A broad-ranging review of patent information, its value, uses and methods of accessing it, in the context of business in South-East Asia, is presented. It traces how patent information arises in the first place, and how it can be used in, for example, patentability, competitor analysis and infringement clearance searches. The problems of isolating just the potentially relevant patent publications from the many tens of millions already in the public domain are explored. Comparison is made between the ways that this search task has been traditionally performed using paper based technology, and the expanding electronic systems now available. Summaries of the main Internet patent and other industrial property databases are provided, and the easier access to patent copies, as one of the key dissemination vectors, explained. The article concludes with information on the wider issues of the changing IPR scene - legal, political and practical - as well as some thoughts on the increasing opportunities created by these various developments for an ever widening patent information user population.

Your interest in Intellectual Property Rights (IPR) may primarily be, for example, as a patent attorney, a patentee, company CEO, financial director, head of marketing, librarian or licensing executive. Whatever your role in obtaining, defending, or analysing the legal rights that patents, in particular, bestow, you will inevitably have developed an understanding of the value of the technical and business information available from the huge number of published patents and patent applications. For a start there is the novelty requirement present in virtually all jurisdictions around the world as a key pre-requisite for obtaining patent protection. Although many kinds of prior disclosure are potentially relevant to this consideration, in practice the most relevant specific disclosures are very often found in previous patents or patent applications. Hence of course the desirability of obtaining a thorough search of the patent literature before deciding whether to seek patent protection. And, if it is decided that patent protection is feasible and worthwhile, taking account of the results of such a search during subsequent claim drafting is equally vital.

Objectives

The first objective of this article is to explore the world of patent information,
drawing out the significant benefits which can accrue from a sound knowledge and awareness of the patent literature, as well as the risks of ignoring it, in the context of the rapid changes in IP and IP-related activities in South-East Asia.

A second objective is to review the methods of retrieving this information and the way that these have changed in the Internet era.

The final objective is to relate these changes in the provision of patent information and in the framework of IPR protection and enforcement - which also have political, legal and financial overtones - to the benefits, risks and opportunities they provide.

How Does Patent Information Arise in the First Place?

The creation of a vast database of detailed disclosures in published patent specifications has in effect been written into the patent laws around the world from the very earliest times. For example, patents granted from the 15th century in the UK made it clear that the disclosure of the technology was an essential element of the grant of protection from plagiarism. In the UK, disclosure to the public was in practice a bit hit-and-miss as the law slowly developed. It was not until the 19th century that the disclosures made in the patents being granted were properly and regularly published, and the earlier patents given a chronological numbering sequence and published. The vision and drive of Bennet Woodcroft - Superintendent of Specifications at the Patent Office - was instrumental in this achievement. He also instigated the preparation and publication of abstracts of the backlog, arranged by broad subject matter groupings. In more recent times, this requirement for disclosure has been codified more formally, for example Article 5 of the Patent Cooperation Treaty states that “The description shall disclose the invention in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art”. The wording differs a little in different jurisdictions, but the requirement that patent applicants must provide a full disclosure of the invention and how it may be put into practice is a key part of the basic patent bargain between the patentee and the public at large, as represented by the government Intellectual Property Offices. The patentee can get a limited period of protection for the invention - the right to prevent others from using the protected technology without the patentee’s permission while the patent remains in force - but in return must provide a full disclosure of the technical improvements provided by the invention, this disclosure being published.

What Use is Patent Information?

As already alluded to, analysis of the published patents and patent applications is a vital activity for anyone applying for a patent. An effective, valid patent claim
can only rarely be drafted without this knowledge.

Another aspect flowing from such patentability searches is an awareness of the patents of competitors. It will often be valuable to expand such information by carrying out separate searches, which are specifically directed to competitor analysis and to infringement clearance (freedom-of-action) searches. In certain circumstances it may of course make good commercial sense to eschew the seeking of patent protection for an improved process or apparatus. But it is important not to allow this decision to colour the approach to the existence of other patents for the same or related technology. Once these other patents are known, then a commercial decision can be made on how to deal with the problem - for example, challenge the patents, ignore them, change the intended activity to avoid them and so on. The right decision may still not be made, as Kodak found when they entered the instant print camera market, despite Polaroid’s patent holding, and subsequently had to withdraw at a cost of many millions of dollars\(^2\). Without that knowledge, however, a business is likely to end up in even more dangerous uncharted waters.

