*This brief deals with the problem of software patenting in India. Specifically, it is concerned with the threat of patents being granted for pure software which does not constitute a part of a larger device and which poses a threat to the growth of the software industry in India. An analysis of the relevant provisions of the Indian Patent Act, 1970 is provided with a view to ascertaining the precise extent of patent coverage to computer programs that is envisaged by the legislature. It is argued that the intent of the legislature has been to permit patenting of computer programs only when they are a component of a larger system which is patentable taken as whole. This is also the stated policy of the Patent Office. However, an analysis of the software patents actually granted by the various Patent Offices indicates that an increasing number of patents are being granted for software which do not form a part of larger systems. Accordingly, the need for concerted action to oppose the grant of such patents is emphasized.*

# 1 INTRODUCTION

For many reasons – including conceptual, political and practical difficulties – the patenting of computer programs (software patents) has been a troublesome issue in India.

At the conceptual level, it is difficult to justify patents for software which are regarded as analogous in many ways to mathematical formulae or algorithms.[1] The latter have for long, been universally denied patent "protection" on the ground that they would impede the progress of science.[2] It is not implausible to apply the same rationale to the question of software patentability. The fears of the detrimental impact

[1] All computer programs are algorithms implemented for execution on a computer. As algorithms or mathematical methods are not patentable under Indian law, no software or computer program, which can run on general-purpose machines, can be considered patentable.

[2] Courts in all parts of the world have held that subject matter which would have the practical effect of preempting laws of nature, abstract ideas or mathematical algorithms are ineligible for patent protection. If these could be patented, then in effect one would be patenting the tools of scientific enquiry itself.

of software patents have been powerfully articulated by Tim Berners-Lee, one of the founders of the World Wide Web, director of the World Wide Web Consortium:

> "All companies developing emerging technology are threatened by the prospect of patent licensing royalties. You could never find out what patent could possibly apply to what technology. You could never guess what things people might have the gall to say they have patented already. It really is a universal fear." (Tim Berners-Lee at Emerging Technologies Conference at the Massachusetts Institute of Technology, September 29, 2004.)

A different kind of challenge to software patents is issued on behalf of the Indian software industry, which has, so far, dedicatedly serviced the global software "body shopping" market, without itself developing any consumer products.[3] Granting software patents in this scenario would mean that the Indian industry would be denied access to the knowledge which it had itself previously discovered.[4]

A large part of the problem can also be traced to the complex nature of the "computer program" itself, which comes both in "shrink wrapped" packages, as well as embedded within electronic goods, and which may be used for purposes as diverse as calculating the sum of two numbers, or to control the beating of an artificial heart. The pervasiveness of firmware in appliances has spurred the demand for patents on computer programs from the electronics manufacturing sector. However, without a special rationale that usefully distinguishes software packages from embedded software – excluding the former from being patented - a very real threat exists that routine programming techniques could be turned over to private monopolies, with disastrous consequences both to the individual programmer as well as to the Indian software industry.

The next section outlines the legal provisions relating to software patents in India with a view to ascertaining whether such a rationale exists in Indian law.

## 2 LEGAL FRAMEWORK

Patenting of computer programs was formally[5] introduced in the Indian Patent Act 1970 ("the Act") in 2002, ironically, through an amendment that *excluded* "computer programs per se" from the scope patentability.[6]

---

[3] Pratap Chatterjee, Invasion of the "Body Shoppers" , <http://multinationalmonitor.org/hyper/issues/1995/05/mm0595_08.html>

[4] Prabir Purkayastha, "Software Patenting: A Huge Blow To Indian Industry", People's Democracy, Vol XXIX, No. 05, January 30 2005 <http://pd.cpim.org/2005/0130/01302005_snd.htm>. Evidence of these fears having a firm grounding may be witnessed in the fact that 85 per cent of the software patent applications till 2005 have been filed by multinational companies. Gaurie Mishra, "2,000 software patent applications filed in '05", Rediff.com, January 04, 2006, <http://www.rediff.com/money/2006/jan/04it.htm> Last accesed 04 July 2007

[5] However, as early as in 1996, IBM had reportedly sought and obtained a patent from the Indian Patent Office for a software product "for management of software programmes in a data processing system". The patent claims reportedly did not mention any hardware or any special tasks which the

The newly introduced Section 3(k) of the Act read:

**"3. What are not inventions.**

The following are not inventions within the meaning of this Act.-

..

