

OUTSOURCING BAYH-DOLE TO INDIA: LOST IN TRANSPLANTATION?

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I. INTRODUCTION

Debates about the commercialization of academic research have plagued mankind for at least as long as the authors have been around in this world. Proponents of commercialization argue that, like all else in today's capitalistic world, academia and research ought to be subjected to market forces. Those against the motion decry the prostitution of what was once a noble ideal—that is, the purity of research and the pursuit of knowledge for its own sake.¹

Part of this controversy concerns the patenting of academic research, a debate exacerbated by the Bayh-Dole Act of 1980, which sought to facilitate the patenting of academic research by institutions receiving public funds.² Here again, there is a split verdict. While *The Economist* hails Bayh-Dole as a piece of legislation that “reverse[d] America’s precipitous slide into industrial irrelevance,”³ critics point to the debilitating effects that Bayh-Dole has had on the nature and direction of university research, collaboration, and knowledge sharing.⁴ Unfortunately, the evidence is inconclusive, preventing commentators from crediting the advantages or disadvantages exclusively to the Bayh-Dole regime.

Scholars skeptical of Bayh-Dole argue that without Bayh-Dole, patenting by universities in the 1980s and 1990s would still have grown significantly. Mowery, Nelson, Sampat, and Ziebonis also contend that the Bayh-Dole Act was only one of several factors that contributed to the growth of patenting and licensing by U.S. universities during the 1980s

¹ For an overview of this debate, see generally Janice Newson, *The Corporate-Linked University: From Social Project to Market Force*, 23 CAN. J. COMM. 107 (1998). See also Joshua B. Powers, *Commercializing Academic Research: Resource Effects on Performance of University Technology Transfer*, 74 J. HIGHER EDUC. 26–27 (2003). David Bridges notes, “There is scarcely a university in the UK whose academic freedom has not been compromised by its funding arrangements.” David Bridges, *Research for Sale: Moral Market or Moral Maze?*, 24 BRIT. EDUC. RES. J. 593 (1998).

² Patent and Trademark Act Amendments of 1980, Pub. L. No. 96-517, §6(a), 94 Stat. 3015 (codified as amended at 35 U.S.C. §§ 200–212 (1980)).

³ *Innovation’s Golden Goose*, THE ECONOMIST, Technology Quarterly Section, at 3 (Dec. 12, 2002).

⁴ See Michael S. Miricles, *States as Innovation System Laboratories: California, Patents, and Stem Cell Technology*, 28 CARDOZO L. REV. 1133 (2006).

The Act may have resulted in numerous unintended consequences not considered at the time it was passed. For example . . . an anticommons may develop, there may be a shift in research agendas, a delay in publication or dissemination of research results and materials may exist and conflicts of interest may be created.

Id. at 1155. Clovia Hamilton noted a dispute between the University of California, Berkeley and pharmaceutical giant Novartis in 1998 preventing research results from publication for over four months. See Clovia Hamilton, *University Technology Transfer and Economic Development: Proposed Cooperative Economic Development Agreements Under the Bayh-Dole Act*, 36 J. MARSHALL L. REV. 397, 408 (2003); see also Arti K. Rai & Rebecca S. Eisenberg, *Bayh-Dole Reform and the Progress of Biomedicine*, 66 LAW & CONTEMP. PROBS. 289 (2003).

and 1990s.⁵ In particular, they note that before Bayh-Dole, American universities did apply for patents.⁶ The rate and extent of patenting after the Act had much to do with the advent of biotechnology in the United States, the effect of the classic United States Supreme Court case *Diamond v. Chakrabarty*,⁷ and the creation of a specialized court dealing with intellectual property (IP).⁸

If, as the skeptics claim, the rate of patent applications would have remained the same, the Bayh-Dole regime does no harm.⁹ But what advantages, if any, stem from such a regime? That is a fundamental question that merits consideration, especially as several countries, such as India, consider transplanting Bayh-Dole structures into their domestic legal regimes.

We argue that most commentators have missed an important advantage of Bayh-Dole: the possibility of regulating the patenting of publicly-funded research, which hitherto proceeded uncontrolled. American universities were patenting their research even before Bayh-Dole, but such patenting progressed unimpeded on par with other private patenting in a relative regulatory vacuum. Bayh-Dole changed this to some extent, since it made patenting subject to additional "public interest" controls, such as "march-in" provisions¹⁰ and restrictions on exclusive licensing.¹¹ Furthermore, it prohibited assignments unless the assignee manufactures products using the patent in the United States, a clear protectionist measure meant to favor local industry.¹²

This is not to suggest that the current Bayh-Dole structure is optimal, but that it provides a skeletal model which can be fleshed out and modified by countries adopting it to construct an optimal regulatory regime.

⁵ See DAVID C. MOWERY ET AL., *IVORY TOWER AND INDUSTRIAL INNOVATION: UNIVERSITY-INDUSTRY TECHNOLOGY TRANSFER BEFORE AND AFTER THE BAYH-DOLE ACT* 181 (Stanford Bus. Books 2004).

⁶ *Id.*; see also Jerry G. Thursby & Marie C. Thursby, *University Licensing Under Bayh-Dole: What Are the Issues and Evidence?* 3 (May 2003) (unpublished manuscript), available at <http://opensource.mit.edu/papers/Thursby.pdf> ("Prior to the passage of Bayh-Dole, universities had a long tradition of working with industry. Moreover, there is clear evidence from patent citations that industrial labs picked up university inventions from publications, so it is difficult to determine if licensing displaced or enhanced this activity.") (last visited July 4, 2010).

⁷ *Diamond v. Chakrabarty*, 447 U.S. 303 (1980).

⁸ *Id.*; see also ADAM B. JAFFEE & JOSH LERNER, *INNOVATION AND ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDANGERING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT* 10 (2004).

⁹ See MOWERY ET AL., *supra* note 5, at 181 ("Since the trend toward increased academic patenting and licensing (including patenting of government-funded research) predates the passage of Bayh-Dole, the Act's most important effect arguably was its provision of a congressional endorsement of patenting and licensing (including exclusive licensing) as appropriate activity for universities and public laboratories.").

¹⁰ Bayh-Dole Act, 35 U.S.C. § 203 (1980).

¹¹ *Id.* § 209.

¹² *Id.* § 209(b).

This is particularly attractive for countries such as India that are contemplating transplanting the Bayh-Dole structure but are worried about the potential negative effects of increased patent numbers.

The Indian government introduced the Protection and Utilisation of Public Funded Intellectual Property Bill, 2008 in the Rajya Sabha in January 2009. The Bill is currently undergoing scrutiny by a Parliamentary standing committee,¹³ after which it will pass before the two houses of Parliament for approval.¹⁴ Since the Indian Bill draws inspiration from the United States Bayh-Dole (BD) Act, it will be referred to in this paper as the "Indian Bayh-Dole Bill" or simply the "Bill."

Much like its parent, the Indian Bayh-Dole Bill vests institutes with the right to acquire patents over inventions deriving from publicly-funded R&D. However, instead of a facilitative framework encouraging patent applications, it imposes a harsh punitive framework mandating institutional patenting under threat of serious sanctions. Secondly, the Bill's purview extends beyond patents, covering other forms of intellectual property such as copyright, plant varieties, semiconductor layout, and most problematically, trademark.¹⁵ The current Indian transplant effort could be even more flawed than the original. In fact, the grafting has been so badly conceptualized and executed that not only is it likely to face rejection by the host legal regime, but it also may end up poisoning it.

Thus, we offer some concrete recommendations in this paper to make the proposed Bill more palatable to the Indian audience. We propose regulating the patenting of publicly-funded research by incorporating more

¹³ Because of the limited time at Parliament's disposal, some of its responsibilities are delegated to parliamentary committees, which are of two types: ad hoc committees and standing committees. The former are appointed for a specific purpose and cease to exist upon completion of their designated task. The latter are a part of each House of Parliament. Examples of standing committees include the Business Advisory Committee, the Committee on Petitions, and the Committee of Privileges and the Rules Committee. See Parliamentary Committees, <http://www.parliamentofindia.nic.in/ls/intro/p21.htm> (introduction to parliamentary committees) (last visited May 20, 2010).

¹⁴ The Bill was officially introduced on December 15, 2008 and remained pending after the Parliament budget session lasting from February 12 to May 26, 2009. The Standing Committee was to submit a report within three months. See PRS Legislative Research, *Parliamentary Updates: Budget Session 2009 Wrap*, http://www.prsindia.org/index.php?name=Sections&id=5&parent_category=&category=1&action=bill_details&bill_id=118 (last visited June 6, 2010). On February 8, 2010, one of the authors of this paper presented to the aforementioned Standing Committee evidence similar to the key arguments in this paper. Following the hearing, the Standing Committee asked the government to review the proposed Bill, consult with stakeholders, and produce a version of the Bill addressing stakeholder concerns. See C. H. Unnikrishnan, *Parliament Panel Wants Govt Review on Innovation Bill*, Feb. 9, 2010, <http://www.livemint.com/2010/02/09225647/Parliament-panel-wants-govt-re.html> (last visited July 4, 2010).

¹⁵ The Protection and Utilisation of Public Funded Intellectual Property Bill § 1(c), 2008, No. 66 [hereinafter Bill], available at <http://www.centad.org/PUPFIP%20Bill%202008%20India.pdf> (last visited July 4, 2010) ("Intellectual property" means any right to intangible property, including trade mark, patent, design, and plant variety as defined under the Copyright Act, 1957, the Patents Act, 1970, the Designs Act, 2000, the Semiconductor Integrated Circuits Layout-Design Act, 2000, and the Protection of Plant Varieties and Farmers' Rights Act, 2001.").

public interest safeguards: mandating affordable pricing of all products deriving from publicly-funded patents, making licensing of such patents compulsory in appropriate cases, favoring SMEs and local manufacturing, and vesting more discretion in the individual inventor to determine how to disseminate his invention.¹⁶ Some of these suggestions could be useful for other developing countries that are considering transplanting the U.S. Bayh-Dole Act to their respective legal regimes.

We also reflect on the “secret” history of the Bill and how it was formalistically drafted without thorough study and investigation of the realities pertaining to publicly-funded research and patenting activities in India. The paper will show that the passage of the Bill demonstrates non-transparency of the highest order and lessons in the “don’ts” of lawmaking in a healthy democracy.

II. CLEARING “PATENT” TITLE: CONTEXTUALIZING THE U.S. BAYH-DOLE EFFORT

Prior to the U.S. Bayh-Dole Act, there was considerable uncertainty regarding who held patent ownership of publicly-funded inventions: the institutes and researchers who came up with the inventions or the government agencies that funded the inventive process. In some cases, the government allowed the institute to own the patent; in other cases, it retained title itself. Some experts believe that when title vested with the government agency, the rate of commercialization of inventions was insignificant.¹⁷ Therefore, the Bayh-Dole Act of 1980 was enacted to provide publicly-funded institutes (PFIs) with a clear patent title.

There is considerable disagreement on whether the U.S. government was as unsuccessful in commercializing patents as ardent Bayh-Dole supporters claim. These supporters argue that before Bayh-Dole, the licensing rates for the 28,000 patents owned by the U.S. government were

¹⁶ Although this paper refers specifically to “patents,” the arguments apply broadly to all intellectual property covered by the Bill, including plant varieties, semiconductor layouts, etc.

¹⁷ See Sean M. O’Connor, *Historical Contexts of U.S. Bayh-Dole Act: Implications for Indian Government Funded Research Patent Policy*, 3 SOC’Y FOR TECH. MGMT. NEWSL. 2 (2008). The author states the following:

The Kennedy Patent Policy “articulated that in some cases the public interest might be better served by allowing exclusive licensing of federally funded inventions to the private sector, particularly ‘where the contractor has an established nongovernmental commercial position and where there is greater likelihood that the invention would be worked and put into civilian use than would be the case if the invention were made more freely available.’”

Id. at 3.

extremely low.¹⁸ With the enactment of this piece of legislation, more academic institutions gained the right to patent, leading to a sharp increase in the rates of patenting, licensing, and commercialization. Critics disagree, contending that the private firms who knew about the 28,000 patents had expressly declined the option of acquiring exclusive title to them.¹⁹ This might indicate that such patents were not commercially viable, making irrelevant whether the title vested with the government or with publicly-funded institutions. Whatever the answer to this question may be, it is difficult to imagine that the Indian government could be as well-placed or better than PFIs in commercializing inventions.²⁰

Much like the United States, there is some uncertainty regarding patent title in India as well. The Indian Patents Act, 1970 stipulates that the right to apply for a patent vests with the scientist or inventor who created the invention.²¹ If an employer institute wishes to apply for patents in its own name, it can do so through an agreement of assignment with its employee. Most leading PFIs in India have employment contracts providing for such assignments.²²

However, the Indian government's General Financial Rules require that when governmental agencies provide funding to institutions to carry out research, the "ownership in the physical and intellectual assets created or acquired out of such funds shall vest in the sponsor."²³ This means that

¹⁸ See Anthony So et al., *Is Bayh-Dole Good for Developing Countries? Lessons from the US Experience*, 6 PUB. LIBR. SCI. BIOLOGY 2078 (2008); see also Letter from Sam Pitroda, Advisor to the Prime Minister of India on Public Information, Infrastructure, and Innovations, to Indian Prime Minister (Jan. 16, 2007), available at <http://knowledgecommission.gov.in/downloads/recommendations/LegislationPM.pdf> (last visited July 4, 2010); see generally Bhaven Sampat, *Patenting and US Academic Research in the 20th Century: The World Before and After Bayh-Dole*, 35 RES. POL. 772 (2006).

¹⁹ See O'Connor, *supra* note 17.

²⁰ Interview with Dr. Raghunath A. Mashelkar, recently retired as Director General (1995–2006) of the Council of Science and Industrial Research (Jan. 23, 2010).