Another aspect of competitor analysis is to plot the nature, extent and trends in the patent holdings of individual competitors. Clearly one or two individual patents do not say much about the future intentions of a business. But an increasing or decreasing holding on particular technology, and whether the patents are being maintained in force consistently, can, along with other, non-patent market indicators, give useful insights into a company’s future intentions.

Even more importantly sometimes, analysis of the patent position in a particular technology of interest can give an early warning of a potential new competitor - a business with no existing products in the area, but with a substantial and increasing patent portfolio.

Analysis of the published patent applications and patents in a specific area of technology (state-of-the-art searches) can also be valuable at the very earliest stage of development of the germ of invention on a new initiative. Such search and analysis helps to avoid money being spent unnecessarily in solving problems that have already been solved and documented by others-in practice, reinventing the wheel is still an all too common event*. It also minimizes the potential for future infringement problems. The chance of making bad mistakes when diversifying a business into new areas of technology can also be limited by carrying out such searches in the early stages of consideration of such a change of business policy.

Another area to benefit from patent information is in the situation where an

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*Interesting though, an Australian ‘Innovation patent’--2001100012--for a ‘circular transportation facilitation device’ was in fact granted recently\(^3\) – the patentee desiring simply to illustrate the type of claim permissible under the rapid registration of grant, without search or examination, offered by the new Innovation Patent System\(^4\).
ongoing line of research and development hits an unexpected technical problem in moving from the basic invention to a commercially viable and technically practicable manufacturing process. A patent search may reveal useful solutions to the same or analogous problems, devised and published by others.

One further spin-off of these searches can be the identification of the main inventors in the particular technology—this can be useful in targeting approaches to recruit key staff, for example.

**How Do You Retrieve Just the Patent Information that You Need?**

So we have seen how useful patent information can be and why. But how do you locate just the small number of patent specifications that are highly pertinent to your business need and which you will want to look at in some detail? Typically, this may be between 5 and 50 documents—i.e. the equivalent of between one in every 10 million and 1 in every one million of the full worldwide databases of some 50 million patent specifications. Not surprisingly, this is an extremely challenging assignment needing extensive experience to be carried out effectively and reliably. Indeed patent examiners around the world are daily honing such skills in checking the patentability of incoming patent applications.

Even after a lifetime working on a very specific technical area, they are still often surprised by both what they do find and what they cannot find, and worry about the effectiveness of their searches.

In the 35 years that I have been involved in searching and classifying patent specifications, and later organizing and helping others to do so, I have witnessed the changes from classified, predominantly paper collections, though microfiche and microfilm and the gradually increasing automation within patent offices, to CD-ROM and DVD, to commercial online systems and now to the free or partially free systems on the Internet. Use of these improved systems has helped to improve search quality, or at least maintain quality in the face of escalating numbers of published new patent specifications, but none of them, separately or severally, provide an easy solution to the basic search need outlined above. At best, search strategies tend to be an improving hybrid from amongst these options. A high quality patent search still demands the skills of a patent information retrieval expert with a long experience of searching patent collections and, in some cases—biotechnology, software and telecommunications especially—additionally a specialized knowledge of the relevant technology and non-patent literature databases. These skills are needed to be effectively harnessed to the Herculean task of effectively and efficiently selecting the small number of potentially highly relevant specifications—no more, no less ideally—for a particular query from the millions of patent specifications already published.

Nevertheless, the developments over the last few years on Internet access to patent information, together with other major policy developments worldwide,
are radically changing the options available, and this is explored in more detail shortly.

Searching for Patent Information: Pre-Internet

Access to patent information was once only possible by consulting large classified collections of printed patent abstracts or full patent copies, sometimes assisted by computer generated lists of potentially relevant patents. It was a difficult and expensive process to create, update and maintain such paper-based databases. It was also very tedious, and, for many people, often not very effective, to search such collections. In addition, searchers had to go personally to one of a limited number of patent libraries in their countries. Not only was it difficult to carry out such searches personally, it was also not always easy to organize value-added bureau search services for third parties at an acceptable cost. Moreover, inventors, entrepreneurs and other research and business personnel in countries that did not have the finance or organizational infrastructure to provide such resources were disadvantaged. In addition, the lack of patent search capabilities meant that the public was unaware of this potentially valuable library resource. Since patent information can be used totally independently of whether or not patent protection is being applied for, it has the potential to soften the often unfavourable view of the patent system in some countries. Dependence on paper collections of limited scope and availability severely curtailed the scope for such a change of attitudes.

