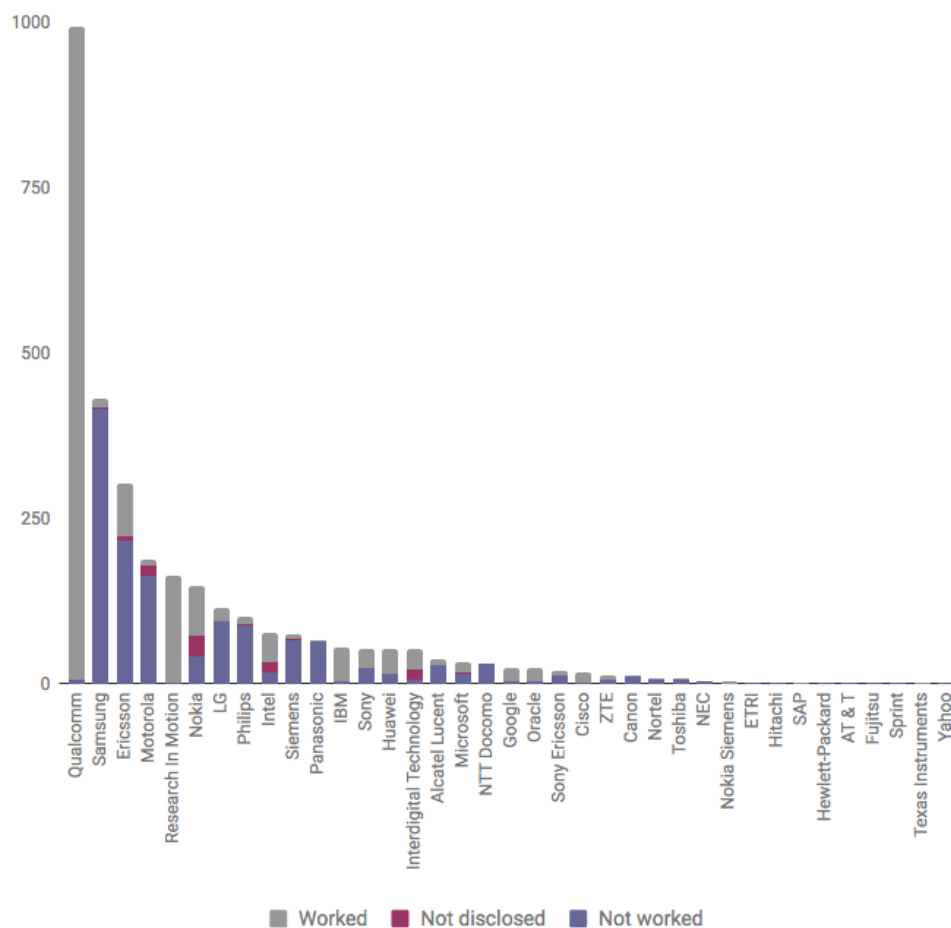
There are several possible reasons that Forms 27 may not have been identified for all issued Indian patents. One possibility, of course, is non-compliance by the patent holder. This is likely the case with respect to the early years (2009-2010), when filing requirements were not yet normalized. However, in more recent years, the following factors suggest that patent holder non-compliance is *not* a significant cause of missing Forms 27 in the IPO database: (1) Forms 27 were missing for nearly all patent holders across the board, (2) large patent holders filed hundreds of Forms 27 and were clearly aware of their filing requirements, (3) the incremental cost of filing Forms 27 is minimal, and (4) in most cases, large patent holders simply copy text from one form to another (not in itself ideal, see below), requiring little incremental effort to file additional forms. Rather, given our experience with IPO during this study (see Methodology, above), we expect that the missing forms are due largely to IPO's failure to upload Forms to its web site in a timely and reliable manner, and the dropping of Forms once they are uploaded.

B. Working Status

As noted above, we reviewed 4,935 Forms 27 filed with respect to 3,126 patents in the mobile device sector. Figure 3 below illustrates the number of patents for which Forms 27 were filed and which the assignee designated that the patent was worked versus not worked (or, in a few cases, made no indication of working status).¹⁴³

¹⁴³ For patents that had different working designations in Forms 27 filed in different years, we counted a patent to be declared as worked if at least one Form 27 so designated the patent.

Figure 3
Working Status, by Assignee



These results suggest that different patentees have developed significantly different strategies regarding their Form 27 filings. For example, Qualcomm, the largest holder of patents in the mobile device sector (1,298 patents, 993 of which have associated Forms 27), represents that nearly all of its patents (986, 99.3%) are being worked. Samsung, on the other hand, holds the second-highest number of patents (551 patents, 430 of which have associated Forms 27). Yet Samsung claims that it is working only 12 of its patents (2.3%). Clearly, these two patentees are employing different strategies regarding the declaration of working. A glance at Figure 3 suggests that some patentees such as RIM (now renamed Blackberry) follow Qualcomm's approach of declaring most patents to be worked, while others

(Ericsson, LG, Motorola, Panasonic, Philips, Siemens) follow Samsung's approach and declare most patents not to be worked.