²¹ The Patents Act of 1970 allows an application for a patent to be made by the true and first inventor or assignee or legal representative thereof. Patents Act, No. 39 of 1970, § 6; India Code (1993).

²² The Council of Scientific and Industrial Research (CSIR) has had such clauses in its employment contracts for many years. Dep't of Sci. & Tech., Ministry of Sci. & Tech., Gov't of India, *Guidelines for Implementing Research Projects* § A(8)(3), available at <http://www.serc-dst.org/guide.pdf>. See also Mrinalini Kochupillai, *The Protection and Utilization of Public Funded Intellectual Property Bill, 2008: A Critique in the Light of India's Innovation Environment*, 15 J. INTEL. PROP. RTS. 19 (2010).

²³ General Financial Rules, 2005, 215(3)(1), available at http://finmin.nic.in/the_ministry/dept_expenditure/GFRS/gfr2005.pdf (last visited July 4, 2010) [hereinafter GFR].

Ministries or Departments of Government sponsor projects or schemes to be undertaken by Universities, Indian Institutes of Technology and other similar autonomous organizations such as ICAR, CSIR, ICMR, etc., the results from which are expected to be in national interest. Normally the entire expenditure on such projects or schemes including capital expenditure, is funded by the Ministry or Department. The funds released for such projects or schemes in one or more installments are not treated as grants-in-aid in the books of the implementing agency. Apart from the requirement of submission of tech-

the right to patent or to register any intellectual property, such as plant varieties or semiconductor layouts, would ordinarily vest with the government agency that provides the funding. The rules, however, provide an exception: "On completion of the Projects or Schemes and the receipt of technical and financial reports, the Ministries or Departments should decide and communicate to the implementing agencies whether the assets should be returned, sold or retained by them."²⁴

The text of the rule suggests that the government department has the discretion to permit the PFI in question to retain title to intellectual property generated using the sponsorship funds. A literal reading suggests that the discretion is temporally limited: the initial phrase "on completion of the Projects or Schemes" suggests that the government may only exercise discretion after the completion of the project, not up front when selecting funding recipients.

Curiously, other than the Department of Information Technology of the Indian government, no other governmental division appears to be following the above rules.²⁵ The Guidelines for Technology Transfer and Intellectual Property promulgated by the Department of Science and Technology of the Ministry of Science and Technology provide as follows:

While the patent may be taken in the name(s) of inventor(s), the institution shall ensure that the patent is assigned to it. . . . The In-

nical and financial reports on completion of the project or scheme, a stipulation should be made in such cases that the ownership in the physical and intellectual assets created or acquired out of such funds shall vest in the sponsor. While the Project or Scheme is ongoing, the recipients should not treat such assets as their own assets in their Books of Accounts but should disclose their holding and using such assets in the Notes to Accounts specifically.

Id.

²⁴ *Id.* R. 215(3)(2).

²⁵ Mrinalini Kochupillai makes an interesting comment on this subject:

If a patentable invention is made through a sponsored research project granted by any government or a private funding agency, the University must make an MoU with the funding agency in case the latter wants to stake claim on the invention. Recently the Government funding agencies under an instruction from the Government of India have decided not to stake any claim on an invention made by a university scientist working under sponsored research project. Under such circumstances, the University should hold the right and privileges to negotiate and transfer the technology for commercial exploitation even without any concurrence of the funding agency.

Kochupillai, *supra* note 22, at 21. In discussions with several government officials, the authors have been unable to trace any such government instruction to the funding agencies in possible conflict with the provisions of Rule 215(3)(1). This throws the authenticity of the UGC stipulation into doubt.

stitution shall take necessary steps for commercial exploitation of the patent on exclusive/non-exclusive basis . . . [and] retain the benefits and earnings arising out of the IPR.²⁶

It bears noting that the Rules specifically state that the sponsorship funds they authorize shall not be treated as a grant-in-aid. Given that qualification, it is not at all clear that the Indian Bayh-Dole Bill in its current form would cover such sponsorship, since it only applies to "grant" situations. Section 3(1), which appears to be the section that defines the outer limits of the Bill, specifically states, "Any recipient interested to take a grant from the Government for the purpose of research and development shall enter into an agreement with the Government before receipt of such grant."²⁷

Although the Rules are guidelines and do not appear to have the force of law, it would be preferable for the proposed Bill to specifically override any areas of potential conflict with the Rules.²⁸ In particular, it should stipulate that funds given to autonomous publicly-funded institutes are covered under the ambit of the Bill, whether or not such funds qualify as grants.

III. TRANSPLANTING BAYH-DOLE TO INDIA: A SERIOUS DISCONNECT

Legal transplantation is generally understood as the transfer of laws and institutional structures across geopolitical or cultural borders.²⁹ It takes many forms: imposed or voluntary, encompassing entire legal systems or individual legal principles, integrating similar or different cultures.³⁰ Of late, legal transplantation has received much attention in academic circles, but it is by no means a recent phenomenon. For millennia, legal systems around the world have developed through legal transfers. Extensive transplantation occurred during the military expansion of the Roman Empire.³¹ Roman jurists equated *jus gentium*, which applied to colonized people, with *jus naturale* (natural law, or the laws common to

²⁶ *Guidelines for Implementing Research Projects*, *supra* note 22, at § A(8)(3). The guidelines require the institution receiving DST funds to share such earnings (no more than one-third of actual earnings) with the inventor.

²⁷ Bill, *supra* note 15, § 3(1).

²⁸ The preamble to the GFR defines them as mere guidelines. Furthermore, the systems and procedures they establish are subject to general or special instructions or orders, which the Ministry of Finance may issue from time to time. GFR, *supra* note 23, R. 6.

²⁹ Watson defines legal transplantation as "the moving of a rule or a system of law from one country to another, or from one people to another." ALAN WATSON, *LEGAL TRANSPLANTS* 21 (1974).

³⁰ JOHN STANLEY GILLESPIE, *TRANSPLANTING COMMERCIAL LAW REFORM: DEVELOPING A 'RULE OF LAW' IN VIETNAM* 3 (2006).

³¹ ELLEN GOODMAN, *THE ORIGINS OF THE WESTERN LEGAL TRADITION* 131-36 (1995).

all beings).³² In acknowledgment of this theory, natural law codes based on Roman morality were superimposed over indigenous cultural beliefs and practices.³³

In recent times, legal transplantation has increasingly been linked to international legal harmonization projects sponsored by large trading nations and international donor agencies.³⁴ Advocates of the process of legal transplantation assert that on a pragmatic level it is simpler and more effective to borrow legal structures from others rather than reinventing the wheel.³⁵ On the other hand, Trubek and Galanter accused Western legal assistance of “ethnocentricity and naiveté” in assuming that Western law could simply be grafted onto the dissimilar institutions and social conditions of another country.³⁶ And indeed, experience has shown that copies of foreign models simply may not work, at least not as they were meant to. The comparative law literature is replete with examples of “failed transplants,” or, as Teubner has called them, “legal irritants.”³⁷

Legal transplants are often unsuccessful if external forces, such as international institutions, assume institutional, cultural, or political realities that in fact are not present or properly developed; transplanted laws may ultimately be ignored or rejected.³⁸ Furthermore, legal transplantation may create more uncertainty because of differences in legal cultures and in the levels of institutional development between the origin and the transplant jurisdiction.³⁹ In particular, legal systems may lack certain institutions that make a particular arrangement work elsewhere.⁴⁰ For these reasons, even when an alien model is successfully adopted, the cost of

³² BARRY NICHOLAS, AN INTRODUCTION TO ROMAN LAW 54–59 (1962).

³³ Holger Spamann, *Contemporary Legal Transplants – Legal Families and the Diffusion of (Corporate) Law* 37 (Harvard Law School John M. Olin Center, Discussion Paper No. 28, 2009).

³⁴ GILLESPIE, *supra* note 30, at 3.

³⁵ See Alan Watson, *From Legal Transplants to Legal Formants*, 43 AM. J. COMP. L. 469 (1995); William Ewald, *Comparative Jurisprudence (II): The Logic of Legal Transplants*, 43 AM. J. COMP. L. 489 (1995).

³⁶ David Trubek & Marc Galanter, *Scholars in Self-Estrangement: Some Reflections on the Crisis in Law and Development Studies in the United States*, 4 WIS. L. REV. 1062, 1080–83 (1974). See also John Merryman, *Comparative Law and Social Change: On the Origins, Style, Decline and Revival of the Law and Development Movement*, 25 AM. J. COMP. L. 457 (1977).

³⁷ Günther Teubner, *Legal Irritants: Good Faith in British Law or How Unifying Law Ends Up in New Divergences*, 61 MOD. L. REV. 11, 34 (1998).

³⁸ Gary Goodpaster, *The Rule of Law, Economic Development and Indonesia*, in INDONESIA: LAW AND SOCIETY 21, 21–24 (Timothy Lindsey ed., 1999).

³⁹ See generally Thomas W. Waelde & James L. Gunderson, *Legislative Reform in Transition Economies: Western Transplants—A Short-Cut to Social Market Economy Status?*, 43 INT’L & COMP. L.Q. 347 (1994).

⁴⁰ The Singaporean Company Legislation and Regulatory Framework Committee rejected the Delaware model in 2002 because, *inter alia*, Singapore lacked the enforcement mechanisms [SEC, class actions, contingency fees] available in the United States. Report of the Company Legislation and Regulatory Framework Committee 1.1(c) (Oct. 2002), available at <http://www.acra.gov.sg/NR/rdonlyres/D4E1E17E-D415-4B69-961F-024EA679B620/9713/FinalReport1.pdf> (last visited July 4, 2010).

doing so may be higher than it first appears, and this cost may not be limited to the initial costs of translating and adapting the model.

The tradeoff between indigenous lawmaking and legal transplantation involves two factors: the promulgation costs of the initial set of laws and the adjustment costs associated with subsequent amendments of the law. Transplantation saves on initial drafting and administrative costs, which may be substantial if the legislature develops law indigenously. On the other hand, the need for subsequent adjustment of transplanted laws will typically be greater.⁴¹

Successful legal transplantation involves more than merely changing the words in a statute. Law reform must account for cultural, political and economic factors when evaluating options. The predominant view is that laws need to meet the needs of the recipient country.⁴² However, there is some disagreement in academic circles as to whether, and to what extent, successful legal transfers need to reflect or comport with internal social forces—the “felt needs of society.”⁴³

A more recent version of this theory comes from Otto Kahn-Freund, who compares legal transplantation to the surgical process of transplanting an organ.⁴⁴ He notes that because legal transplants are organic and not mechanical processes, there is a possibility of rejection. Further developing the medical analogy, he argues that legal transplantations should not be carried out without appropriate diagnosis, surgical procedures, and post-operative care. In other words, it is important not only to evaluate the merits of the law in isolation, but also to review the impact it may have on the broader legal system and whether it is institutionally compatible.⁴⁵ In short, legal transplantation is possible; however, it is a difficult and complex activity which needs to be undertaken with great care and detailed research.⁴⁶

Western legal transplants are not new to India. Indeed, as an erstwhile colony of the British Empire, India received laws modeled after those of the British crown time and again.⁴⁷ Although the Indian Bayh-Dole Bill

⁴¹ Peter Grajzl & Valentina P. Dimitrova-Grajzl, *The Choice in the Lawmaking Process: Legal Transplants vs. Indigenous Law* 2 (2008), available at <http://ssrn.com/abstract=1130124> (last visited July 4, 2010).

⁴² Goodpaster, *supra* note 38, at 28.

⁴³ Ugo Mattei, *Efficiency in Legal Transplants: An Essay in Comparative Law and Economics*, 14 INT'L REV. L. & ECON. 3, 4 (1994).

⁴⁴ Otto Kahn-Freund, *On Uses and Misuses of Comparative Law*, 37 MOD. L. REV. 1, 5 (1974).

⁴⁵ *Id.* at 5–7.

⁴⁶ Jeremy Kingsley, *Legal Transplantation: Is This What the Doctor Ordered and Are the Blood Types Compatible?*, 21 ARIZ. J. INT'L & COMP. L. 493, 516 (2004).

⁴⁷ See J.N. Matson, *The Common Law Abroad: English and Indigenous Laws in the British Commonwealth*, 42 INT'L & COMP. L.Q. 753 (1993) (noting that English law was codified for transplantation to India, and then other colonics). See generally Sandra Joireman, *The Transplantation of the Common Law in Kenya and India*, (paper presented at the annual meeting of the Int'l Stud. Ass'n,

draws its inspiration from the U.S. Bayh-Dole Act, it fails to appreciate its facilitative nature and opts instead for a punitive framework, in which institutions are effectively forced to register almost every piece of intellectual property that is created, under threat of serious sanction. To this extent, it is a flawed legal transplant.

Besides, the Indian IP Bill appears to be motivated by the rosy picture painted of the U.S. Bayh-Dole Act and its impact, but this picture has been somewhat called into question by well-articulated scholarly critiques. Had the framers studied these critiques carefully, they might have appreciated that there is a serious disconnect between the objectives of the Bill and the likelihood of achieving those objectives.

The Bill's statement of objects and reasons reads as follows:⁴⁸

1. To compete in a global environment, it is necessary for India to innovate and promote creativity. For promoting creativity and innovation, India needs to protect and utilise the intellectual property created out of public funded research and development. Over the years, the Government has invested large funds in research and development. To provide incentives for creativity and innovation, it is necessary to develop a framework in which the protection and utilisation of intellectual property is put in place. The ultimate objective, however, is to ensure access to such innovation by all stakeholders for public good.
2. The proposed legislation imposes obligations and creates rights to optimise the potential of public funded research and development, provides incentive to create intellectual property and the mechanism for its protection and utilisation, encourages innovation in small and medium enterprises, promotes collaboration between Government, private enterprises and non-Government organisations, commercialisation of intellectual property created out of public funded research and development and the culture of innovation in the country.
3. The proposed legislation will enhance awareness about intellectual property issues, especially in universities, academic and research institutions. It will also increase the responsibility of universities, academic and research institutions to en-

Canada, Mar. 17, 2004), available at http://www.allacademic.com/meta/p_mla_apa_research_citation/0/7/2/9/5/pages72959/p72959-1.php (last visited July 4, 2010).