Later developments of microfilm and CD-ROM as storage media eased the position a little, as did the creation of large electronic databases available online, using a modem to link into the telecommunications network. CD-ROMs can be linked using jukeboxes and Intranets to provide a source of printed copies, but they are generally not a particularly convenient way of searching patent specifications. Online value-added databases provide some excellent options, covering a vast range of patent publications worldwide - including many countries in South East Asia. Some provide exclusively patent coverage, such as Derwent World Patent Index, Inpadoc, and IFI Claims. Others, such as Chemical Abstracts CA and Register databases, have significant patent coverage, as well as non-patent literature. However, in many countries, such online services suffered from disadvantages such as unreliable telecommunications (often improved in more recent times) and high cost in relation to the financial resources of the potential users there.

Searching for Patent Information in the Internet Era

The availability of a large number of patent databases on the Internet, many of which are free-of-charge to users, apart from telecommunications costs, has provided new options for searching patent information.

For those whose main work is as patent information retrieval expert professionals, typically in industry, government, universities and the larger libraries, these
‘free’ databases are another, and often very useful, option in the armoury of different resources that they call upon for solving the problems and challenges of each new search.

For many other people, with less regular need of patent information and maybe more limited financial resources, the Internet patent databases have provided them with access to patent information at affordable prices for the first time. Users in this category typically include small and medium-sized enterprises, individual inventors and entrepreneurs, business support organizations, smaller libraries, and science researchers.

For both categories of users, it is important that they are aware that use of these free databases carries with it an implicit, and sometimes explicit, ‘health warning’ as to their reliability. Most are certainly useful sources of information on the technical, bibliographic and status information that they provide, but the extent and depth of coverage can also be variable and, unlike most commercial databases, it is often difficult to determine what exactly is there. For regular, professional searchers, this is a more manageable problem than for the less expert users. It is a very common experience of those of us who have worked in many countries trying to help inventors, researchers and small companies, that they usually have great difficulty in looking at their actual or proposed innovation or research topic objectively. This, together with time and cost constraints, in turn leads them to carry out searches of too narrow scope, finding little of relevance in the vast range of prior art disclosures, and reinforcing their view of the distinctiveness of their proposal. Such users need to be particularly careful when searching the ‘free’ Internet databases.

Many of the patent databases now available on the Internet are provided either by intellectual property offices as a public service or by other organizations who often cover their costs by offering associated value-added, charged-for services. This latter development has come about because, while the free databases are usually fairly straightforward to use, they are often not especially quick or versatile.

Annexure 1 lists and briefly describes some intellectual property office websites that have significant worldwide patent database coverage, mostly without charge, as well as some important sites of more geographically limited coverage. Most sites have hyperlinks to further, related sites; another site with an extensive listing of intellectual property related sites is provided by the British Library.

As an example of the coverage of Asian patents within the worldwide patent coverage of one of the free sites - Esp@cenet® - covering some 30 million patents-the data in Table 1 is illustrative.

Sites of particular interest for database searching of specifically Asian patents and other intellectual property information are mainly those of the relevant national intellectual property offices, such as Singapore, India, Japan,
Korea and Malaysia. The URLs and an indication of the scope of some of these sites are listed in Annexure 2.

There are of course particular language problems associated with using, or at least with making full use of, several of these sites. The position is improving for those who do not speak or read the Japanese, Chinese, or Korean languages though, because of the rapid advances in automatic, machine-assisted translations (MATs), available on some of these sites as well as through other free or commercial software options. Development in this technology have been described in an article by Tim Cavalier, a MAT expert at Derwent Information. The ability to use imperfect, but sufficient, machine translations, which their technical experts could then polish up for use in their flagship database, World Patent Index, was instrumental in Derwent Information being able to expand their coverage of the vast number of Japanese patent publications in the 1990s. For Japan, a useful summary of the position for non-Japanese speakers has recently been provided by Irene Schellner, a Japan information specialist at the European Patent Office.9

### Patent Copies-A Fundamental Dissemination Vector

One important specific aspect of all this information freely available on the Internet is that, in addition to bibliographic data, abstracts and legal status information, it is now much easier to view copies of the full text of patents, in electronic or downloaded printed format.