Of course, one might reason that there may be some difference between the patents themselves, and that the patentees' declarations may simply reflect the fact that some firms' patents are used more pervasively in India. This conjecture, however, is unlikely. Most of the patentees studied are large multinationals whose patents cover the same products. Many of these patents are declared as essential to the same technical standards. Moreover, given the generally less-than-clear evidence proffered by patentees supporting their designated working status (see Part III.C, below), we doubt whether there are substantial enough differences among the patentees' portfolios to account for the significant divide in declarations of working status.

C. Descriptive Responses

As noted above,¹⁴⁴ Form 27 requires the patentee to disclose whether or not a patent is being worked in India. If so, the patentee must disclose the number and amount of revenue attributable to products covered by the patent that are manufactured in India and are imported from other countries. If the patent is not being worked, the patentee must explain why and describe what steps are being taken to work the invention. In both cases, the patentee must also identify licenses and sublicenses granted and state how it is meeting public demand for products at a reasonable price.

As first observed by Basheer, there is widespread noncompliance with these reporting and disclosure requirements.¹⁴⁵ We largely confirm this result. Below is a summary of our findings with respect to the descriptive responses for the 4,935 Forms 27 that we reviewed.

1. Working Status Not Disclosed

For a surprising number of Forms 27 (95 or 3%), the working status of the relevant patent was not designated (i.e., neither the box for "worked" nor "not worked" was checked by the patentee). Table 1 below shows the patentees that filed Forms 27 in this manner.

¹⁴⁴ See note 97, *supra*, and accompanying text (language of Form 27).

¹⁴⁵ *Id.* at 10.

Table 1
Forms 27 Failing to Disclose Working Status

Patentee	Number of Forms
Ericsson	12
Intel	19
Intel + InterDigital	7
InterDigital	18
Microsoft	6
Motorola	28
Nokia	32
Others	7
TOTAL	129

Clearly, these sophisticated multinational firms understood the filing requirements for Form 27 and, in most cases, filed additional Forms that did indicate whether the relevant patent was or was not being worked. Thus, the principal reason for filing a Form 27 without designating its working status appears to be the patentee's uncertainty regarding the patent's working status in India.

Illustrating this point, Motorola declares in several of its Forms of this nature that "It is not possible to determine accurately whether the patented invention has been worked in India or not, due to the nature of the invention."¹⁴⁶ While Motorola fails to explain how "the nature of the invention" makes it impossible to determine whether or not the patent is being worked, it uses this litany in most of its Forms that fail to disclose working status. Ericsson adopts a slightly different approach, stating that while it is actively seeking opportunities to work the patent, there may have been some uses of the patented technology.¹⁴⁷ Thus, again, it is uncertain whether the patent is being worked or not. Presumably, these patentees felt that it was preferable to file an incomplete Form than an incorrect form.

Interestingly, most patentees never revised their working non-designations over the years. Thus, if a patent was not designated as worked or not worked in the first year a Form 27 was filed, subsequent filings for that patent typically duplicated the language of prior years' filings. One exception appears to be Google, which acquired Motorola's patent portfolio

¹⁴⁶ Motorola, Form 27 for IN243220B (2011).

¹⁴⁷ Ericsson, Form 27 for IN241488B (2014) ("The patentee is [on] the look out for appropriate working opportunities in a large scale although there may have been some use of the patented technology in conjunction with other patented technologies.")

in 2012. For Indian Patent No. 243210B issuing in 2010, Motorola filed Forms 27 in 2010 and 2011 without indicating whether or not the patent was worked. However, in 2013, Google/Motorola filed a Form 27 for the same patent indicating that it was *not* worked.

Google has clearly elected to opt for non-working when it is uncertain of the working status of a patent. For example, the following qualified language is used in several Forms in which Google indicates that a patent is not being worked:

Based on a reasonable investigation, it is Google's belief that the patent has not been worked in India. The uncertainty arises because Google's products and services are covered by numerous patents belonging to Google's very large worldwide patent portfolio. The present statement is being filed on the basis of Google's current estimation, but Google requests opportunities to revise the statement, should it transpire at a later date that the patent is being worked contrary to their belief.¹⁴⁸

2. Patents Not Worked

We examined a total of 2,380 Forms 27 that indicated the relevant patents were not being worked. If a patent is specified as not being worked, the patentee must disclose the reasons for the failure to work the patent, and describe what steps are being taken to work the invention.