⁴⁸ Bill, *supra* note 15, Statement of Objects and Reasons.

courage students, faculty and scientists to innovate. Such innovations can be utilised for raising financial resources of these establishments, through royalties or income. The income from intellectual property will promote self-reliance and will minimise dependence of universities, academic and research institutions and other recipient organisations for Government funding.

4. The proposed legislation seeks to achieve the above objects.

From the statement above, the text of the legislation, and other statements made by the government to the media, the following objectives emerge:

- i) Encouraging institutes to commercialize their patents and make money. The natural corollary of this wealth creation objective is that government funding to institutes would gradually reduce.
- ii) Bringing more accountability to institutes that use public funding.⁴⁹
- iii) Giving incentives for creativity and innovation while facilitating technology transfer and commercialization.
- iv) Promoting the culture of innovation in India and enhancing awareness about intellectual property issues, especially in universities and academic and research institutions.
- v) Providing for appropriate royalty shares for scientist-inventors.⁵⁰

This paper explores each of the above goals with the intent to examine the suitability of the present Bill in achieving them.

A. Creating Wealth

The Bill aspires to make Indian universities wealthy and self-sufficient. However, the ability of the Bayh-Dole model to generate cash may be vastly exaggerated. Empirical data from the United States show that most universities do not make significant sums of money by licensing their technology.⁵¹ In fact, the cost of operating a technology transfer of-

⁴⁹ See Law Ministry Moots Penalty in R&D Bill to Protect IPR, ECON. TIMES, Aug. 28, 2008. See also PRS Legislative Brief: The Protection and Utilisation of Public Funded Intellectual Property Bill, 2008, available at http://www.prsindia.org/uploads/media/1229425658/LB_Protection%20and%20Utilisation%20of%20Public%20Funded%20Intellectual%20Property%20Bill.pdf (last visited July 4, 2010).

⁵⁰ Bill, *supra* note 15, § 8.

⁵¹ A recent study notes that, after deducting the costs of patent management, net revenues earned by U.S. universities from patent licensing were "on average, quite modest" and concludes that "universities should form a more realistic perspective of the possible economic returns from patenting and

fice (TTO) often exceeds the money made from technology licensing. Lita Nelsen, the head of the technology licensing office at MIT (and former president of the Association of University Technology Managers), notes, "the direct economic impact of technology licensing on the universities themselves has been relatively small (a surprise to many who believed that royalties could compensate for declining federal support of research). . . . [M]ost university licensing offices barely break even."⁵²

This observation is more than borne out in India. Consider the Council of Scientific and Industrial Research (CSIR), a network of government laboratories and one of India's largest patent filers. Though it generates 4 crore rupees (approximately \$1 million) in licensing revenues, it spends over twice that much on patenting and licensing costs (10 crore rupees).⁵³ Simply put, CSIR appears to be losing money on its patents. This could stem from the relative youth of CSIR's aggressive patenting strategy. Since it is hardly more than a decade old, perhaps it needs more time. To be fair to CSIR, even the most innovative institutions are not successful in commercializing all of their patents. Consider Stanford University, widely seen as a licensing success story. Although Stanford was credited with as many as 7500 disclosures before 2008, it was only able to license 2800 of those disclosures—a mere 37%.⁵⁴

India's Bayh-Dole attempt will come to naught if it ignores these patent and licensing numbers. The government must have a more realistic expectation about the ability of the proposed Bill to generate wealth. Rather than expecting universities to become cash cows, the government ought to have more modest but realizable goals, such as taking the opportunity to more efficiently regulate publicly-funded patenting.

B. Promoting Accountability

A key motivating factor behind the Indian Bill appears to be a desire to foster "accountability" in publicly-funded institutes (PFIs).⁵⁵ The Bill assumes that the imposition of an obligation to patent would ensure that

licensing activities." Harun Bulut & GianCarlo Moschini, *U.S. Universities' Net Returns from Patenting and Licensing: A Quantile Regression Analysis* 14 (Ctr. for Agric. and Rural Dev. at Iowa St. Univ., Working Paper 06-WP 432, 2006), available at <http://www.card.iastate.edu/publications/DBS/PDFFiles/06wp432.pdf> (last visited July 4, 2010).

⁵² Lita Nelsen, *The Rise of Intellectual Property Protection in the American University*, 279 SCI. 1460 (1998).

⁵³ Shamnad Basheer, *Indian Patent Bill: Let's Not Be Too Hasty*, SCIDEV.NET, Sept. 10, 2008, <http://www.scidev.net/cn/opinions/indian-patent-bill-let-s-not-be-too-hasty.html> (last visited July 4, 2010).

⁵⁴ David Ai, Technology Licensing at Stanford University, Talk at Keio University (Mar. 17, 2009), available at <http://www.ipc.keio.ac.jp/event/pdf/20090317stanford.pdf>.

⁵⁵ See Law Ministry Moots Penalty in R&D Bill to Protect IPR, *supra* note 49.

better account is made of the public monies such institutions receive. Using patent numbers to promote accountability though is akin to killing an ant with an elephant gun. Surely there are better ways of achieving this end than forcing publicly-funded institutions to patent any and all "inventions" they generate. Rigorous recordkeeping, accounting obligations, and audits are all more tailored means of serving the same purpose.⁵⁶

C. Promoting Technology Transfer

This is the only justification that qualifies as somewhat persuasive. However, the law as currently drafted is overly broad, forcing PFIs to patent any and all inventions without providing any specific framework or incentives to promote technology or knowledge transfer. Consider the following provisions in the Bill:

- i) The scientist (IP creator) must make a disclosure to his employer institution (recipient of the public funds) immediately after the creation of "any" intellectual property.⁵⁷
- ii) The recipient institution is, in turn, obligated to make a disclosure to the government within sixty days of actual knowledge of such creation.⁵⁸
- iii) The recipient institution must elect to retain title to such invention within ninety days of such disclosure, or the title will vest with the government.
- iv) Public disclosure or exhibition of the publicly-funded intellectual property is prohibited unless steps have been taken to protect it. The recipient must inform the government at least fifteen days before such disclosure is made to allow the government to file patent applications in countries where the prospects of a patent grant may be prejudiced by such disclosure.⁵⁹

Failure to comply with the preceding provisions may lead to severe penalties, including a fine amounting to 50% of the grant amount received by the recipient for R&D.⁶⁰ This effectively forces PFIs to patent almost any invention generated within their labs without consideration of patent-

⁵⁶ The Bill imposes obligations to maintain records and accounts, which the government can then audit. However, the government can impose such recordkeeping obligations independently, without creating a blanket obligation to patent any invention made in the course of R&D. Bill, *supra* note 15, §§ 14–15.

⁵⁷ *Id.* § 9.

⁵⁸ *Id.* § 4.

⁵⁹ *Id.* § 6.

⁶⁰ *Id.* §§ 21–22.

ing costs or, more importantly, whether the patent is indeed the best mode of achieving technology or knowledge transfer within the context of the innovation in question.

The Bill assumes that patents are always the best way to incentivize innovation and requires patent application in all cases. This assumption appears to be based on the romanticized conceptions of the U.S. Bayh-Dole Act, some of which have hailed the Act as having played a key role in promoting the commercialization of inventions generated at universities. In particular, these supporters contrast 1979, when U.S. universities only obtained 264 patents, with 2003, when that number shot up to over 3450. Furthermore, corporate funding for universities had increased from 2.3% in the early 1970s prior to Bayh-Dole to about 8% in 2000.⁶¹ Critics are reluctant to ascribe all these achievements entirely to the Bayh-Dole Act and argue that the scientific breakthroughs in the biological sciences at that time⁶² and the growing investment in the biotech industry⁶³ would have been sufficient to ensure a surge in innovation regardless of the Bayh-Dole Act.⁶⁴ The framers of the Indian Bayh-Dole Act appear to have overlooked this critique, failing to appreciate the fact that patents may sometimes, but not always, lead to technology transfer.⁶⁵

Therefore, the Bill should require the institute concerned to evaluate whether the invention had best be patented or controlled with other knowledge transfer mechanisms. Given the traditional reluctance of pharmaceutical companies to invest in R&D for neglected diseases,⁶⁶ CSIR, India's premier network of labs, is currently attempting to avoid the negative effects of market forces by using an "open source" drug dis-

⁶¹ Risa L. Lieberwitz, *The Corporatization Of Academic Research – Whose Interests Are Served?*, 38 AKRON L. REV. 759, 765 (2005).

⁶² Dov Greenbaum, *Academia to Industry Technology Transfer: An Alternative to the Bayh-Dole System for Both Developed And Developing Nations*, 19 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 311, 318–19 (2009). Example breakthroughs include Paul Berg's success in producing recombinant DNA in 1972, Kohler and Milstein's creation of the first monoclonal antibodies in 1975, and sequencing of DNA strands by Maxam, Gilbert, and Sanger in 1977.

⁶³ Equity investments in biotechnology companies increased from \$50 million to over \$800 million between 1978 and 1981. *Id.* at 346.

⁶⁴ See also MOWERY ET AL., *supra* note 5; JAFFEE & LERNER, *supra* note 8; Michael Mireles, *The United States Patent Reform Quagmire: A Balanced Proposal*, 6 MINN. J. L. SCI. & TECH. 709 (2006).

⁶⁵ See Andrew W. Torrance & Bill Tomlinson, *Patents and the Regress of Useful Arts*, 10 COLUM. SCI. & TECH. L. REV. 130, 166–67 (2009). "Empirical evidence from simulation games may provide a more rational basis for guiding public policy to accomplish the Constitutional mandate 'to promote the Progress of . . . useful Art' than do artifacts of a centuries-old, and potentially incorrect, orthodox assumption about how patents affect technological innovation." *Id.* at 167.

⁶⁶ See generally Thomas Alured Faunce, *Three Proposals for Rewarding Novel Health Technologies Benefiting People Living in Poverty: A Comparative Analysis of Prize Funds, Health Impact Funds and a Cost-Effectiveness/Competitive Tender Treaty*, 1 PUB. HEALTH ETHICS 146 (2008).

covery model to research a cure for tuberculosis.⁶⁷

Moreover, the cost of patenting is very high, and a blind push towards patenting all inventions may result in tremendous waste of resources. As noted earlier, CSIR spent approximately 10 crore rupees (approximately \$2 million) in a particular year on patenting and licensing costs but recovered less than half that amount through licensing revenues.⁶⁸

The CSIR example illustrates the need for caution rather than blind patenting sprees and realistic expectations in place of the mistaken assumption that a Bayh-Dole clone will make universities cash cows overnight. Because it may be impossible to determine *ex ante* which inventions will benefit from a patenting approach and which will not, one cannot enact a strict legal obligation. Nonetheless, we urge that the Bill obligate PFIs to review each disclosure and assess which are worth patenting. Although such an obligation would, at best, be advisory and not strictly enforceable, it would serve a signaling function and advise TTOs to be cautious.⁶⁹ The potential of law to effectuate behavioral changes is well-documented.⁷⁰

In any case, the lack of patenting per se may not be as much of a problem as the inability to convert publicly-funded patents into socially useful products.⁷¹ Consider the case of CSIR, which has a huge patent portfolio but has been unable to license or commercialize a number of its

⁶⁷ Mrinalini Kochupillai, *Open Source for Cost Effective Drug Discovery*, SPICYIP, Dec. 23, 2007, <http://spicyipindia.blogspot.com/2007/12/open-source-for-cost-effective-drug.html> (last visited July 4, 2010).

⁶⁸ Bashcer, *supra* note 53.

⁶⁹ The ability of law to effect change in the moral, social, and cultural realms can enable "new legal norms eventually to change behavior and social consciousness." Stephen Schulhofer, *Taking Sexual Autonomy Seriously: Rape Law and Beyond*, 11 LAW & PHIL. 35, 58 (1992). Dau-Schmidt has voiced similar thoughts. His "preference shaping technology" relies upon three critical elements. First, the party seeking to shape another person's preferences must have a legitimate claim of authority over that person, or, at a minimum, have the confidence of that person. Second, this authority figure characterizes certain behavior as "good" or "bad" and reinforces that through rewards, punishments, and education. Third, either positive or negative examples can shape preferences. All these criteria seem to be satisfied by a legitimate piece of legislation, meaning it could have the potential to shape human preferences and behavior. Kenneth G. Dau-Schmidt, *An Economic Analysis of the Criminal Law as a Preference-shaping Policy*, 1990 DUKE L.J. 1, 17-18 (1990).

⁷⁰ See Lynne Henderson, *Rape and Responsibility*, 11 LAW & PHIL. 127, 169 (1992) ("While radically changing the definition of a crime does not alone end criminal behavior, occasionally law reform can help shift or lead the way in affecting attitudes and behavior.").