(k) a mathematical or business method or a computer program *per se* or algorithms"

Importantly, no definitions of the four new categories or what was meant by the qualifier "per se" was supplied[7], and the various Patent Offices appear to have arrived at their own, sometimes inconsistent determinations of what the clause meant. [8] Although the wording "per se" lacks an exact international legislative analogue[9], it is similar to the wording employed by the European Patent Convention which excludes "computer programs *as such*" from the scope of patentability.[10] This has been interpreted to mean that computer programs which achieved a "technical effect" were fit subjects of patent protection.

Subsequently, in December 2004, a further amendment was effected through an Ordnance which bifurcated this clause and sought to narrow the exclusion of computer programs from patentability. The resultant clauses read as follows:

"(k) a computer programme *per se other than its technical application to industry or a combination with hardware*;

(ka) a mathematical method or a business method or algorithms;".

---

software might perform. <http://www.hindu.com/businessline/2000/07/01/stories/140139bm.htm> last accessed 03 July 2007. The Hindu Business Line, dt. July 01, 2000.

[6] The amendment also added several other "whats" to the list of non-inventions. These included "plants and animals", "aesthetic creations", "schemes or rules or methods of playing games", "presentation of information", "topography of integrated circuits" and "traditional knowledge for performing mental acts, playing games or doing business".

[7] One may, however, refer to the definitions of "computer" and "computer programme" given in the Indian Copyright Act for guidance :

2(ffc) "computer programme" means a set of instructions expressed in words, codes, schemes or in any other form, including a machine readable medium, capable of causing a computer to perform a particular task or achieve a particular result;"

2(ffb) "computer" includes any electronic or similar device having information processing capabilities."

[8] Cite news item interviewing Pravin Anand circa 2003 in which he clarifies his interpretation and also says there is inconsistency.

[9] In one of the seminal pronouncements by the US Supreme court on software patentability, it was held in *Diamond v Diehr 450 US 175 (1981)* that a rubber curing process controlled by software was patentable since it did not relate to software *per se*. The Indian legislature appears to have tacitly approved this formulation in its importation of the wording.

[10] The other clauses introduced with the 2002 enactment are almost identical to the clauses in the European Patent Convention. This could lend support to the view that the Indian legislature intended a similar interpretation to be adopted in India for granting software patents. However, the fact that the Indian Parliament declined to use the "as such" wording despite its having an established volume of adjudication leaves room to suspect otherwise.

However, this ordnance did not survive for very long, and in April 2005 it was replaced by an amending enactment which reverted to the 2002 position – once again "computer programs per se" were excluded.

This unsuccessful attempt to alter the language of Section 3(k) however leaves us with some very important insights into the manner in which the words "computer programs per se" *ought* to be interpreted. Mainly, two propositions emerge:

1) It is not clear if the legislature had intended, in 2002, that computer programs with "technical applications", or those "used in combination with hardware" be granted patent protection. Since the clarificatory amendment[11] sought to be introduced through the 2004 ordnance did not receive the political support it needed to be incorporated in the 2005 amending enactment, one is forced to conclude from this deliberate omission that it is *not* the legislature's intent anymore that computer programs in combination with hardware enjoy patent protection . [12]
2) The legislature had intended in 2002, that "computer programs per se" be interpreted identically to the interpretation of algorithms, business methods and mathematical methods. That is, the legislature perceived a certain similarity between the four subjects which was sought to be disturbed by the 2004 ordnance. Since the 2005 enactment restores the 2002 position, we may be assured that "computer programs per se" must be interpreted contextually along with the other three categories listed in clause 3(k).