In a small number of cases, the patentee offered some plausible explanation for non-working of the patent. The most common of these, claimed by Ericsson in thirty-six Forms, was that the underlying technology was still under development, making working impossible, at least until that development was completed.¹⁴⁹ In a handful of other Forms (6), Ericsson and Nokia have claimed that a patent was not being worked because it covered a technology awaiting approval or endorsement by a standards body.¹⁵⁰ In the vast majority of cases, however, no explanation is offered as to why a particular patent is not being worked.

¹⁴⁸ Google, Form 27 for IN243210B (2013). See Part III.D, below, for a discussion of patents as to which the patentee has changed the working status over the years.

¹⁴⁹ See, e.g., Ericsson, Form 27 for IN209941B (2014).

¹⁵⁰ See, e.g., Ericsson, Form 27 for IN259809B (2014).

With respect to disclosure of the patentees' plans for working a non-worked patent, most simply include stock language stating that they are "actively seeking" or "on the lookout for" commercial working opportunities in the future.¹⁵¹ Alcatel-Lucent adopted an even more passive and non-specific stance toward its plans to work patents, stating in numerous Forms (applicable to 29 patents) that "as and when there is a specific requirement, the patent will be worked."¹⁵²

3. Varied Interpretations of Working

We reviewed 2,425 Forms 27 that listed the subject patent as being worked. In such cases, the patentee must disclose the number and amount of revenue attributable to products covered by the patent, whether manufactured in India or imported from other countries. A tiny percentage of the Forms that we reviewed provided this information in the form requested. As we discuss in our Conclusions, below, it is likely that the format of the required response is simply unsuitable for complex products such as mobile devices. Below we summarize and classify the types of responses that patentees offered regarding the working of their patents.

a. Specific Information – Very few Forms 27 actually provide the specific product volume and value information required by the Form. The only patentee that provided the specific information required by Form 27 was Panasonic, which, with respect to the only two patents that it claimed to work (of a total of 66 Indian patents as to which a Form 27 was found), listed specific product volumes and values.¹⁵³

Other patentees disclosed specifics regarding the technical details of their worked patents, but declined to provide product volume and value information. For example, Ericsson discloses: "the stated patent covers a specific detail of data transmission to a mobile in a GSM or WCDMA mobile network where said transmission of data is not performed if the

¹⁵¹ See, e.g., Ericsson, Form 27 for IN227819B (2014) ("The patentee is in the look out for appropriate working opportunities in a large scale"); Motorola, Form 27 for IN136128B (2012) ("The Patentee is actively looking for licensees and customers to commercialise the invention in the Indian environment.")

¹⁵² See, e.g., Alcatel-Lucent, Form 27 for IN258507B (2014).

¹⁵³ Panasonic, Form 27 for IN239668B (2013) (71021 units, 620100000Rs); Panasonic, Form 27 for IN208405B (2013) (71021 units, 620100000Rs).

mobile has not enough battery capacity left for the transfer.”¹⁵⁴ Ericsson goes on, however, to explain that because this patented technology is intended to be used in conjunction with other patented technologies, it is not possible to provide the financial value of the worked patent “in isolation”.¹⁵⁵ Oracle also adopts this approach of offering specific product information, while declining to estimate associated sales volume or revenue.¹⁵⁶

b. Relevance to a Standard – In several cases, a patentee describes its patented invention by reference to an industry standard. For example, Nokia-Siemens utilize the following description for one patent that is allegedly worked: “Invention relevant for IEEE 802.16-2009 and IEEE 802.16-2011 standard.”¹⁵⁷ While the patentee offers no additional information regarding the working of the patent, the desired implication, presumably, is that the patent covers an aspect of the standard, and if the standard is implemented in products sold in India (as it likely is), then the patent is thereby worked.

Some patentees offer less specific information regarding the standards that their patents cover. For example, Ericsson states in one Form that “This patent is essential for a 3rd Generation Partnership Project (3GPP) standard and Ericsson is also, subject to reciprocity, committed to make its standard essential patents available through licensing on fair, reasonable and Non-discriminatory (FRAND) terms.”¹⁵⁸ In this formulation, the patentee appears both to be implying working of the patent by virtue of the implicit inclusion of the standard in Indian products, and also to be making known its willingness to enter into licenses in the future on FRAND terms. This future-looking perspective, however, is not responsive to the information called for by Form 27 for patents that are allegedly being worked, and implies that the patent is not, in fact, being worked yet in India.

¹⁵⁴ Ericsson, Form 27 for IN233994B (2013).

¹⁵⁵ *Id.*

¹⁵⁶ See Oracle, Form 27 for IN230190B (2014) (“The methods/structures of the patent are generally related to a product entitled, “Asynchronous servers” that can be deployed in digital processing systems present in various businesses. This product has been sold to several businesses in India in the past few years and is believed to be used by them. Additional information will be enquired and provided to the Patent Office upon request.”)

¹⁵⁷ Nokia Siemens, Form 27 for IN254894 (2012).