⁷¹ It is estimated that only around 50% of patents worldwide are actually utilized. Roger L. Beck, *Competition for Patent Monopolies*, 3 RES. L. & ECON. 91, 98 (1981) (noting that about 40% to 50% of patents are never commercialized); Eugene Mattes et al., *Surveying Inventors Listed on Patents to Investigate Determinants of Innovation*, 69 SCIENTOMETRICS 475, 483 (2006) (examining most of the studies on patent commercialization and reporting that the "range for granted patents becoming innovations [i.e., commercial products or processes] is somewhere between 43% and 54%"); Robert P. Morgan et al., *Patenting and Invention Activity of U.S. Scientists and Engineers in the Academic Sector: Comparisons with Industry*, 26 J. TECH. TRANSFER 173, 178, Table 2 (2001) (reporting a 48.9% private sector commercialization rate based on data from a 1995 National Science Foundation survey).

patents. As of 2008, CSIR had 1926 patents in force, of which only 5.7% were commercialized or licensed.⁷² Contrast this with more established academic patent players such as Stanford University, which has licensed out more than 37% of its inventions.⁷³

Given that CSIR is a much newer player in the game, it is misleading to compare its status with an established player such as Stanford. Nonetheless, the figures above underscore the fact that converting patents to useful products for society is more important than the number of patents. It bears noting that it is next to impossible to legislate solutions for patent conversion and technology transfer, a limitation that states attempting to use the stick of law to jumpstart local innovation should bear in mind. In contrast, consider the success achieved by India's information technology sector, whose under-the-radar development was facilitated by "benign neglect." Some argue that the very lack of legal or governmental interference was crucial in allowing the IT sector to develop the way it did.⁷⁴ When the sector's rapid growth came to light, the government implemented *policies*—not *law*—to foster the industry.⁷⁵

The Bill, wrongly assuming that patenting itself is a problem, seeks to rectify this perceived problem. It does so with a vengeance, not only insisting that every invention be disclosed but also levying severe penalties to punish noncompliance with reporting and patenting obligations, a point that we discuss in detail later in this paper.

D. Promoting the Culture of Innovation in India

The Bill assumes that forcing institutions to apply for patents or to register other forms of IP, such as plant varieties and semiconductor layouts, would promote the culture of innovation in India. This assumption is

⁷² An additional 3245 patents were under prosecution, of which 1.94% had been commercialized or licensed. E-mail from CSIR office to Pranesh Prakash, Center for Internet and Society (Oct. 31, 2009) (on file with authors).

⁷³ Between 1970 and 2008, Stanford had as many as 7500 disclosures (patents or otherwise). Of this, it was able to license out only 2800, receiving a total net worth of about 1.2 billion dollars. *Ai, supra* note 54.

⁷⁴ See Ashish Arora, *The Indian Software Industry and Its Prospects*, 18–19 (2006), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=964457. But see Pulpure Balakrishnan, *Benign Neglect or Strategic Incent? Contested Lineage of Indian Software Industry*, 41 *ECON. & POL. WKLY.* 3866 (2006).

⁷⁵ The 1983 Import Policy permitted the duty-free import of computers costing less than 500,000 Indian Rupees. The 1986 Software Policy encouraged foreign investment in the IT industry and facilitated imports of the latest software. The Software Technology Park Scheme in the early 1990s provided tax breaks and other incentives to firms that set up shop within certain specified areas. For a more elaborate discussion on such policies, see Balaji Parthasarathy, *Globalizing Information Technology: The Domestic Policy Context for India's Software Production and Exports*, *ITERATIONS* (2004), available at <http://www.cbi.umn.edu/iterations/parthasarathy.pdf> (last visited July 4, 2010).

fundamentally flawed for several reasons. First, patents are not the only path to innovation; they are but one means of fostering creativity. In some instances, the cause of innovation is better served without patents. Leading IP scholars Eisenberg and Rai note the following:

Although intellectual property rights may sometimes be necessary to motivate private firms to develop and disseminate university-based discoveries, the trend towards assertions of intellectual property rights by universities might also impede the progress of science. The challenge lies in distinguishing discoveries that are better developed and disseminated through open access from discoveries that are better developed and disseminated under the protection of intellectual property rights. Under the Bayh-Dole Act, institutions that perform funded research enjoy largely unfettered discretion to determine when intellectual property rights are appropriate.⁷⁶

Second, even to the extent that patents may be necessary to promote innovation, a facilitative framework for eliciting patent applications may be more effective than a punitive framework that imposes strict penalties for a failure to patent. It merits reiteration that PFIs have freedom to patent under existing laws, and many leading PFIs are already doing so, as evident from the figures below.⁷⁷

- i. CSIR: 5797 applications and 3492 grants.
- ii. Indian Institutes of Technology: 686 applications and 302 grants.⁷⁸
- iii. Indian Institute of Science: 174 applications and 85 grants.
- iv. National Research Development Corporation: 108 applications and 70 grants.
- v. National Institute of Pharmaceutical Education and Research: 60 applications and 6 grants.
- vi. Indian Council of Medical Research: 53 applications and 19 grants.
- vii. All India Institute of Medical Sciences: 39 applications and 13

⁷⁶ Rai & Eisenberg, *supra* note 4, at 291.

⁷⁷ We obtained these numbers from the proprietary databases of Clairvoilex, an Indian firm that renders patent services. The sampling period was twenty years, from January 1989 to November 13, 2009. The data only include Indian patent applications and grants, including PCT applications.

⁷⁸ The Indian Institutes of Technology (IITs) form a group of fifteen autonomous institutes of higher education in the disciplines of engineering and technology which the Indian Parliament established and recognized as Institutes of National Importance. Their institutional objective is to train future scientists and engineers to develop a skilled workforce, facilitating the socioeconomic development of post-independence India.

- grants.
- viii. Bhaba Atomic Research Centre: 23 applications and 17 grants.

When compared with those of global institutions, these statistics are still very modest. Also, the list of institutions above may not be representative of the entire gamut of PFIs in India but instead an elite club of PFIs that are fairly competent in the patenting game. For the majority of the other PFIs languishing in remote parts of India, the patent numbers are abysmal.

The lack of patenting from such PFIs may stem from three factors:

- i. A genuine philosophical objection to patenting.
- ii. Lack of awareness about patents.
- iii. Lack of resources to patent.

The solution to lack of awareness is to create more awareness and sensitization programs. A formal legal mandate issued through statute may not be the most effective way of engendering behavioral change.⁷⁹ For this, the government could take a leaf from the book of the Competition Commission of India. Despite the existence of a formal statute (the Competition Act), the Commission has gone out of its way to implement and execute awareness programs targeting all stakeholders, including businesses and consumers.⁸⁰ It organizes interactive meetings and seminars with trade organizations, consumer associations, stakeholders and the public at large to instill a culture of competition in the Indian market.

The Competition Act of 2002 requires the Commission to impart training to its stakeholders.⁸¹ The Indian Bayh-Dole Bill could similarly mandate that the government, either by itself or along with research institutions or private partners, undertake awareness programs from time to time. Such soft measures are more likely to bring about behavioral change than hard law.

Changing innovation culture and incentivizing patenting requires in-

⁷⁹ Rigid legislative solutions may fail to effectuate behavioral modification. Behavioral science studies suggest that people suffer from cognitive limitations, such as bounded rationality, willpower, and self-interest, inhibiting their ability to make accurate cost-benefit judgments. Christine Jolls, Cass R. Sunstein & Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471, 1476–79 (1998). See also Lee C. Simmons & Brian R. Tan, *Understanding Software Piracy in Collectivistic Countries*, 5 ASIA PAC. ADVANCES CONSUMER RES. 252, 252–57 (2002) (Chinese anti-piracy laws failed to change public perception and attitude towards software piracy).

⁸⁰ See Competition Commission of India: Awareness Programmes, available at http://www.cci.gov.in/index.php?id=15&option=com_content&task=view (last visited July 4, 2010).

⁸¹ Competition Act § 49(3) (2002), No. 12 of 2003.

vestment of resources, particularly for the large number of lesser-known PFIs that are under-resourced and under-staffed. Such resources should be provided either directly by the government or through public-private collaboration. At the Viswakarma Institute of Technology in Pune, an Indian IP and innovation expert named Dr. Prabuddha Ganguly instituted a program called IPRinternalise. Within a year, the institute was able to capture its internal innovations and apply for eight patents.⁸² This is a far more effective means of inducing patent registrations, and the government should encourage the creation of similar programs that develop institutional skills in intellectual property management, providing resources and expertise to help leverage innovative potential, guiding agencies through the patenting maze.

Such programs will also be effective in dispelling the myths and unsound philosophical objections that underlie an oft-expressed fear of patents in India. Indeed, an aversion to patents can be traced back to the doyen of Indian science, Dr. Jagadish Chandra Bose, who, in the context of establishing his institute, is reputed to have famously remarked the following:

Through regular publication of the work of the Institute, these Indian contributions will reach the whole world. They will become public property. No patents will ever be taken. The spirit of our national culture demands that we should forever be free from the desecration of utilizing knowledge only for personal gain.⁸³

This is not to suggest that philosophical objections to patents are baseless. But in India, it is probable that some objections may stem from patent *myths* annunciated by popular media. Indeed, most media projections of intellectual property have been far from flattering, with newspaper headlines regularly associating the term “patents” with “murder,” “kill,” and “exploitation.” Yusuf Hamied, the maverick head of Cipla celebrated as a modern day Robin Hood, claimed in a television interview in 2005 that the introduction of pharmaceutical product patents was sure to cause genocide in India.⁸⁴ A Bollywood film titled *Laaga Chunri Mein Daag* features a lead actress in the role of a high-class escort; she defines

⁸² The inventions included a system to monitor energy meters remotely, an improved liquid level control device, a system for operating intake exhaust ports of an internal combustion engine, and a modular antilock brake system for two-wheeled vehicles. Interview with Dr. Prabuddha Ganguly, Consultant, VISION-IPR, in Mumbai, India (Feb. 25, 2010). For more details on this project, see Siddharth Jabade et al., *Model IPRinternalise: Integrating Intellectual Property Rights in Technical Education*, 30 WORLD PAT. INFO. 220, 220–24 (2008).

⁸³ PARAMAHANSA YOGANANDA, AUTOBIOGRAPHY OF A YOGI 68–69 (1946) (quoting J.C. Bose).

⁸⁴ Sharnad Bashcer, “*Informal*” India and the Romanticisation of Innovation 1–2 (2010), (unpublished article for Federation of Indian Chambers of Commerce newsletter, on file with author).

patents as an extortionist instrument devised by the West to bleed developing countries.⁸⁵ While this sentiment may be broadly true in some respects, it is reflective of a black-and-white categorization of developed versus developing countries and fails to account for the recent interest of technologically proficient countries such as India, China, and Brazil in the patent system.⁸⁶

Against this background, awareness programs could dispel lingering patent myths and facilitate a more nuanced approach to the issue of patenting.⁸⁷ Philosophical objections could be a convenient excuse for those too lazy to patent or to account for sponsorship funds received. Such camouflaging of true intent must be exposed wherever possible. In this context, patenting is an issue of accountability and must be addressed as such. Legislation regulating publicly-funded research more generally, not limited to intellectual property, would be preferable in this regard.

E. Higher Royalties to Scientists

The Bill requires the inventor-employee who created the invention to be paid at least 30% of any royalties stemming from the licensing of the patent.⁸⁸ In this respect, it differs from the U.S. Bayh-Dole Act.⁸⁹ While this is perhaps the most commendable part of the Bill, it bears noting that there are no documented cases in India suggesting that universities or institutes use their superior bargaining power to disadvantage scientists and give them lower royalties than are due. In fact, evidence suggests that most leading institutions in India provide fair royalty rates, with some exceeding the 30% floor the Bill creates.⁹⁰ Therefore, this provision by

⁸⁵ See Shamnad Basheer, *Bollywood and Patents: A Hooker's Narrative of "Exploitation"!*, SPICYIP, Mar. 18, 2008, <http://spicyipindia.blogspot.com/2008/03/bollywood-and-patents-hookers-narrative.html>.

⁸⁶ See Shamnad Basheer & Annalisa Primi, *The WIPO Development Agenda: Factoring in the 'Technologically Proficient' Developing Countries* (Oct. 19, 2008), in IMPLEMENTING WIPO'S DEVELOPMENT AGENDA (Jeremy DeBeer ed., 2009), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1428989 (last visited July 4, 2010).

⁸⁷ J.C. Bose himself later went on to acquire what was perhaps the first U.S. patent by an Indian national (titled 'Detector for electrical disturbances': U.S. Patent No. 755840, 1904). Some claim he was pressured to do so by close friends. See Prasun Chaudhuri, *The Reluctant Innovator*, WEST BENGAL, Dec. 2008, http://www.wbgov.com/BanglarMukh/Download?FilePath=/alfresco/d/d/workspace/SpacesStore/f476c66c-ba24-486d-9800-57260dcf030d/Dec_08_09.pdf (last visited July 4, 2010).

⁸⁸ Bill, *supra* note 15, § 8.

⁸⁹ See Ben Butkus, *As India Mulls Bill Modeled on Bayh-Dole, Critics Claim It May Stifle Innovation*, BIOTECH TRANSFER WK., Nov. 12, 2008, available at <http://www.genomeweb.com/biotechtransferweek/india-mulls-bill-modeled-bayh-dole-critics-claim-it-may-stifle-innovation> (last visited July 4, 2010).

⁹⁰ The famed Indian Institute of Science (IISc) offers 40% of all royalty proceeds to the inventor. Indian Institute of Science – Bangalore, *Intellectual Property Policy of IISc* § 6, <http://dsl.serc.iisc.ernet.in/~haritsa/geninfo/iisc-ip-policy.pdf> (last visited July 4, 2010).

itself cannot be reason enough to support an otherwise badly conceptualized bill. Even assuming that there is a need to create a legally enforceable claim to minimum royalties, the provision can be added as an amendment to the existing patent law rather than instituting an entirely new regime for this narrow purpose.

IV. THE "SECRET" HISTORY OF THE INDIAN BAYH-DOLE BILL

The Indian Bayh-Dole Bill was shrouded in complete secrecy since its inception. The idea of transplanting the U.S. Bayh-Dole system is rumored to have first arisen during a meeting of the National Knowledge Commission⁹¹ with Kapil Sibal, who was then the Minister for Science and Technology.⁹² The intended purpose of the legislation was to create wealth for Indian academic institutions and wean them off government support, facilitating the movement of research out of academic labs and into mainstream markets.