In the absence of definitive judicial pronouncements on the matter, however, there is no sanctity to the above interpretation (other than some general confidence one may gain from having applied sound principles of legal interpretation), and the true *legal* position of software in patents is indeterminate.
Meanwhile, the Patent Office attempted an act of interpretative housekeeping through the publication of a draft Manual of Patent Practice and Procedure in 2005. Although the draft was never followed by a final version, it at least makes an attempt to publicly articulate its understanding of the principles on which it has been granting software patents. Some of the specific details of this articulation are provided in the next section.

# 3 WAG THE DOG - PATENT OFFICE PRACTICES

In step with the changes in the legal framework (or perhaps oblivious to them), there has been a steady rise in the number of software patents granted by the Indian Patent Office. Reportedly, the number of software patents granted has increased from 110

[11] In response to a starred question regarding the patent ordnance posed by Shri N.N. Krishnadas on March 01, 2005, the Union Minister for Commerce and Industry Shri Kamal Nath replied that the purpose of the amendment was 'to modify and clarify the provisions relating to patenting of software related inventions when they have technical application to industry or in combination with hardware;". In other words, nothing new was being introduced. This was only a clarification. <http://164.100.24.208/lsq14/quest.asp?qref=45198>, last accessed on July 4, 2007

[12] Admittedly, the adoption of this interpretation would lead to an extremely restrictive situation - potentially damaging to manufacturers of electronics appliances since embedded software and firmware are so pervasive in appliances. As it turns out, however, this interpretation has been pre-empted by the practice of the Patent Office in its adoption of the "technical effects" standard despite the lack of any authority recommending this rule to them. More details about this subversive interpretative feat are provided elsewhere in this brief.

between 2000-03, to about 600 in 2004. At the end of 2005, the number of applications awaiting grant of patents was stated to be around 1100.[13]

Since the reports of the Patent Examiner, who is charged statutorily with the task of ascertaining patentability, are "confidential"[14], the exact considerations that she must have weighed while evaluating any of these nearly 1800 applications for software patents are not widely known. Against this milieu of secrecy, one is afforded a rare insight into the inner workings of the patent-examiner's mind by the draft Manual of Patent Practice and Procedure (the "Draft Manual") published in 2005.

In an astonishing feat of interpretative eclecticism, the Draft Manual freely combines principles drawn from select European and US case laws to conclude that:

> "*the computer program or software is held patentable under Indian Patent Act, 1970 when claimed in combination of hardware and software components of a computer which provides a "technical advancement" over the prior art.* ... The technical problem, which needs to be solved by the invention, should be sufficiently described as to how the hardware is controlled by the software to overcome the previously described problem. The "technical character" of the invention should be brought out clearly in the claims." [15](emphasis added)

In arriving at this conclusion, the Draft Manual does not trouble itself to actually quote the legal provisions of the jurisdictions that it cites case laws from. It appears to have simply gathered any and all cases which mention "technical effects" as a consideration, and concludes therefrom that "technical effects" is in fact a most-excellent standard for evaluating software patent applications.

Apart from supplying a statement of the Patent Office's understanding of software patent law in India, the Draft Manual also provides guidance on the requisite elements for a valid software patent application. Taken together with the general "technical effects" rationale, these guidelines give us some insight into the limits that the Patent Office sets for itself in evaluating such applications. The chief elements of these guidelines are summarised below:

1) Prior art must be specified in the application in order to determine whether there is a technical advancement in the invention, or it is "solely intellectual" in its content.

2) There are three categories of applications related to "computer inventions"
   a) Method/process:
      "The method claim should clearly define the steps involved in carrying out the invention. It should have a technical effect. In other words, it should solve a technical problem."