¹⁵⁸ Ericsson, Form 27 for IN249058B (2013). In other Forms 27, however, Ericsson provides significant detail regarding the standards/specifications covered by its patents. See, e.g., Ericsson, Form 27 for IN213723B (2015) (citing ETSI TS 126 092 V4.0.0 (2001-03), ETSI TS 126 073 V4.1.0 (2001-12) and ETSI TS 126 093 V4.0.0 (2000-12), all of which are pertinent to the UMTS 3G standard).

c. Indian Licensees – Some licensees, Qualcomm in particular, disclose that they have licensed their patents to Indian firms. These licenses are disclosed in Qualcomm's Forms 27 for various patents.¹⁵⁹ However, it is not clear what manufacturing or other activity is carried out by these Indian licensees. Ericsson, which has been engaged in litigation with numerous Indian and Chinese vendors of mobile devices in India, reports that it is receiving royalties from at least two of these entities under court order, though it stops short of stating that these entities are licensed under Ericsson's patents.¹⁶⁰

d. Worldwide Licensees – In addition to Indian licensees, Qualcomm discloses that, as of 2014, it had granted worldwide CDMA-related patent licenses to more than 225 licensees around the world, and that CDMA-based devices were imported into India from “countries such as Canada, China, Finland, Germany, Italy, Japan, Korea, Switzerland, Taiwan, and the United States.”¹⁶¹ While Qualcomm is not specific regarding the linkage, if any, between its worldwide licensees and mobile devices sold in India, it reports that more than 37.7 million CDMA-based mobile devices were sold in India in 2014 at an average price of USD \$161.94.¹⁶² And though not express, the implication of these data is that all CDMA-based mobile devices sold in India somehow utilize Qualcomm's patented technology.

The granting of worldwide licenses raises an interesting question regarding local working of patents. As Ericsson (which claims to have executed more than 100 patent licensing agreements) explains, its global licensees are, by definition, licensed in every country, including India. Because their global license agreements “are operational in India”, the licensees are theoretically authorized to work Ericsson's patents in India. But it is not clear that this means that the patents are *actually* being worked in India. Simply granting a worldwide patent license does not mean that the licensed patent is being worked, just as the issuance of a patent in a country does not mean that the patent is being worked in that country.

e. Too Big to Know -- Some patentees claim that they or their patent portfolios are simply too vast to determine how particular patents are being

¹⁵⁹ See, e.g., Qualcomm, Form 27 for IN251876B (2014) (disclosing Indian licensee Innominds Software Pvt. Ltd.).

¹⁶⁰ See Ericsson, Form 27 for IN213723B (2015) (referencing royalty payments from Micromax and Gionee).

¹⁶¹ Qualcomm, Form 27 for IN251876B (2014).

¹⁶² *Id.*

worked in India, or the number or value of patented products sold in India. Nokia, for example, uses the following language in 82 separate Form 27 filings: “Nokia’s products and services are typically covered by tens or hundreds of the nearly 10,000 patents in Nokia’s worldwide portfolio. Nokia does not keep records of which individual patents are being employed in each of Nokia’s products or services, and is therefore unable to report the quantum and value of its products or services which employ the patented invention.”¹⁶³

In a similar vein, Ericsson notes that its patented technologies are intended to be used in combination with a large number of other technologies patented by Ericsson and others. Accordingly, “it is close to impossible to prove an indication of specific or even close to accurate financial value of the said patent in isolation...”¹⁶⁴ This said, Ericsson goes on to disclose its total product sales in India (3.09 billion SEK in 2013) and also notes that it earns revenue from licensing its patents (without disclosing financial data).¹⁶⁵

f. On the Lookout – Curiously, some patentees that claim to be working their patents use the same language regarding their search for working opportunities as they and others use with respect to non-worked patents. For example, Ericsson makes this statement regarding some of the patents that it is allegedly working in India: “The patentee is in the lookout for appropriate working opportunities in a large scale although there may have been some use of the patented technology in conjunction with other patented technologies.”¹⁶⁶ This language is uncertain at best, and does not seem to support a claim that, to the patentee’s knowledge, the patent is actually being worked. At best, it expresses optimism toward the possibility of finding an opportunity to work the patent in the future.

g. Information Provided Upon Request – Some patentees decline to provide any information about the working of their patents in Forms 27, but offer to provide this information if requested by the Commissioner or IPO.¹⁶⁷ Some patentees further explain their hesitation to provide this information in Form

¹⁶³ Nokia, Form 27 for IN220072B (2013).

¹⁶⁴ Ericsson, Form 27 for IN251757B (2013).

¹⁶⁵ *Id.*

¹⁶⁶ *See, e.g.*, Ericsson, Form 27 for IN248764B (2011).