Sibal contacted India's leading IP firm, Anand and Anand,⁹³ to create an initial draft of the Bill.⁹⁴ The firm appears to have executed a largely formalistic transplant job, copying the underlying principles of Bayh-Dole while amending some features of the U.S. Act to suit the Indian milieu. The collective efforts of Anand and Anand and the government contained no detailed study of the publicly-funded research patenting landscape. Their work did not indicate research of technology transfer or of other modes of dissemination. The Bill wended its way through the reviewing government ministries relatively unscathed.⁹⁵ The most dramatic change came from the Ministry of Law and Justice. In an effort to

⁹¹ The National Knowledge Commission is a think tank created to advise the Indian Prime Minister in investigating and leveraging the nation's knowledge potential. National Knowledge Commission Home Page, <http://www.knowledgecommission.gov.in> (last visited July 4, 2010).

⁹² Sibal was appointed the Union Minister for Science, Technology & Earth Sciences in 2004 in the cabinet of Prime Minister Dr. Manmohan Singh. He continued in this post until his appointment as the Union Minister for Human Resource Development in 2009.

⁹³ Anand and Anand is an Indian law firm offering legal services relating to intellectual property, including trademark, copyright and patents. For details, see Anand and Anand Home Page, <http://www.anandanand.com> (last visited July 4, 2010).

⁹⁴ The authors acquired this information through informal interviews with officials of the Indian Ministry who wish to remain anonymous. Note that all legislative proposals must be brought as bills before Parliament. A bill is a statute in draft form; it cannot become law without receiving both the approval of the Houses of Parliament and the assent of the President of India. After the government or citizen groups (acting under the Right to Information Act, for example) identify the need for a new law or amendment, the relevant ministry drafts the proposed law—a "bill."

⁹⁵ A bill drafted by any government department must receive approval from other government departments it implicates. The draft then undergoes revision to incorporate the input offered by other government departments before being vetted by the Law Ministry and presented to the Cabinet for approval. Upon receiving approval by the Cabinet, it is introduced in one of the Houses of Parliament.

give the Bill serious “teeth,” the Ministry recommended the harsh penal provisions that now have become the bane of the proposed legislation.⁹⁶

Anand and Anand produced a first draft of the Bill in 2005, but the government neither made it publicly available nor solicited many key stakeholders for advice until 2009. India’s leading research institution, the Indian Institute of Science, was not consulted until January 2010. One of the authors of this article procured a copy of the draft of the Bill and made it available on his blog, SpicyIP, in 2006.⁹⁷ The draft then underwent certain changes between 2006 and 2008. India’s premier industry body, the Federation of Indian Chambers of Commerce and Industry (FICCI), issued comments.⁹⁸ This submission by FICCI appears to have had a substantial software dimension to it,⁹⁹ leading to the inference that it may have been influenced by the software lobby within FICCI’s constituency.¹⁰⁰

From 2006 to 2007, public figures made unanswered calls for the government to open up the Bill to the public. Around 2007, FICCI organized a conference in an attempt to explain away misapprehensions pertaining to the Bill.¹⁰¹ This conference was open only to a select few, and the Bill was still not publicly available. Apart from industry stakeholders, no leading academic institutions (IIT, IISc) were part of this meeting or of any other meeting called by the government.¹⁰² Tellingly, around this

⁹⁶ The authors acquired this information through informal interviews with Indian Ministry officials who wish to remain anonymous.

⁹⁷ See Shamnad Basheer, *Mysterious Indian “Bayh-Dole” Bill: SpicyIP Procures a Copy*, SPICYIP, July 7, 2008, <http://spicyipindia.blogspot.com/2008/07/mysterious-indian-bayh-dole-bill.html> (last visited July 4, 2010).

⁹⁸ The Federation of Indian Chambers of Commerce and Industry (FICCI), headquartered in New Delhi, is an association of Indian business organizations. Founded by G. D. Birla and Purushottam Thakur in 1927, FICCI is the largest and oldest business superorganization in India. It is one of the primary sources of funding and support for many governmental and nongovernmental educational institutes. For further details, see Federation of Indian Chambers of Commerce and Industry Home Page, <http://www.ficci.com/> (last visited July 4, 2010).

⁹⁹ See Federation of Indian Chambers of Commerce and Industry, *White Paper on Public Funded R&D Projects (Protection of Intellectual Property) Bill*, 8, <http://www.indiarnd.com/papers/PFRD.pdf> (last visited July 4, 2010). We understand that “software” was added to the definition of intellectual property in the most recent drafts of the Bill. This inadvertently suggests that software is a sui generis form of IP, as opposed to being protected under patents, copyrights, and trade secrets. Although like many countries around the world, India does not recognize software patents per se, it does recognize computer-implemented inventions that otherwise meet the criteria for patentability. To address this, we would ask that the government either also include copyright among the types of IP covered or delete the term “software,” as patent protection is available for computer-implemented inventions.

¹⁰⁰ Examples include Microsoft Corporation, India Private Ltd., Wipro Ltd., and associate members such as CR2 Software Pvt. Ltd., Feast Software Pvt. Ltd., and Nucleus Software Exports Ltd.

¹⁰¹ See Shamnad Basheer, *Indian Bayh-Dole Bill: Secret “Public” Discussions by FICCI?*, SPICYIP, Oct. 25, 2008, <http://spicyipindia.blogspot.com/2008/10/indian-bayh-dole-bill-secret-public.html> (last visited July 4, 2010).

¹⁰² This information was acquired from an interview with a FICCI Conference attendee who wishes to remain anonymous.

time, the government was also actively considering another bill, one which would regulate medical devices.¹⁰³ Though this proposed legislation became available on the government website soon after completion of the first draft, the Bayh-Dole Bill failed to emerge until five years after the first draft had been completed.¹⁰⁴

This secrecy and lack of consultation is reflected in the flawed framework of the final version of the Bill, which was introduced in the Rajya Sabha in January 2009.¹⁰⁵ This was the first time in four years that the government made the document available for public viewing. The Bill was immediately referred to a standing committee.¹⁰⁶ Even then, the scientific community remained unaware. A few media reports trickled in, but there was no wide reporting.

One of the authors then organized a conference at the National University of Juridical Sciences, where speakers from civil society, academia, publicly-funded laboratories, and even industry expressed their dismay at the Bill's structure.¹⁰⁷ Reputed IP journalist C.H. Unnikrishnan of the Mint, a leading Indian business daily, captured in a sensational news article the conference in general and the rather critical views most speakers

¹⁰³ See Yashasvini Kumar, *Spicy Tidbits: Medical Devices Regulation Bill Formulated*, SPICYIP, Feb. 17, 2008, <http://spicyipindia.blogspot.com/2008/02/spicy-tidbits-medical-devices.html> (last visited July 4, 2010). See also Shamnad Bashcer, *Exporting Bayh-Dole to India: Whither Transparency? (Part I)*, SPICYIP, Feb. 19, 2008, <http://spicyipindia.blogspot.com/2008/02/exporting-bayh-dole-to-india-whither.html> (last visited July 4, 2010).

¹⁰⁴ A bill undergoes three readings in each House before submission to the President for her assent. While there is no explicit obligation under the Constitution or the Rules of Procedure and Conduct of Business in the Lok Sabha and the Rajya Sabha to involve the public in the legislative process, current practices followed by the government allow distinct—though limited—avenues of input for concerned citizens. The authorities did not opt for public involvement in the drafting of this Bill.

¹⁰⁵ See Unnikrishnan, *supra* note 14.

¹⁰⁶ Under current Indian lawmaking practice, all government bills, with very few exceptions, are referred to the relevant Departmentally Related Standing Committees for examination and report. The Standing Committee considers the broad objectives and specific clauses of the bill and may invite public comment. This provides an opportunity for public involvement in the process of crafting legislation. All Standing Committee meetings are closed to the general public and media, but citizen groups can request permission from the relevant Committee to depose before it. An example of this type of citizen involvement occurred when the Standing Committee received written submissions and oral testimony from several groups between May and July 2007 in preparation for its discussion of the Maintenance and Welfare of Parents and Senior Citizens Bill, 2007. The Bill was finally passed and enacted as law in December 2007. Standing Committee reports have persuasive value for the government. If the government accepts any of the Committee's recommendations, it may write official amendments at the consideration stage of the bill, or it may withdraw the bill as reported by the Standing Committee and present a new bill after incorporating the Standing Committee's recommendations.

¹⁰⁷ Conference on Publicly Funded Patents and Technology Transfer: A Review of the Indian "Bayh-Dole" Bill, National University of Juridical Sciences (Sept. 12, 2009). For a detailed overview of the conference, see Karthy Nair, *Guest Post on the Conference on Publicly Funded Patents and Technology Transfer: A Review of the Indian "Bayh-Dole" Bill*, SPICYIP, Nov. 1, 2009, <http://spicyipindia.blogspot.com/2009/11/guest-post-on-conference-on-publicly.html> (last visited July 4, 2010).

expressed in particular.¹⁰⁸ It was at this juncture that the research community began taking the issue more seriously and scrutinizing the Bill more closely. Several prominent scientists began speaking out against the Bill's structure.¹⁰⁹

Opposition to the punitive framework envisaged by the Bill began to gain momentum, making its way to the Indian Parliament, where sixteen Parliamentarians sitting as the standing committee faced a barrage of critiques from a variety of stakeholders.¹¹⁰ In the face of such intense opposition, the standing committee—perhaps for the first time in Indian legislative history—asked the government to reconsider the Bill after wider consultation with all stakeholders.¹¹¹ During the standing committee meetings, the secretary was asked to be present and to respond to all objections to the Bill.

The Standing Committee began sitting around December 2009, but its proceedings were shrouded in secrecy from the outside world. A newspaper article captured the views of leading scientists who publicly expressed their opposition to the Bill.¹¹² India's leading research institution, the Indian Institute of Science (IISc), spoke out against the non-transparent and non-consultative process, questioning why the Standing Committee and other government organs had never solicited its views.¹¹³ The Committee then invited the IISc's Chief Intellectual Property Officer, Dr. S.A. Shivashankar, along with one of the authors (as an academic representative), to the hearings.

¹⁰⁸ C.H. Unnikrishnan, *Proposed Patent Bill is Flawed, Say Experts*, LIVEMINT, Sept. 21, 2009, <http://www.livemint.com/2009/09/20235448/Proposed-patent-Bill-is-flawed.html> (last visited July 4, 2010).

¹⁰⁹ See Rcma Nagarajan, *Scientists Fume over New Patent Bill*, TIMES OF INDIA, Jan. 22, 2010, <http://timesofindia.indiatimes.com/india/Scientists-fume-over-new-patent-bill/articleshow/5486588.cms> (last visited July 4, 2010):

"The bill says every researcher has to inform that IP has been generated within a specific time. How does one decide what is IP? So, the inventor forwards everything to the institution's IP committee to decide what is potential IP. The committee forwards it to the government to take a decision on whether to file for IP or not. This will involve monumental amounts of paper work. From every lab in the country, a notebook could go everyday, full of potential IP," says an exasperated Satyajit Rath of the National Institute of Immunology.

¹¹⁰ Parliamentary Standing Committee on Science, Technology, Environment and Forests. Details relating to this Committee's dealings with the Bill have been discussed elsewhere in this paper. See *supra* text accompanying note 14.

¹¹¹ For normal procedure involving standing committees, see notes 14 and 107.

¹¹² See Nagarajan, *supra* note 109.

¹¹³ Nagarajan wrote the following in his *Times of India* article: "Interestingly, a premier institution like the IISc was not specifically asked to make a presentation before the standing committee of Parliament looking into the bill. When, upon learning of the hearings from an NGO, the institute requested permission to make an oral presentation, permission was refused as the request was late and, instead, a written submission was asked for." *Id.*

The history of the Indian Bayh-Dole Bill reflects an egregious lack of transparency and, more importantly, a lack of opportunity for input from stakeholders, to whom the legislation mattered the most. Without public participation, it is not surprising that the Bill's framework is severely flawed. There is a serious disconnect between the Bill's objectives and its proposed method for achieving them. The one credible purpose for the Bill—clearing patent title—was absent from the Bill and the press statements surrounding it, reflecting a lack of study and investigation. These combined factors position the Bill to teach one of the “don'ts” of lawmaking.

Contrast the conceptualization and passage of this Bill with that of the Patents Act in the 1970s. The government committee entrusted with the drafting of that piece of legislation consisted of only two judges. It undertook a careful one- to two-year study before making a batch of recommendations that formed the basis for the 1970 Act.¹¹⁴ This committee report is cited worldwide as a preeminent example of careful and sophisticated policy analysis. It contributed, in no small measure, to the success of India's pharmaceutical industry.

V. TOWARDS REGULATING PUBLICLY FUNDED PATENTING: A MORE EVOLVED APPROACH

A. *Vesting More Discretion in the Hands of the Scientists*

The most laudable aspect of the Bill is its provision that the individual inventor who came up with the invention be paid at least 30% of any royalties stemming from the licensing of the patent.¹¹⁵ This empowers individual inventors considerably and helps them reap the benefits of their creativity. However, despite this guarantee of a share in the profits, the individual inventor is left with little autonomy to determine how to use or commercialize his invention. Even if the inventor wishes to place her invention in the public domain and not patent it, she cannot do so, because the Bill vests the power to make that choice in the technology transfer office of the university or research institution. This legislative oversight is

¹¹⁴ Justice N. Rajagopala Ayyangar, *Report on the Revision of the Patents Law* (Sept. 1959), available at <http://www.spicyip.com/ip-resources> (last visited July 4, 2010). The committee carefully investigated the technological prowess of local industry, its ability to reverse-engineer, the state of innovation in India, the exploitative use of the Indian patent regime by multinational patentees, the history of patent regimes across the world, and the incremental improvement of patent regimes toward achievement of their goals of innovation and economic growth. For the continuing impact of this policy document on the Indian patent office even today, see generally Shamnad Basheer, *Policy Style Reasoning at the Indian Patent Office*, 3 INTELL. PROP. Q. 309 (2005).