---

[13]Gaurie Mishra, "2,000 software patent applications filed in '05", Rediff.com, January 04, 2006, <http://www.rediff.com/money/2006/jan/04it.htm> Last accesed 04 July 2007

[14] Sec 144 of the Indian Patents Act 1970.

[15]

E.g. A method for processing seismic data, comprising the steps of collecting the time varying seismic detector output signals for a plurality of seismic sensors placed in a cable, - allowable because not software *as such*.
On the other hand, A method for generating a new computer program using a software development tool is inadmissible because it is "solely intellectual in its context".[16]

b) Apparatus/system:
"The apparatus claim should clearly define the inventive constructional hardware features. The claim for an apparatus should incorporate a "process limitation" for an apparatus, where "limitation" means defining the specific application and not the general application."

E.g. A computer comprising: Means for storing signal data, A first register for storing data (Everthing that follows the "for" comprises the "process limitation"

c) Computer Program Product
The claims relating to software program product are nothing but computer program per se simply expressed on a computer readable storage medium and as such are not allowable.
If the new feature comprises a set of instructions (programs) designed to control a known computer to cause it to perform desired operations, without special adoption or modification of its hardware or organization, then no matter whether claimed as "a computer arranged to operate etc" or as "a method of operating a computer", etc., is not patentable and hence excluded from patentability.

E.g. A program to evaluate the value of PI or to find the square root of a number are held not allowable.

As spurious as this system of classifying and awarding software patents may seem, it must be appreciated as an effort on the part of the Patent Office to articulate and observe a system for granting patents in an area that is new to it. Patent protection for embedded software and firmware has been granted routinely in the US, EU and in Japan for some time. Notwithstanding the peculiarity of the Indian legal position subsequent to the withdrawal of the 2004 Ordnance, it is unlikely that future legislative action in India in this area will disturb this position. [17]

In its articulation of a system, the Draft Manual gives us the means to judge the Patent Office's actions according to its own avowed standards. The intent of the Draft Manual's guidelines, however thinly supported by authority, favours granting of

16

[17] A question of vital significance may be raised here regarding the capacity and the willingness of the Patent Office to subvert the legislative process by volunteering to enforce a particular conception of the law, when the requisite political consensus for that conception has been distinctly found to be wanting. Unfortunately, this question will have to be dealt with elsewhere since it is out of the scope of the current brief.

software patents only when a accompanied by a discernable "technical effect". It is felt that if the Patent Office were to observe this standard more rigorously, the harsher consequences of full-blown software patenting may be avoided. The next section provides details of certain patents that have been granted, or are under consideration by the Indian Patent Office which do not overtly embody any technical effects and hence appear to have been issued without a serious evaluation.

# 4 DUBIOUS SOFTWARE PATENTS

We are enclosing here a set of patent publications, which in our opinion are not patentable under Indian Patents Act. We would request the Patent Office not to consider these for patenting. That these might have been considered for patenting elsewhere in the world is not germane to the issue. Under Indian Law, computer programs are not patentable and therefore the grant of patents must be rejected for these applications.

<TO BE FILLED IN BY DSF>

# 5 SUGGESTED AVENUES FOR ACTION

The Patent Act contains provisions that allow *any person* to oppose a patent before it has been granted. However, once a patent has been granted, only an "interested person"[18] may oppose it, or initiate proceedings for its revocation.