For many people, actually viewing and obtaining copies of particular patents of interest was a problem. This sometimes forced them to do without full copies and to take chances in the resulting poorer research or poorer business decisions. But now with better telecommunications and the availability of patent copies for downloading for free, or at low cost, from the Internet patent databases, this difficulty is much reduced.

### The Opportunity, and the Necessity

Telecommunications access and telecommunications infrastructure have improved worldwide in recent years. With the concomitant rapid expansion of the Internet, we have all entered a new era in every field of business. In this context, the changes in the way that patent information has now become available at low cost, to a much wider public, provides exciting new benefits and opportunities at many levels.

<table>
<thead>
<tr>
<th>Country</th>
<th>No of hits</th>
<th>% of total hits</th>
</tr>
</thead>
<tbody>
<tr>
<td>All countries</td>
<td>10239</td>
<td>100</td>
</tr>
<tr>
<td>Total Asian</td>
<td>4330</td>
<td>42</td>
</tr>
<tr>
<td>of which:</td>
<td></td>
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<tr>
<td>- CN</td>
<td>2166</td>
<td>21</td>
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<tr>
<td>- JP</td>
<td>1454</td>
<td>14</td>
</tr>
<tr>
<td>- KR</td>
<td>548</td>
<td>5</td>
</tr>
<tr>
<td>- TW</td>
<td>96</td>
<td>1</td>
</tr>
<tr>
<td>- HK, IN, MY, PH, SG</td>
<td>66</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 1—Selective results from a search in the worldwide section of Esp@cenet® for patent specifications classified within IPC sub-class ‘A45B’, relating to umbrellas, parasols and walking sticks
These changes have more or less coincided with, and in part have been driven by and provided impetus to, substantial political and practical policy changes, and changes in public attitudes towards intellectual property, in many countries, not least in South East Asia. For example, following TRIPS and parallel initiatives, the IP laws of many countries are now more consistent in content and application, assisting technology development and investment.

There is still much to do, to provide IP law and enforcement that provides an acceptable balance between the many, sometimes conflicting, needs of the research, technology, and commercial public interests.

Naturally, not all of these changes have been welcomed by the public as yet. But an increasing awareness of, and access to, varied and extensive sources of information about intellectual property must help people to form an increasingly balanced and knowledgeable view. Over the last ten to fifteen years, many IPOs have developed a range of initiatives designed to increase the public’s awareness of intellectual property, patent information and related topics. These initiatives include talks, booklets, conferences and workshops, helping the development of IP courses at universities, supporting patent libraries, direct advertising, films and videos, and Internet site development and web-based training (see, for example, Ref nos 10 and 11).

Now, anyone who, for example

— thinks that the law under which a particular patent in biotechnology has been issued is bad, can usually find out cheaply and quickly exactly what that law is, how it compares with laws in other countries, and the underlying policy issues in that area, or

— thinks that the patent infringes other patents, can do a certain amount of searching at low cost to find relevant patents in force to support this view, or

— thinks that the patent should not have issued because of previous disclosures in patent or other sources, can do a great deal of searching to find documentary proof to back up their view

— needs help from others in the search for prior disclosures, has new options, including charged-for services if the issue becomes commercially significant12.

Several of these search possibilities were relevant and provided significant data in the turmeric patent case13.

Amongst the other opportunities opened up are easier access to licensing options. Again this is an area of business that has been ignored far too frequently. The scope for striking mutually beneficial deals to license in or license out technology is enormous. Compared to the heavy financial risks of developing solutions to technical problems from scratch, licensing in solutions available from related fields can be very attractive. Similarly there are substantial risks in taking an invention from concept to commercial marketplace. These risks— and the financial, organizational, and
marketing skills involved—can often be reduced significantly, for small companies and individual inventors especially, by licensing the technology out to a larger or more established company.

In the past, the need to have physical libraries of patent documents, in printed form or on CD-ROM, as abstract of full text, geographically near to the potential users, has severely limited the chances for small firms, individual inventors, and the general public to gain access to this material, and to patent information in general. This was especially so in countries with more limited resources and/or a population spread over many towns and cities with very large distances separating them. As we have seen, this is now much less the case - virtual libraries of patents, abstracts and other related data are a reality.