¹¹⁵ Bill, *supra* note 15, § 8.

especially problematic for those areas of science in which an “open science” model may prove superior to a closed-door proprietary model.

An example from India may be illustrative in this regard. Dr. Samir K. Brahmachari, the current Director General of CSIR, initiated a move to put the SARS genome in a publicly available database instead of patenting it.¹¹⁶ He also launched a drive for an open source model in the field of pharmacogenomics to catalyze drug development for infectious diseases, especially tuberculosis.¹¹⁷ Unfortunately, under the Indian Bayh-Dole Bill, Dr. Brahmachari may find that it is the PFI, and more specifically, the TTO within the PFI¹¹⁸ that will be the sole decider of whether or not the invention is patented. This could have adverse consequences in the long run, since TTOs frequently exhibit an aggressive drive towards patenting and relative insensitivity to alternative means of achieving knowledge transfer.¹¹⁹ Therefore, the Bill should mandate that the scientist-inventor be made part of any committee organized to evaluate and determine the best means of appropriating inventions to optimize technology and knowledge spillover.

Secondly, and perhaps more importantly, the inventor-scientist should be vested with the secondary right to patent. Under the Bill as it stands now, if the recipient institution fails to patent within a specified time, the

¹¹⁶ See Shamnad Basheer, *One “Flu” over the Cuckoo’s Nest: Of an Unrelenting Roche and an Indian Robin Hood*, SPICYIP, Oct. 18, 2005, <http://spicyipindia.blogspot.com/2005/10/one-flu-over-cuckoos-nest-of.html> (last visited July 4, 2010).

¹¹⁷ See Kochupillai, *supra* note 67.

¹¹⁸ The number of universities with a technology transfer office (TTO) increased from twenty-five in 1980 to two hundred in 1990. By 2000, virtually every United States university had such an office. Richard R. Nelson, *Observations on the Post-Bayh-Dole Rise of Patenting at American Universities*, 26 J. TECH. TRANSFER 13, at 13 (2001).

¹¹⁹ In the literature, “knowledge transfer” refers broadly to the intentional sharing of knowledge, and “knowledge spillover” refers to the unintentional dissemination of knowledge. The maker of a pharmaceutical drug that can be reverse-engineered facilitates a “knowledge transfer” by entering into a technology transfer agreement with a third party and communicating the nuances of the drug and the process of manufacture to him. The same manufacturer effectuates a “knowledge spillover” by unintentionally enabling a third party to break up the drug and gain knowledge of its constituent parts. See Roger Smectts & Albert de Vaal, *An Integrated Framework of Knowledge Spillovers from FDI*, NiCE Working Paper 06-103, Oct. 2006, available at http://www.ru.nl/economics/research/nice_working_papers (last visited July 4, 2010).

Grossman and Helpman use the term “technological spillover” to mean “that (1) firms can acquire information created by others without paying for that information in a market transaction, and (2) the creators (or current owners) of the information have no effective recourse, under prevailing laws, if other firms utilize information so acquired.” GENE GROSSMAN & ELHANAN HELPMAN, *INNOVATION AND GROWTH IN THE GLOBAL ECONOMY* 16 (1992).

For the purposes of our paper, we use all of these terms (knowledge spillover or transfer and technology transfer or spillover) interchangeably, since the result of an unintentional spillover and an intentional transfer is the same: knowledge leaves the labs of PFI scientists and reaches the general public.

right transfers to the government funding agency.¹²⁰ We urge that this right instead be transferred to the scientist who produced the invention. The scientists have more of a stake in and understanding of the invention, making them more likely to patent than government agencies. To allow the institution to retain some control over the process, the Bill could provide that if it reasonably finds the invention completely not worth patenting, it could deny even the inventor the right to patent the invention. To prevent abuse of discretion by university authorities, a clause requiring endorsement of the university's decision by the funding agency could be inserted.¹²¹

Even in the United States, there have been several calls for amending the Bayh-Dole Act to vest more discretion in the scientists to make decisions pertaining to the appropriation and commercializing of their inventions. James Clements, for example, argues that a system wherein individual inventors instead of universities own patents for discoveries resulting from publicly-funded research would be far more efficient than the present Bayh-Dole structure.¹²²

B. Achieving Wider "Knowledge Spillovers" and Evaluating Performance

Section 10 of the Bill prescribes the creation of an Intellectual Property Management Committee. This nomenclature implicitly endorses what has been a problematic characteristic of most TTOs: an aggressive patenting and licensing approach as opposed to a more nuanced approach focused on optimally ways of achieving knowledge spillovers and technology transfers.¹²³ It might therefore be preferable to label this as a "technology transfer office" or "knowledge transfer office." The "performance" of scientists and TTOs ought to be evaluated by taking into ac-

¹²⁰ The Bill provides that "[w]here the recipient fails to apply for protection of public funded intellectual property within the period specified under section 7, the title of same, shall vest in the Government." Bill, *supra* note 15, § 5(3).

¹²¹ The authors extend their gratitude to Dr. Satyajit Rath for this suggestion.

¹²² See James D. Clements, *Improving Bayh-Dole: A Case for Inventor Ownership of Federally Funded Research*, 49 IDEA 469 (2009). See also Robert Litan & Lesa Mitchell, *Innovation: A Faster Path from Lab to Market, in Breakthrough Ideas for 2010*, HARV. BUS. REV., Jan.-Feb. 2010, at 6-7, available at <https://archive.harvardbusiness.org/cia/web/pl/product.seam?c=2275&i=2277&cs=7b9c2623ca9d337c9c6dd0c21012b011> (last visited Mar. 15, 2010):

Let's allow any inventor-professor to choose his or her licensing agent—university-affiliated or not—just as anyone in business can now choose his or her own lawyer. This would be as simple as having the Commerce Department amend the rules of Bayh-Dole. . . . Specifically, federal research dollars should come with a condition attached: University recipients must allow faculty members to choose their licensing agents.

¹²³ Considering that the performance of most TTOs is measured solely in terms of patents registered and licensed to industry, such aggressiveness, although undesirable, is unsurprising.

count not just the number of patents registered but also other indicia of progress toward knowledge transfer—for example, number of publications. The Bill must expressly provide for these different measurements of success and promote all types of knowledge transfer without necessarily prioritizing one over the other.

To achieve these ends, the Bill must explicitly state that the goal of university research is to facilitate *overall* knowledge transfer. Such a declaration, even if only recommendatory in nature, would serve a strong signaling function and move research in a more socially appropriate direction.¹²⁴

C. Providing for More “Public Interest” Safeguards

Since all intellectual property covered by this Bill is generated with taxpayers’ money, it must be subjected to more “public interest” safeguards than is the case with purely private IP rights.¹²⁵ The Bill must make clear that when PFIs license their patents to third parties, nonexclusive licensing is the default. Exclusive licensing vests the entire gamut of rights over the invention in one entity, which may lead to more friction in technological progress than would have been the case had the technology been licensed out to multiple parties. In other words, the rate of technological development is likely to be greater with multiple competitors than with a single monopolist player.¹²⁶ Increased competition will likely lead to greater variety and lower prices, thereby benefiting consumers.

The aforementioned concerns assume even greater significance in the context of platform technologies.¹²⁷ Consider the recombinant DNA (rDNA) patents held by Stanford University, which Stanford’s TTO widely licensed to interested parties. Had Stanford not used this progressive means of protecting its property, biotechnology may not have advanced as rapid-

¹²⁴ For the signaling effect of law, see Schulhofer, *supra* note 69; Dau-Schmidt, *supra* note 69.

¹²⁵ Ann Weilbacher, *Lost in Translation? The Promises and Pitfalls of Enacting U.S. Bayh-Dole Style Legislation in India*, 14 PUB. INT. L. REP. 157, 161 (2009).

¹²⁶ Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839 (1990).

¹²⁷ In the pharmaceutical sector, a platform technology involves the use of biological or chemical materials to hasten the drug discovery process. Platform technologies could be either tool technologies, (combinatorial chemistry libraries, cDNA libraries, or drug delivery mechanisms such as gene therapy) or target technologies (genomics, signal transduction, or antisense). A single platform technology allows the creation of an almost infinite range of candidate compounds and can be better utilized through nonexclusive licenses to various third parties. Even private sector actors have formed nonexclusive deals for these technologies. Pioneer combinatorial chemistry companies such as ArQule and Pharmacocea have made the same library of chemical compounds available to multiple corporate partners, each of which pays an access fee for the right to fish nonexclusively from the same compound pool. For further details, see Michael Lytton, *The Rise of the Platform Technology Deal*, MANAGING INTELL. PROP. 15 (Jul.–Aug. 1997), available at <http://www.mondaq.com/unitedstates/article.asp?articleid=7658> (last visited July 4, 2010).

ly as it did. Unfortunately, one cannot expect all patentees to be as evolved in their approach to intellectual property as Stanford was. Most TTOs favor an exclusive license that brings in more licensing fees up front, since that is the standard measure of their success.

With this in mind, the Bill should make nonexclusive licensing the default. It could allow institutions to consider granting an exclusive license to a prospective licensee if commercializing the patent and creating a valuable product for society would require investment of substantial sums in a manner that is practically impossible without some assurance of market exclusivity. In such a scheme, upon application, the PFI must make the petition public and call for objections. Any interested party may challenge the grant of an exclusive license and either volunteer to license the invention in a nonexclusive manner, or offer a higher price for exclusivity. This procedure is built into the NIH technology transfer program.¹²⁸

D. Open-Access Publishing

To better disseminate the results of publicly-funded research, the law should require the results of such research to be published in open-access journals. India could borrow from NIH policy in this regard and include an "open access" clause whereby any work in a peer-reviewed publication emerging from publicly-funded research must be deposited in open-access institutional repositories.¹²⁹ A similar piece of legislation titled "Federal Research Public Access Act"¹³⁰ was recently introduced in the U.S. Senate. It requires eleven of the largest publicly-funded American agencies to publish their research papers online within six months of journal publication. Decreeing wide dissemination will not only ensure that the general public has access to research that it funds through taxes, but also enable researchers to utilize and build on the latest publicly-

¹²⁸ NIH carefully supervises the performance of NIH licensees to ensure that its licensed technology is fully developed. For any one of nine specific grounds, the NIH can seek a modification from an exclusive to a nonexclusive license or termination of the license. Three of these grounds are (1) failure to meet commercialization benchmarks, (2) failure to keep the licensed technology reasonably accessible to the public, and (3) failure to reasonably meet unmet health care needs. National Institutes of Health Office of Technology Transfer, *Licensing Policy*, http://ott.od.nih.gov/policy/phslic_policy.aspx (last visited July 4, 2010). For a review of this policy, see generally Rai & Eisenberg, *supra* note 4.

¹²⁹ "Open access" can be achieved by placing copies of articles in an open access repository or by publishing those articles in open access journals. For detailed information about the structure of open access repositories, see Sridhar Goutam, *India Needs Legislation for Accessing Publicly Funded Research*, 7.1 SSV NEWS AND VIEWS 26 (2009), available at http://openmed.nic.in/3341/01/India_Needs_OA_Legislation_SSV_News_and_Views_7_1_Sept_2009.pdf (last visited July 4, 2010).

¹³⁰ Federal Research Access, S. 1373, 111th Cong. (2009).

funded research without paying the enormous fees that have come to characterize many leading journals.¹³¹

E. Affordable Pricing

The Bill should also incorporate an affordable pricing provision: “all PFIs and licensees shall implement affordable pricing policies for any patented products created using public funds.” History is replete with instances of patented university research being licensed to major pharmaceutical companies who use the patents to manufacture and sell drugs at high prices in poor economies. The anti-HIV drug Zerit (based on the molecule d4t) created by Bristol-Myers Squibb originated in an exclusive license from Yale University. Despite a requirement that the license be used for “the benefit of society in general,” BMS sold the drug for extremely high prices in Africa. After a student-initiated protest at Yale, BMS backed down and agreed to reduce its prices. It also agreed to not enforce its patents against Aspen, a generic manufacturer from South Africa.¹³²

A group of universities including Harvard, Yale, Brown, University of Pennsylvania, Boston University, and Oregon Health & Science University released a joint statement in which they committed to making “vigorous efforts” to promote global access to drugs through licensing strategies¹³³ such as consenting to a reduced royalty rate to enable phar-

¹³¹ Consider the following annual subscription rates of internationally reputed journals. *Acoustical Physics*: 2495 euros; *Analog Integrated Circuits and Signal Processing*: 1882 euros; *Annals of Operations Research*: 3285 euros; *Applied Biochemistry and Microbiology*: 4631 euros; *Applied Microbiology and Biotechnology*: 6553 euros. For 2010 Journal Subscription Prices, see SPRINGER JOURNALS PRICE LIST 2010, http://www.springer.com/cda/content/document/cda_downloadaddocument/Serials+Update+Jan+10+Springer+Journals+Price+List+-+EUR+-+complete+list.xls?SGWID=0-0-45-862238-0 (last visited June 6, 2010). See also Jenifer Reinhardt, *Bill Aims to Provide Taxpayers Access to Publicly Funded Research*, OHMYGOV.COM, July 21 2009, http://ohmygov.com/blogs/general_news/archive/2009/07/21/bill-aims-to-provide-taxpayers-access-to-publicly-funded-research.aspx (last visited July 4, 2010).

¹³² See Yale University, *University IP Policies and Access to Medicines*, http://www.yale.edu/yaw/documents/crashcourse/university_patents.ppt. See also Yale University, *Statement by Yale University Regarding Bristol-Myers Squibb Company's Program to Fight HIV/AIDS*, Mar. 14, 2001, <http://opa.yale.edu/news/article.aspx?id=5338> (last visited July 4, 2010). For examples of patented drugs such as Roche's Fuzicon and diagnostic tools such as Myriad Genetics' patented breast cancer testing kit that were prohibitively expensive despite their origins in publicly-funded research, see Risa L. Lieberwitz, *Confronting the Privatization and Commercialization of Academic Research: An Analysis of Social Implications at the Local, National, and Global Levels*, 12 INDIANA J. GLOB. LEG. STUDIES 127, 128 (2005).