¹⁶⁷ *See, e.g.*, Huawei, Form 27 for IN251769B (2013) (“Information not readily available; efforts will be made to collect and submit further Information, if asked for.”)

27 on the basis that the information is confidential, but commit to provide it if requested.¹⁶⁸

h. Corporate PR – Some patentees, in addition to, or in lieu of, providing information about their patents, offer general corporate information of a kind that would often be found in corporate press releases and annual reports. For example, Research in Motion offers this glowing corporate report in lieu of any information about its allegedly worked patents:

Patentee is a leading designer, manufacturer and marketer of innovative wireless solutions for the worldwide mobile communications market. Through the development of integrated hardware, software and services that support multiple wireless network standards, the patentee provides platforms and solutions for seamless access to time-sensitive information including email, phone, SMS messaging, internet and intranet-based applications. Patentee's technology also enables a broad array of third party developers and manufacturers to enhance their products and services with wireless connectivity. Patentee's portfolio of award-winning products, services and embedded technologies are used by thousands of organizations around the world (including in India) and include the Blackberry wireless platform, the RIM Wireless Handheld product line, software development tools, radio-modems and software/hardware licensing agreements.¹⁶⁹

RIM then goes on to explain that it has so many patents that identifying how the instant patent is worked in India is impossible (see "Too Big to Know" above).

Ericsson likewise offers a bit of self-serving corporate history in twenty-eight different Forms 27 in which it states:

Ericsson's history in India goes back 112 years during which period Ericsson has contributed immensely to the telecommunication field in India. Ericsson provides, maintains and services network for several major

¹⁶⁸ See, e.g., Hitachi, Form 27 for IN226462B (2013) ("Confidential Information will be provided if asked for.")

¹⁶⁹ Research in Motion, Form 27 for IN261068B (2014).

government and private operators in India. At present, Ericsson has more than 20,000 employees across 25 offices in India. Further, Ericsson has established manufacturing units, global service organization and R&D facilities in India...¹⁷⁰

i. Just Don't Know – Some patentees simply assert that they are unable to determine information regarding working of their patents, without any explanation why. Alcatel-Lucent, for example, offers the following unsatisfying disclosure with respect to the eight patents that it claims to be working in India: “The patentee is unable to particularly determine and provide with reasonable accuracy the quantum and value of the patented invention worked in India, including its manufacture and import from other countries during the year 2014.”¹⁷¹

j. No Description – Some patentees simply omit to provide any information whatsoever regarding the working of their patents, even when patents are allegedly worked.¹⁷²

4. Changes in Status

While some of the “boilerplate” responses provided by patentees in their filed Forms 27 might suggest that patentees give little thought to the content of Form 27 filings, we identified a small but non-trivial number of patents (4.1%) as to which the patentee changed the working status, either from worked to not worked, or vice versa. Overall, we identified 128 instances in which the working status of a patent was changed from one year to the next. Of these, 51 went from worked to not worked, and 77 went from not worked to worked. Such changes suggest that patentees give at least some thought to the manner in which they work their patents, and seek to correct inaccurate disclosures, though these observed variances could also be attributed to changes in law firm, changes in interpretation of filing requirements or mere clerical errors and inconsistencies in filings from year to year.

¹⁷⁰ Ericsson, Form 27 for IN254652B (2015).

¹⁷¹ See, e.g., Alcatel-Lucent, Form 27 for IN202208B (2013).

¹⁷² See, e.g., Ericsson, Form 27 for IN235605B (2010 and 2011); Huawei, Form 27 for IN249244B (2012).

In 17 cases, the status of the same patent changed *twice* over the course of three or more Forms 27. Almost all of these three-stage “flip-flops” moved from worked to not worked to worked, with the aberrant ‘not worked’ year occurring in 2013. In fact, 2013 seems to have been a popular year for changes in working status, whether because of heightened awareness, and therefore greater scrutiny of Form 27 filings due to the Commissioner’s public notice of that year, or changes in interpretation of filing requirements occasioned by a widely-attended seminar or article. But whatever the cause, it seems highly unlikely that, over the course of three years, a single patent could go from being worked in India, to not being worked, to being worked again. As a result, we attribute these flip-flop changes primarily to filing errors and inconsistencies rather than genuine attempts to correct inaccurate disclosures.

Corresponding to changes in working status, patentees often changed the textual descriptions of working or non-working contained in their Forms 27. These changes usually involved adding stock language regarding working or non-working to a Form 27 that previously contained no descriptive information. However, in some cases the patentee’s descriptive text bears little relation to the purported working status of the patent. For example, as illustrated in Table 2 below, a single patentee’s disclosures with respect to two different patents across three filings employ the same textual descriptions but for *different* working status.