## 5.1 Pre-Grant and Post-grant Opposition

Since both these options are similar they are taken up here together.
A pre-grant opposition may be instituted by *any person*, by filing a notice of opposition in the prescribed form. By contrast, only an *interested person* may initiate post-grant opposition proceedings.[19]

### 5.1.1 Grounds

Both pre-grant and post-grant oppositions may be instituted exclusively on the following grounds[20]:
a) "Wrongful obtaining" of the invention by the patentee from the applicant.
b) Prior publication in any specification filed in India on or after 1 January 1912 or prior publication in India or elsewhere in any other document.
c) Prior claim in complete specification of an Indian Patent.
d) Prior public use or public knowledge in India
e) Obviousness and lack of inventive step
*f) Not an "Invention" or not patentable under the Act*

[18] S. 2(1)(t) of the Patents Act defines "Person interested " to include "a person engaged in, or in promoting research in the same field as that to which the invention relates. "
[19] Sections 25(1) and 25(2) of the Indian Patents Act 1970.
[20] *Ibid*

g) Insufficient description of the invention in complete specification.
h) Failure to disclose information or false information relating to foreign applications
i) If convention application, not made within the prescribed time
j) Incorrect mentioning of source / geographical origin of biological material, if any, used in the invention
k) The invention is anticipated with regard to Traditional Knowledge of any community any where in the world.

### 5.1.2 Limitation Period

The notice of pre-grant opposition may be filed within three months of the publication of the application or before the grant of the patent whichever is later. [21]
In the case of a post-grant opposition, the notice of opposition may be filed at any time after grant of the patent, but no later than one year after the grant.[22]

### 5.1.3 Manner of adjudication

On receipt of a notice of opposition, a three member Opposition Board is constituted by the Controller of Patents. The opponent must submit a written statement in support of her opposition which must be forwarded to the applicant/patent holder. The applicant/patent holder may reply to the written statement within two months of receipt of the written statement failing which the patent will be deemed to have been revoked. The opponent has an opportunity to submit evidence contradicting the applicant/patent holder's reply statement. Subsequent exchanges may be permitted by the Opposition Board. After reviewing the evidence, a hearing is held by the Opposition Board in which both parties may present their arguments. Thereafter, the Opposition Board may decide either to uphold the patent or to order its revocation. The decision is communicated to the parties and to the Controller who must act upon it.

### 5.1.4 Costs

A fee of Rs. 1500 is to be paid per opposition in case the person opposing is an individual. In case of an organization or association, the fee is Rs. 6000. [23]

## 5.2 Revocation Proceedings

The Act also provides for special grounds on which the Intellectual Property Appellate Board on the petition of a person interested or the Central Government, or a High Court hearing a patent infringement suit can order the revocation of a patent. The grounds on which revocation may be ordered include all of the grounds mentioned in the previous section on opposition proceedings. This offers an valuable additional channel of protest for interested persons. [24]

---

[21] Rule 55 of the Patent Rules 2003
[22] Section 25(2) of the Indian Patents Act, 1970
[23] Patent Rules 2003, Rule 7 read with the First Schedule.
[24] Section 64 of the Indian Patents Act, 1970

## 5.3 Counter Claims

In addition to the above, and as a final recourse, in infringement proceedings launched by the patent holder, one of the defences that may be validly raised by the respondent is the "non-patentability of the subject matter".[25] This places an important power of challenge in the hands of the respondent and could temper to some extent the instinct of patent holders to sue unless they are assured of the validity of their patents.

# 6 CONCLUSION

Section 83 of the Patents Act, although only applicable to Chapter XVI of that Act, stipulates the program that the Indian Legislature had intended patents in India to fulfil. Thus the legislature envisaged *inter alia* that:

- patents be granted to encourage inventions and to secure that inventions are worked in India on a commercial scale
- that they are not intended merely to enable patentees to enjoy a monopoly for the importation of the patented article
- that patents should act as instruments to promote public interests
- that the patent right is not abused by the patentee and any person who derives title or interest on patent from the patentee does not resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology.

Weighed against the touchstone of this program, patents on computer programs which are unattached to hardware, intended to be used solely as devices to stultify competition become difficult to justify. Urgent action is needed in order that the common principles that underlie programming are not converted into private monopolies. We hope this document is able to generate sufficient understanding of the problem to inspire prompt support. (Huh?)

25