¹³³ See Yale University Office of Public Affairs, *Six Universities Adopt New Technology Transfer Principles Designed to Speed Access to Affordable Medicines in the Developing World*, Nov. 9, 2009, <http://opa.yale.edu/news/article.aspx?id=7067> (last visited July 4, 2010). The official joint statement is available here: <http://www.autm.net/Content/NavigationMenu/TechTransfer/GlobalHealth/statementofprinciples.pdf>.

maceutical companies to charge a lower price for drugs.¹³⁴ Harvard has wielded its considerable contractual power in issuing licenses to facilitate increased drug access.¹³⁵ Such public-spirited action by universities is laudable, and space for such initiatives ought to be created within the Indian Bill. The Bill could also contain statements to the effect that any product created from publicly-funded research must be available at “affordable” prices.¹³⁶

The Bill itself states that “[t]he ultimate objective, however, is to ensure access to such innovation by all stakeholders for public good.”¹³⁷ Although it may be impossible to determine *ex ante* what constitutes an “affordable” price, normative statements within the text of a statute can exercise a powerful signaling function and exert considerable moral force.¹³⁸ The natural next question is what an affordable price is. For pharmaceutical drugs, one might consider assigning responsibility for this determination to the National Pharmaceutical Pricing Authority (NPPA).¹³⁹ As far as possible, the Bill should implement tiered pricing for

¹³⁴ John Laerman, *Harvard Among Six Schools Urging Drug Access for Poor*, BLOOMBERG.COM, Nov. 9, 2009, <http://www.bloomberg.com/apps/news?pid=20601103&sid=aa23AHBWnxew> (last visited July 4, 2010).

¹³⁵ In 2007, the university licensed a tuberculosis vaccine technology to Morningside Group on the condition that the company agree to sell vaccine produced with the technology at affordable prices in developing countries. *Id.*

¹³⁶ The salient features of the NIH Licensing Policy are as follows:

NIH seeks to ensure that technologies commercialized under NIH licenses are brought to practical application, offered and maintained for sale, and made reasonably accessible to the public. NIH enhances public access to the benefits of its technology by fostering the development of competing products for the same or similar applications. For example, NIH currently has several CRADAs and licenses which combine the significant expertise of its scientists with the knowledge and resources of different private partners for the development of two types of therapy (gene therapy and recombinant enzyme replacement therapy) for an inherited disease. The only therapy currently on the market to treat this disease is an expensive enzyme replacement regimen derived from placental tissue.

Licensing Policy, *supra* note 128.

¹³⁷ Bill, *supra* note 15, at Statement of Objects and Reasons.

¹³⁸ By means of a contractual statement that the license be used for “the benefit of society in general,” BMS was pressured into dropping prices in Africa. See also note 70 for a discussion of the signaling function of law and its effect in bringing about behavioral changes in society.

¹³⁹ The National Pharmaceutical Pricing Authority was set up as an office of the Department of Chemicals and Petrochemicals on August 29, 1997. The enacting legislation was the Drugs (Prices Control) Order, 1995, which was issued by the Government of India under Section 3 of the Essential Commodities Act, 1955. At present, its power to regulate drug prices is limited to setting and revising prices of pharmaceutical products such as bulk drugs and formulations, enforcement of provisions of the Order, and monitoring the prices of controlled and decontrolled drugs in the country. Any expansion of its powers to assess and monitor “affordable” pricing of drugs originating in publicly-funded research would require amendments in the parent statute that brought the NPPA into existence. See Parvathi K. Iyer, NAT’L INST. OF SCI. TECH. & DEV. STUD., *Regulatory Issues in the Indian Pharmaceutical Industry: India, Science and Technology* (2009), available at <http://www.nistads.rcs.in/indiasnt2008/t4industry/t4ind18.htm> (last visited Mar. 15, 2010).

products coming out of publicly-funded research rather than one global price.¹⁴⁰

The Patents Act stipulates that a compulsory license can be granted if a patented product is sold at an excessive price.¹⁴¹ This provision for compulsory licensing only kicks in three years after the grant of the patent.¹⁴² For publicly-funded intellectual property, there is no reason to maintain this three-year window. All publicly-funded IP should be subject to compulsory licensing immediately if the patent holder sells products derived from the patent at excessive prices.¹⁴³

F. Encouraging Socially Relevant Innovation

The Bill should encourage innovation with maximal social impact. Sam Pitroda¹⁴⁴ wrote about India's habitual Westward focus, a predilection that too often adversely affects her own people: "Consider the plight of villagers from the Sunderbans, where a furious [Cyclone] Aila polluted agricultural lands with a massive infusion of salt water. Traditional wisdom holds that their livelihoods are doomed, as nothing ever grows in salt water."¹⁴⁵ Why should the fates of the villagers be sealed? India could turn her attention inward, devoting resources toward creative responses to the disaster—for example, eliminating salt water in a cost-effective man-

¹⁴⁰ In response to the growing controversy over the issue of access to medicines, the European Commission recently proposed a tiered pricing system that would offer lower drug prices to developing countries while maintaining prices in developed countries. The concept of differential pricing has also been taken up by the WHO and WTO Secretariats. See Cecilia Oh, *TRIPS, Patents and Access to Medicines: Proposals for Clarification and Reform* (Third World Network, Briefing Paper, June 2001), available at <http://www.twinside.org.sg/title/drugs2.htm> (last visited July 4, 2010).

¹⁴¹ The Patents Act, 1970, as amended in 2002, states the following:

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 Controller for grant of compulsory licence on [sic] patent on any of the following groun[d]s, namely:

- (a) that the reasonable requirements of the public with respect to the patented invention have not been satisfied, or
- (b) that the patented invention is not available to the public at a reasonably affordable price, or
- (c) that the patented invention is not worked in the territory of India.

Patents (Amendment) Act § 84(1), No. 38 of 2002.

¹⁴² In contrast, § 203 of the U.S. Bayh-Dole Act provides for march-in rights that can take effect at any time in the life of a federally-funded patent. 35 U.S.C. § 203.

¹⁴³ An earlier version of the Bill stated that compulsory licensing provisions otherwise available under the Indian patents act would apply to publicly-funded patents as well. See Bashcer, *supra* note 97. This amounted to a redundancy, and the legislature dropped the provision from the final version of the Bill.

¹⁴⁴ Advisor to the Prime Minister of India on Public Information, Infrastructure, and Innovations.

¹⁴⁵ Shamnad Bashcer, *India's Innovation Czar*, LIVEMINT.COM, Dec. 6, 2009, <http://www.livemint.com/2009/12/06220908/India8217s-innovation-czar.html> (last visited July 4, 2010).

ner or identifying crops or plants that are likely to be salt-resistant. The government must use the opportunity which the Bill offers to encourage R&D tailored towards such socially relevant innovation. It could insist that PFI performance be measured in part by the social impact of its innovations, with high-scoring PFIs earning higher funding from the government. By this yardstick, the PFI that discovers a cure for tuberculosis and eradicates a lethal disease cutting away at the country's poor would rank higher than the PFI that invents the next Viagra,¹⁴⁶ adding to the woes of a country already choking under the burden of a rapidly exploding population.

G. Intramural vs. Extramural Research

Section 3 of the Bill notes as follows: "Any recipient interested to take a grant from the Government for the purpose of research and development shall enter into an agreement with the Government before receipt of such grant." Under current law, government agencies such as the Defence Research Development Organisation (DRDO) that conduct research themselves often use budgetary funds disbursed to them. If the agency receives money as a grant-in-aid for a specific research purpose, the research using those funds is deemed "extramural."¹⁴⁷ Section 3 of the Bill appears to apply to the latter case but not the former. In the former case, the government is said to be performing "intramural" research, or that done by the government itself as a core part of its functions.¹⁴⁸

From 2005 to 2006, the government set aside about 20% of its total R&D budget for extramural grants to various agencies, both governmental and nongovernmental.¹⁴⁹ The remaining 80% appears to have been allotted as "disbursements" to various government departments for intra-

¹⁴⁶ Sildenafil citrate, sold as Viagra by Pfizer, is a commercially successful drug used to primarily treat erectile dysfunction. The sale of Viagra drove Pfizer's market value up by 50% in the very first year of its introduction. LONDON EVENING STANDARD, Nov. 17, 1998. Market dynamics dictate a preference for developing drugs like Viagra over those treating the diseases endemic to poorer developing countries with less purchasing power.

¹⁴⁷ Interview with Dr. Satyajit Rath, National Institute of Immunology, India (Feb. 5, 2010).

¹⁴⁸ Department of Health and Human Services, Glossary and Acronym List, <http://grants.nih.gov/grants/glossary.htm> (defining intramural research as research conducted by, or in support of, employees of the NIH, and extramural research as research supported by NIH through a grant, contract, or cooperative agreement).

¹⁴⁹ Only half of these funds went to universities and educational institutions, while the rest went to government research labs, such as those under the CSIR, or to triple helix collaborations, including private industries. It is estimated that about 8% goes to the thirty-eight labs under the aegis of the CSIR, 4% to the institutions under the ICAR, 4% to the applied research programs of the DST, and 1% to the Indian Council for Medical Research. Kochupillai, *supra* note 22 (citing *National Resources for Research and Development, in NAT'L SCI. & TECH. MGMT. OF INFO. SYS., DEP'T OF SCI. & TECH., GOV'T OF INDIA, RESEARCH AND DEVELOPMENT STATISTICS 2004-2005*, (Sept. 2006)).

mural research. A large portion of these intramural funds went to the defense and space departments.¹⁵⁰

One might argue that there is no reason for the Bill to cover intramural research, since the government agency itself conducts the research as a core feature of its mission; presumably, we can trust the government to make its patenting and commercialization decisions in the public interest. Others would disagree, arguing in response that there is no principled reason for excluding government agencies performing intramural research from the ambit of the Bill. Most of DRDO's research output is not patentable, since it relates to defense, but it conducts a significant portion of civilian research as well, some of which is patentable.¹⁵¹ Such patents should be regulated analogously to other publicly-funded research patents. If the norm is for publicly-funded inventions to be licensed on non-exclusive terms, the same norm must apply to patented inventions that come out of intramural research.

The United States has two statutes covering publicly-funded patents. The Stevenson-Wydler Act regulates research performed internally by the government.¹⁵² The other is the Bayh-Dole Act, which regulates research performed by other institutions using government money.¹⁵³ To enable it

¹⁵⁰ It is estimated that defense and space expenditures alone amount to more than 50% of total government intramural and extramural R&D spending. Kochupillai, *supra* note 22 (citing UNLEASHING INDIA'S INNOVATION: TOWARDS SUSTAINABLE AND INCLUSIVE GROWTH 62 (Mark A. Dutz ed., World Bank 2007)).

¹⁵¹ Consider the following patents/applications by DRDO:

Title: Improved angioplasty and intravascular catheter assemblies and methods of their therapeutic use; application number: 851/DEL/2008; filing date: April 1, 2008; publication date: October 30, 2009.

Title: Herbal mosquito repellent composition and process for preparation thereof; application number: 735/DEL/2008; filing date: March 24, 2008; publication date: October 2, 2009.

Title: Mushroom drink and a process for its preparation; application number: 697/DEL/2008; filing date: December 19, 2005; publication date: October 2, 2009.

Title: Gene amplification method for early detection of Chikungunya Virus; application number: 625/DEL/2008; filing date: March 12, 2008; publication date: September 18, 2009.

Title: A process for the formulation of medicated herbal tea; application number: 1053/Del/2005; filing date: April 20, 2005; publication date: May 11, 2007

See also Ramnath Shenoy, *DRDO Registers Jump in Filing Patents*, BUSINESS STANDARD, June 24, 2009, <http://www.business-standard.com/india/news/drdo-registers-jump-in-filing-patents/12/21/65421/on> (last visited July 4, 2010) ("[The] bulk of the patents filed is in the area of life sciences, followed by medical chemistry, drugs and biology.").

¹⁵² Stevenson-Wydler Technology Innovation Act of 1980, Pub. L. No. 96-480, 94 Stat. 2311-2320 (codified as amended at 15 U.S.C. §§ 3701-3714 (1994)).

¹⁵³ Patent and Trademark Amendments of 1980, Pub. L. No. 96-517, (codified at 35 U.S.C. §§ 200-212 (2000)).

to optimally manage extramural and intramural research, it would behoove the Indian government to study the U.S. system in greater detail.

H. Creation of Nodal Authority

Although the Indian Bill has comprehensive provisions to regulate the creation and use of publicly-funded IP, it does not provide for a nodal authority to administer it. We propose the creation of such a nodal authority within the Bill. This entity could consist of officers from the following organizations:

- i. Secretary, DST (Department of Science and Technology, Ministry of Science and Technology)
- ii. Controller General, Indian Patent Office
- iii. Representative from IIT (Indian Institutes of Technology)
- iv. Representative from Industry
- v. Representative from UGC
- vi. Legal Expert

This committee should review and tweak the Bill periodically to ensure that it fulfills its intended purpose.¹⁵⁴

I. Government Use

Under § 13 of the Bill, the government has rights to use IP only for the purpose of compliance with international treaties.¹⁵⁵ This “government use” should be broadened to allow it to utilize any publicly-funded IP independently or through a specifically authorized third party as long as the use is non-commercial. Commercial uses should be permissible as well upon the payment of reasonable royalties.¹⁵⁶ Although the current Patents Act may be interpreted to allow such wide flexibility,¹⁵⁷ for the

¹⁵⁴ Other legislative schemes provide for such nodal agencies. The Department of Personnel and Training, for example, is the nodal agency for the implementation of the Right to Information Act, 2005. The DPT is entirely a government entity, but other nodal agencies and oversight committees include nongovernmental representatives as well. The Science and Engineering Board Act, 2008 provides for an Oversight Committee consisting of experts, eminent scientists, and academics to assist and advise the Science and Engineering Board created under the Act.