Table 2
Comparison of Working Status Descriptions

Filing Year	Working Status IN248764	Working Status IN247934	Description
2011	Worked	Worked	The patentee is in the lookout for appropriate working opportunities in a large scale although there may have been some use of the patented technology in conjunction with other patented technologies. [Text A]

Filing Year	Working Status IN248764	Working Status IN247934	Description
2013	Not worked	Worked	This patent appears to be worked along with a bunch of connected patents and we are not having any specific data of exact working at this point of time. [Text B]
2014	Worked	Not worked	The patentee is in the lookout for appropriate working opportunities in a large scale although there may have been some use of the patented technology in conjunction with other patented technologies. [Text A]

As illustrated by Table 2, the patentee's working description (Text A) is identical in 2011 and 2014 for both patents, though in 2014 one patent is allegedly worked and the other is not. Likewise, in 2013, one patent is worked and the other is not, yet the textual description for both is identical (Text B). Putting aside, for a moment, the fact that neither Text A nor Text B is particularly responsive to the information requirements of Form 27, it is puzzling why the patentee would use the same stock language to describe both working and non-working of its patents. The only consistency that emerges from this example is across filing years, suggesting, perhaps, that the textual descriptions used in these forms was more dependent on the person or firm making the filing in a particular year than the alleged working status of the patents in question.

IV. DISCUSSION AND ANALYSIS

Professor Basheer charges that significant numbers of Forms 27 are "grossly incomplete, incomprehensible or inaccurate," and has sued the Indian Patent Office to compel it to improve its monitoring and enforcement of Form 27 filings.¹⁷³ Our results confirm that there are overall weaknesses in the Indian Form 27 system, several of which reveal deeper problems with the implementation of India's patent working requirement.

¹⁷³Basheer Writ Petition (2015), *supra* note 103, at 10.

A. Process Weaknesses

Though filings in support of India's patent working obligation have been required since 1972, and Form 27 has been on the books since 2003, meaningful filings of Form 27 did not begin until the Controller's first public notice on this topic in 2009. In the following eight years, Form 27 filings have increased, but are still well below required levels (see Part III.A, above). Even at their peak in 2013, we located only 70.7% of required Forms 27 in the mobile device sector, a sector characterized by sophisticated firms that are advised by counsel. Filing ratios were significantly lower in every other year.

There are several possible reasons for these discrepancies. First are possible issues with the IPO's electronic access to records. As noted in Part II, we experienced significant difficulties obtaining Forms 27 through the IPO's web site. It was only after two RTI requests that significant numbers of Forms 27 were made accessible online. It is possible that the IPO has additional Forms 27 in its files which have not been made accessible electronically. For a system the purpose of which is to make information about non-worked patents available to the public, such lapses are inexcusable, particularly given that India's current working requirement is nearing its 50th anniversary. Accordingly, we expect that improvements to the IPO's electronic filing and access systems may improve the profile of Form 27 filing compliance.

B. Non-Enforcement and Non-Compliance

As noted above, we expect that some portion of the apparent non-compliance with India's Form 27 requirement is attributable to the inaccessibility of properly filed Forms 27. However, it is also likely that some portion of the deficit in available Forms 27 is due to actual non-compliance by patentees. Though there are stiff penalties on the books for failing to comply with Form 27 filing requirements, including fines and imprisonment¹⁷⁴ we are unaware of any enforcement action by the IPO or any other Indian governmental authority regarding such non-compliance.¹⁷⁵

¹⁷⁴ A patentee may be imprisoned for submitting false information. The Patents Act, No. 39 of 1970, INDIA CODE (1970), § 122.

¹⁷⁵ See Reddy & Kadri, *supra* note 13, at 22; Basheer Writ Petition (2015), Basheer, *supra* note 103, at x ("authorities have never initiated action against any of the errant patentees.").

Given that records of all issued Indian patents are available online, and that all filed Forms 27 should also be available online, it would not seem particularly difficult for the IPO to implement an automatic monitoring and alert system warning patentees that they have not filed required Forms 27. Such a system would likely increase compliance substantially. However, we find no evidence that the IPO monitors or otherwise keeps track of Form 27 filings or seeks to contact patentees who fail to meet their filing requirements. As a result, it is not surprising that non-compliance is widespread.

C. Uncertainty Surrounding Working and Complex Products

When Forms 27 are filed, many of them lack any meaningful detail regarding the manner in which patents are worked or the reasons that they are not worked. While the descriptive requirements of Form 27 are quite clear, even the largest and most sophisticated patentees seemingly struggle with determining whether or not a patent is actually worked in India and, if so, how to quantify its working in the manner required by the Form. There are several reasons that this degree of uncertainty exists. First, India has no clear statutory, regulatory or judicial guidelines for interpreting its working requirement. As the court noted in *Natco*, the working determination must be made on a case by case basis, with attention to the specific details of the patent in question.¹⁷⁶ This open-ended standard offers little guidance to firms regarding the degree to which importation or licensing may qualify as working a patent, or even what degree of assembly, packaging or distribution within India will so qualify.

Additionally, some patentees have taken the position in their Forms 27 that merely licensing a patent to an Indian firm qualifies as working the patent in India.¹⁷⁷ Some have even gone so far as to take the position that granting a *worldwide* patent license qualifies as working the licensed patent in India, given that India is part of the world.¹⁷⁸ These conclusions seem stretched, but they have not, to our knowledge, ever been challenged by the IPO or any private party.

What's more, several patentees take the position that it is impossible to determine the value attributable to a single patent that covers only one

¹⁷⁶ See notes x, *supra*, and accompanying discussion.

¹⁷⁷ See Part III.C.3.c, *supra*.

¹⁷⁸ See Part III.C.3.d, *supra*.

element of a complex standard or product (“too big to know”).¹⁷⁹ While these patentees may disclose the size of their large patent portfolios or total Indian product revenues, these figures do not provide the information required by Form 27 relative to the individual patent that is claimed to be worked.

Given the degree of uncertainty surrounding the Indian working requirement and how it is satisfied, it is not surprising that the disclosures contained in most Forms 27 are meaningless boilerplate that convey little or no useful information about the relevant patents or products. Moreover, it is questionable whether it is even *possible* for a willing patentee to provide the product and revenue information currently required by Form 27 for complex, multi-patent products such as mobile devices.¹⁸⁰ It may be time for the IPO to revisit the information requirements of Form 27, which were seemingly developed with products covered by one or a handful of patents in mind, to more suitably address complex electronic and communications products that may be covered by hundreds or thousands of patents each.

D. Strategic Behavior

In an environment of extreme uncertainty and low enforcement, it is not surprising that patentees have developed self-serving strategies to achieve their internal goals while arguably complying with the requirements of Form 27. Evidence of strategic behavior can be seen clearly in the divide between those patentees that claim that they are working most of their patents and those that claim that they are not.¹⁸¹ We can assume that there are not significant differences in the portfolio make-up among these different patentees, so the large difference between their ratios of worked and non-worked patents must be attributable primarily to decisions made to further corporate interests.

¹⁷⁹ See Part III.C.3.e, *supra*.

¹⁸⁰ For example, as of 2015, more than 61,000 patent disclosures had been made against ETSI's 4G LTE standard, and more than 43,000 against ETSI's 3G UMTS standard, both of which are only one of many standards embodied in a typical mobile device. Justus Baron & Tim Pohlmann, *Mapping Standards to Patents Using Databases of Declared Standard-Essential Patents and Systems of Technological Classification* at 20, Table 5 (Regulation & Econ. Growth, Working Paper, 2015), http://www.law.northwestern.edu/research-faculty/searlecenter/innovationeconomics/documents/Baron_Pohlmann_Mapping_Standards.pdf.

¹⁸¹ See Part III.B, *supra*.

For example, it is possible that those patentees claiming significant working of their patents do so in order to avoid requests for compulsory licenses against their patents. Such patentees may wish to exploit the Indian market themselves, or license others to do so on terms of their choosing, so may seek to avoid compulsory licensing on terms dictated by the government. Those patentees claiming significant non-working, on the other hand, may actively be *seeking* applications for compulsory licensing. Why? Perhaps because these patentees do not plan to sell products in India and see little prospect of entering into commercial license agreements with Indian producers. Thus, their greatest prospect of any financial return on their patents may be a compulsory license. As unlikely as it sounds, they may thus be using Form 27 as a legally-sanctioned “To Let” sign for otherwise unprofitable patents.¹⁸²

Whatever the underlying reasons are for patentee strategic decisions in the filing of Forms 27, IPO owes the public greater clarity regarding the formal requirements for working patents in India. It is only when disclosures are made in a consistent and understandable format that the public will acquire the knowledge about patent working that the Act intends for them to receive.

E. Opportunities for Further Study

This is the first comprehensive and systematic study of reporting compliance with India's patent working requirements. It covers only one industry sector: mobile devices. Expanding this study to additional industry sectors, particularly pharmaceuticals and biomedical products, would likely yield additional insights.

It would also be informative to revisit the instant set of patents in a few years time to determine whether increased IPO access to electronic records may alter the somewhat poor compliance landscape revealed by this study. That is, if a significant number of Forms 27 that have been filed are simply unavailable through the IPO's web site, then hopefully continued information technology improvements at the IPO will improve availability in years to come.

¹⁸² We thank Chris Cotropia for this insight.

CONCLUSION

India's annual Form 27 filing requirement is intended to provide the public with information regarding the working of patents in India so as to enable informed requests to be made for compulsory licenses of non-worked patents. While such a goal is laudable, it is not clear that this system is today achieving the desired results.