¹⁵⁵ The Bill states, “Notwithstanding anything contained in this Act, the Government shall have a right to practice and to assign any public funded intellectual property to carry out its obligations under any international treaty or agreement.” Bill, *supra* note 15, § 13.

¹⁵⁶ The government agency that funded the research should have the liberty of using its product without paying royalties, even if the use is “commercial” in nature.

¹⁵⁷ Under Chapter XVII (§§ 99–103) of the Indian Patents Act, the central government or anyone authorized by it may use or acquire an invention on behalf of the central government, a state government, or a government undertaking upon payment of adequate remuneration or compensation.

sake of clarity, writing explicit statutory language into the Bill would remove any remaining ambiguity. This is particularly important since the Bill is not restricted to patents but governs other forms of intellectual property as well (plant variety and semiconductor protection).¹⁵⁸

J. More Transparency

The Bill's provisions for transparency in the registration and licensing of publicly-funded IP are commendable.¹⁵⁹ However, there are areas that require further legislation. To fill in the statutory gaps, this paper recommends that the following supplementary provisions be added:

- i) All applications for intellectual property rights to publicly-funded inventions shall state in the application that the item in question has been made with public funding. This may require amending the Patents Act, the Protection of Plant Varieties and Farmers' Rights Act, and the Semiconductor Integrated Circuits Layout-Design Act.
- ii) The nodal authority created by this legislation shall maintain a list of all intellectual property created using public funds.
- iii) Every license a publicly-funded institute enters into shall be reported to the nodal authority under the Bill, which shall keep record of all licensing arrangements and, if practical, of royalties earned.

The Bill should also impose an obligation on institutions to submit periodic reports revealing the number of invention disclosures in defined categories, such as therapeutic devices and software. Second, it could note the number of patent, copyright, and trademark applications filed, and state whether they are domestic, overseas, or secured through the Patent Company Treaty. Third, the report could state the number of licensing agreements that the institution has processed during the period covered by the report and give profiles of the successful applicant companies. Finally, it could account for revenues earned from licensing and

This is to be distinguished from § 47 of the Patents Act, which expressly allows the government to use any patented invention *without* payment of royalties. However, § 47 is narrower in the sense that the government itself must "use" the patented invention. Chapter XVII allows the government to authorize another party to use the invention. The government can even "vend" the patented product. For further details on the intricacies of the government use provisions and their application, see Shamnad Basheer & Tahir Amin, *Taming of the Flu: Working Through the Tamiflu Patents in India*, 11 J. INTELL. PROP. RTS. 113 (2006).

¹⁵⁸ Bill, *supra* note 15, § 2(c).

¹⁵⁹ *Id.* §§ 4–6, 9.

describe the progress made toward dissemination of knowledge and technology.

K. Measuring Performance of Scientists

An incentive mechanism can succeed only if there are objective and transparent criteria for measuring the performance of scientists. These criteria should not be limited to the number of patents or other forms of IP registered. To achieve a more holistic evaluation, the criteria should also include other factors demonstrating that the scientist or institution has contributed to knowledge transfer—for example, the number of peer-reviewed articles written by the scientist. A specially-constituted committee could draft an evaluative framework under the Rules to incorporate these additional factors. The Bill itself should provide an enabling provision for such a rule.

L. Encouraging Local Industry

The Bill must encourage research institutions to license out IP to local industry over foreign multinationals. Since a number of multinationals have outsourced their R&D hubs to India, it is likely that they will interact with Indian publicly-funded research institutions and attempt to influence the course of their research. The Bill should therefore give preference in licensing to local entities, particularly small and medium enterprises (SMEs) who are likely to use the licenses they procure to manufacture in India. Such a normative statement in the Bill could help ramp up the innovation capabilities of local firms (particularly SMEs).

M. Local Manufacturing

The current Bill has a provision¹⁶⁰ that only permits the granting of exclusive licenses when the licensed IP is used to manufacture the product locally. In light of our recommendation of nonexclusive licensing above, this provision should be deleted. Instead, the government could give general preference to two or more local producers under nonexclusive licensing terms.

VI. MISCELLANEOUS RECOMMENDATIONS

In addition to the suggestions enumerated above, there are several

¹⁶⁰ *Id.* § 16.

technical revisions to be made to the Bill.

A. Title of Bill

The title of the Bill ("Protection and Utilisation of Public Funded Intellectual Property Bill, 2008") is unnecessarily wordy and imprecise. In accordance with the Bard's wisdom that brevity is the soul of wit,¹⁶¹ we recommend that it be shortened to "Publicly-Funded Intellectual Property Bill." If the government elects to add provisions regulating publicly-funded research more generally, it might be more appropriate to entitle it the "Regulation of Publicly-Funded Research Bill."

B. Application to Trademark and Copyright

The Bill currently covers all forms of intellectual property rights, including patents, trademark, designs, plant varieties, copyrights, and semiconductor chip layouts.¹⁶² Since there is no nexus between publicly-funded research and innovation on the one hand, and trademark on the other, we argue that trademarks be excluded from the Bill. Since the Bill seeks to regulate intellectual property deriving from R&D, and trademarks are source indicators for goods and services, they do not form a logical part of the Bill and should be controlled separately.

Secondly, in the copyright context, some of the obligations under the Bill are inapposite, particularly those relating to "disclosure" and "registration." A legally enforceable copyright comes into being the moment a "work" is created and does not depend on registration for its validity. Therefore, the disclosure obligation in § 4 and the registration obligation in §§ 5 and 7 are meaningless for copyright. Furthermore, the timing of scientific publications might receive unnecessary negative influence if the nondisclosure obligations in § 6 are included within the Bill. The only clause that makes sense for copyright contains the royalty-sharing arrangements in § 11. Under current law, copyright created by an employee in the course of employment belong to the institutional employer.¹⁶³

By way of clarification, we recommend that the Bill have a clause clearly stating that only the intellectual property generated using public funds in the course of employment will be covered. We recommend the following phrasing:

¹⁶¹ WILLIAM SHAKESPEARE, *THE TRAGEDY OF HAMLET, PRINCE OF DENMARK* act 2, sc. 2.

¹⁶² *Id.* § 2(c).

¹⁶³ The U.S. Bayh-Dole Act covers only patents and patentable inventions, not trademark or copyright. 35 U.S.C. § 200.

Only intellectual property which is created using public funds by an employee of a publicly-funded institution within the course of his or her employment is covered by this legislation. If the person creating the intellectual property is not an employee, then the work product in question shall be covered by this Bill only if it was created under a contract for service.¹⁶⁴

C. *Exclusion of Scholarship Holders*

Section 17 states as follows: “Nothing in this Act shall apply to any intellectual property generated out of scholarship, fellowship and grant given by the Government, primarily, for educational purposes.”¹⁶⁵ There is scant reason for this exclusion of scholarship holders. Logic dictates that intellectual property created through government funding ought to be covered by the Bill regardless of whether it was created by a university scientist or a student on a scholarship. Some scholarships, though, merely cover tuition, fees, and living expenses of the student recipients.¹⁶⁶ These should be exempt from this legislation, since they include no specific monetary grant for “research.” The corollary to this recommendation is that if any monies have been given to scholarship holders for specific research projects, the output of such projects must be subject to the terms of this legislation.

D. *Problematic Definition of Intellectual Property*

Intellectual property is defined in § 2(c) as follows: “[I]ntellectual property’ means any right to intangible property, including trade mark, patent, design, and plant variety as defined under the Copyright Act, 1957; the Patents Act, 1970; the Designs Act, 2000; the Semiconductor Integrated Circuits Layout-Design Act, 2000; and the Protection of Plant Varieties and Farmers’ Rights Act, 2001.”¹⁶⁷

Section 4 reads thus: “The recipient shall within a period of sixty days of actual knowledge of the public funded intellectual property make a

¹⁶⁴ In contrast, the current section reads as follows: “‘Intellectual property creator’ means the person employed or engaged by the recipient for research and development and who created the public funded intellectual property.” Bill, *supra* note 15, § 2(d).

¹⁶⁵ Bill, *supra* note 15, § 17.

¹⁶⁶ Many PhD students at Indian research institutions are supported by publicly-funded scholarships such as the Junior Research Fellowships (JRFs) and Senior Research Fellowships (SRFs). These fellowships are meant to serve an educational purpose. See P. Balam, *Imitating the Bayh-Dole Act: Incremental Innovation*, 98 CURRENT SCIENCE 129, 130 (2010). Balam argues that all such students should be covered by the Bill. We, however, contend that only those students that have been given “specific” research-related funding should be covered, since a general scholarship would only cover tuition, general living expenses, and other incidental expenses.

¹⁶⁷ Bill, *supra* note 15, § 2(c).

disclosure thereof to the Government in such form and manner as may be prescribed.”¹⁶⁸ With the exception of copyrights, which do not need to be registered,¹⁶⁹ all other intellectual property rights come into being only after registration. The combination of these two sections gives § 4 a rather illogical reading: a recipient is bound to disclose IP only after it has been registered. To resolve this paradox, we recommend that “intellectual property” be defined in the following manner:

“Intellectual property” includes any invention, work, or subject matter capable of being registered or protected in one of the following categories: copyrights under the Copyright Act, 1957; patents under the Patents Act, 1970; design under the Designs Act, 2000; plant varieties under the Protection of Plant Varieties and Farmers’ Rights Act, 2001; and semiconductors under the Semiconductor Integrated Circuits Layout-Design Act, 2000.

E. Exclusion of Private Parties

Section 2(e) defines “recipient” as including “a university or institution of higher education established for research purposes which has entered into an agreement with the Government under section 3, and includes an organisation established by an Act of Parliament or a non-profit scientific or educational organisation registered under the Societies Registration Act, 1860.”¹⁷⁰ This definition excludes private entities that receive money from the government. There is no principled reason for this exclusion, and we recommend that the clause be reworded as: “‘Recipient’ includes a university or any other institution or legal entity, whether public or private, which has entered into an agreement with the Government under section 3.”¹⁷¹

F. Harsh Fines

As mentioned earlier, the Bill in the present form levies disproportionately high penalties for noncompliance. Section 20 provides that when a publicly-funded institute fails to comply with its obligations, the government shall “(a) recover the amount of grant already released with in-

¹⁶⁸ *Id.* § 4.

¹⁶⁹ See *supra* Part VI(B).

¹⁷⁰ Bill, *supra* note 15, § 2(e).

¹⁷¹ The U.S. Bayh-Dole Act includes private entities within its ambit. It allows any contractor to enter into a funding agreement with any federal agency and defines “contractor” as “any person, small business firm, or non-profit organization that is a party to a funding agreement.” 35 U.S.C. § 201(c).

terest at the rate of ten per cent, per annum thereon in such manner as may be prescribed; and (b) bar such recipient for future grants for those purposes which were subjects of initial funding agreement.”¹⁷²

Section 22 carries additional penalties, noting that any noncompliant entity “shall be punishable with fine which may extend to fifty per cent of the amount of the grant received by him for research and development under section 3.”¹⁷³

Section 21 applies to an individual inventor or a creator. It states that such individual, if found in violation of § 9 disclosure obligations, shall “(a) not be given his share of income or royalty; and (b) be punishable with fine which may extend to twenty-five per cent of the amount of grant received by the recipient for research and development.”¹⁷⁴

We recommend that the penalties be tempered. For example, failure to comply with the Bill could result in a lower ranking, which would reduce the quantum of funds the entity receives at the next disbursement. As a qualification, because institutes often consist of several departments, the Bill should only penalize the specific department that violates the regulation, not the institute as a whole.

G. Relationship with Other Intellectual Property Legislation

To minimize the scope for conflict with other legislation governing intellectual property, we recommend the insertion of the clause below:

Subject to the provisions of this Act, all the provisions in other intellectual property legislation (such as the Patents Act and the Copyright Act) shall apply to publicly-funded intellectual property as well. Where there is a conflict between the provisions of this Act and existing intellectual property or other laws in India, the provisions of this Act shall prevail.

VII. CONCLUSION

As a former British colony, India is familiar with Western legal transplants. More than fifty years after independence, one would have expected greater caution in the transplantation process. Sadly, lack of caution is far from the only flaw in the Indian Bayh-Dole effort. More egregiously, the Bill reflects a complete lack of understanding of ground-

¹⁷² Bill, *supra* note 15, § 20.

¹⁷³ *Id.* § 22.

¹⁷⁴ *Id.* § 21.

level realities of publicly-funded research in India, the modes of appropriation and dissemination of results of such research, and the industry nexus. Given that the Indian effort was nothing more than a formalistic importation of the U.S. Bayh-Dole Act with a few cosmetic changes and some harsh punitive provisions thrown in at the last minute, the highly imperfect outcome is unsurprising. The lawmaking process which the Bill passed through reflects a lack of transparency as well as a lack of study and consultation with the critical stakeholders whom the Bill is likely to impact the most. The history of this Bill makes a perfect case study for what not to do during lawmaking.

Fortunately, the Standing Committee of the Indian Parliament has asked the government to reconsider certain provisions of the Bill after more meaningful consultation with stakeholders. To this end, we offer concrete suggestions for improving the Bill. In particular, we recommend the insertion of provisions to more effectively regulate patenting. Some of these provisions are crafted to provide an added boost to Indian industry, particularly to small and medium enterprises. Others are aimed at lessening the blow of patent monopolies by mandating affordable prices. Still others are directed toward granting more freedom to the individual inventor to determine the fate of his invention and mode of appropriation.

Our overarching thesis is that this regulatory advantage is too often overlooked in the debates around the pros and cons of Bayh-Dole. India must fully leverage this advantage if it wishes to establish a more evolved transplant.