In the first systematic study of all Forms 27 filed with respect to a key industry sector – mobile devices – we found both serious systemic deficiencies coupled with widespread non-compliance by patentees. From 2009 to 2016, we could identify and access only 20.1% of Forms 27 that should have been filed in this sector, corresponding to 72.5% of all mobile device patents for which Forms 27 should have been filed. Forms 27 were missing for almost all patentees, suggesting that defects in the India Patent Office's online access system may play a role in the unavailability of some forms.

But even among Forms 27 that were accessible, almost none contained useful information regarding the working of the subject patents or fully complying with the informational requirements of the Form and the Indian Patent Rules. Patentees adopted drastically different positions regarding the definition of patent working, some arguing that importation of products into India or licensing of Indian suppliers constituted working, while others even went so far as to argue that the granting of a worldwide license to a non-Indian firm constituted working in India. Several significant patentees claimed that they or their patent portfolios were simply too large to enable the provision of information relating to individual patents, and instead provided gross revenue and product sale figures, together with historical anecdotes about their long histories in India. And many patentees simply omitted required descriptive information from their Forms without explanation.

The IPO has made little or no effort to monitor or police compliance with Form 27 filings, undoubtedly leading to significant non-compliance. However, some of the complaints raised by patentees and industry observers may have merit. Namely, that patents covering complex, multi-component products that embody dozens of technical standards and thousands of patents are not necessarily amenable to the individual-level data requested by Form 27. We hope that this study will contribute to the ongoing

conversation in India regarding the most appropriate means for collecting and disseminating information regarding the working of patents.

APPENDIX

TABLE A1

	Assignee	Total patents (mobile device)	Unexpired Patents as of 2009	Patents for which Form 27 was found	Patents for which Form 27 was not found	Patents Declared as worked	Patents Declared as not worked	Patents with no declared working status	Total Forms 27 found
1.	Qualcomm	1298	1298	993	305	986	7	0	1327
2.	Samsung	551	551	430	121	12	416	2	621
3.	Ericsson	354	354	303	51	79	216	8	619
4.	Motorola	243	243	187	56	7	164	16	402 ¹⁸³
5.	RIM	172	172	163	9	160	3	0	327
6.	Nokia	232	232	150	82	76	41	32	202
7.	LG	147	147	115	32	21	94	0	173
8.	Philips	256	256	101	155	11	89	1	108
9.	Intel	132	132	78	54	44	18	16	151
10.	Panasonic	88	88	66	22	2	64	0	104
11.	Siemens	268	167 ¹⁸⁴	75	92	7	67	1	108
12.	IBM	95	95	54	41	51	4	0	80
13.	InterDigital	75	74	52	22	30	7	15	94
14.	Huawei	63	63	52	11	37	15	0	89
15.	Sony	94	94	53	41	29	24	0	80
16.	Alcatel Lucent	53	53	37	16	8	29	0	39
17.	Microsoft	42	42	34	8	17	15	2	62
18.	NTT Docomo	42	42	31	11	0	31	0	34
19.	Oracle	25	25	24	1	19	5	0	75
20.	Google	26	26	24	2	19	5	0	34
21.	Sony Ericsson	27	27	19	8	5	14	0	58
22.	Canon	12	12	12	0	2	10	0	12
23.	ZTE	15	15	13	2	7	6	0	25
24.	Cisco	23	23	18	5	17	1	0	23
25.	Nortel	11	11	9	2	3	6	0	20

¹⁸³ 421 Forms 27 were found for Motorola. This total has been reduced by the 19 Forms filed in 2013 and incorrectly back-dated to 2004 and 2005.

¹⁸⁴ 101 Siemens patents expired prior to 1996.

	Assignee	Total patents (mobile device)	Unexpired Patents as of 2009	Patents for which Form 27 was found	Patents for which Form 27 was not found	Patents Declared as worked	Patents Declared as not worked	Patents with no declared working status	Total Forms 27 found
26.	Toshiba	13	12	9	3	2	7	0	12
27.	NEC	9	9	4	5	0	4	0	4
28.	Nokia Siemens	5	5	4	1	4	0	0	7
29.	Hitachi	3	3	3	0	1	2	0	4
30.	Hewlett-Packard	9	9	2	7	1	1	0	5
31.	SAP	5	4	3	1	1	0	2	4
32.	AT&T	7	7	1	6	0	1	0	1
33.	ETRI	6	6	3	3	0	3	0	5
34.	Fujitsu	5	3	1	2	0	1	0	1
35.	Sprint	4	4	1	3	0	1	0	3
36.	Yahoo	1	1	1	0	0	1	0	1
37.	Apple	4	4	0	4	0	0	0	0
38.	Broadcom	1	1	0	1	0	0	0	0
39.	Fujitsu Siemens	1	1	0	1	0	0	0	0
40.	Texas Instruments	2	1	1	0	1	0	0	1
	TOTAL	4419	4312	3126	1186	1659	1372	95	4916