Another side to this deluge of readily consulted patent information is increased competition. You have the means to better keep abreast of your competitors’ future activities, by analysing their changing patent portfolio. But beware - your competitor has the same opportunity to determine and analyse your organization’s patent holding. So it is really a case of keeping at the cutting-edge of technology and business, and prosper, or ignore the opportunities and sink!

Looking now at the wider context in which IPR and innovation operate this explored in a useful UNDP report on ‘Making new technologies work for human development’. It covers topics such as today’s technological transformations-creating the network age, managing IPR, managing the risks of technological change, and global initiatives to create technologies for human development.

To some extent the increased awareness of IP is already resulting in Intellectual Property Offices the world over facing large rises in input and, especially on the patent side, experiencing corresponding difficulties in obtaining, training and retaining search and examining staff to deal with this increased input. Unless this imbalance between IPO input and IPO output is resolved, there could be problems for everyone involved in IPR. In this light, many IPOs are looking towards agreements amongst themselves whereby the very similar search and other work carried out by each office is reduced by the mutual recognition of the validity of the corresponding previous work of other offices. For example, a plan for patent cooperation between Japan, China and South Korea has recently been announced. According to this report, a three-stage process has been agreed in which first, pendency time will be reduced; second, common standards will be established for determining the originality of patents; and third, a system of mutual acceptability of an application in one country in the other two will be established.

Taken together, these worldwide changes in the availability of patent information, and the more fertile ground on which IPR now flourishes in South-East Asia
East Asia, are creating a new IP environment with many opportunities. It is an environment in which the playing field for business is gradually becoming more nearly level, for companies, for inventors and for universities, and also for developing as well as developed countries. There is still a long way to go, but patent information is increasingly playing its part in this transition.

References
5 Blackman M, Taking patent information services to small and medium enterprises, Intellectual Property in Asia and the Pacific No 40, 1990, 44-67.
6 Typical of these sites are: IP.Com™. A searchable database of voluntary disclosures is provided at http://www.ip.com/disclosuredatabase.jsp
7 Delphion. Access to many patents worldwide free, but many value-added, charged-for services, e.g. patent analysis, licensing opportunities, as well, at http://www.delphion.com
8 The British Library. Extensive listing of intellectual property related sites at http://www.bl.uk/services/stb/patents/home.html
12 “Creating the future today”, Film produced for WIPO by Jean-François Arrou-Vignod. Initially in English, French or Spanish, free of charge, and in VHS, VCD and DVD formats. A review of this film is due to be published in World Patent Information, 24 (1) 2002.
13 In addition to the important traditional bureau search services provided by commercial companies, intellectual property offices etc, an example of an interesting Internet site is BountyQuest at http://www.bountyquest.com/, where large cash rewards are offered for vital information.
Annexure 1—Selected intellectual property office Internet sites from around the world with significant patent and other industrial property information databases


The collections hosted include Madrid, PCT, and JOPAL (non-patent reference) data. They are updated daily, weekly and monthly respectively. It also has a useful set of links to searchable databases hosted by other patent and intellectual property offices.

Epoline®: www.epoline.org (European Patent Office)

Rapidly expanding site providing extensive EP patent status data and file inspection, as well as an electronic filing facility for EP patent applications.

Esp@cenet®: www.european-patent-office.org/espacenet (European Patent Office)

Vast range of worldwide patents included, mostly available as full text and images (via Adobe Acrobat). Time span and depth of coverage vary, but some very old patents, especially DE, are available. In addition, each national patent office hosting Esp@cenet® includes at least the two most recent years of that countries’ patents, and often a much more extensive archive of their particular national patents.

DEPATISnet : www.depatisnet.de (German Patent and Trade Mark Office)

An extensive database of copies of all German patents and many foreign patents (including all US patents and designs).


Searchable front page data of granted US patents from 1976 (but with revised US classification) plus text of claims and description. Images of patents from 1790 can be viewed and these can be searched for by patent number or current US classification. A free plug-in must be downloaded to view the images. Published applications from 15 March 2001 are available as a separate, but analogous, database.

US Trademark Electronic Search system (TESS): http://tess.uspto.gov/bin/gate.exe?f=tess&state=ual46l.1.1 (USPTO)

TESS contains more than 3 million pending, registered and dead federal trademarks. TESS is updated on Tuesday to Saturday.

CTM-ONLINE, CTM-AGENT, CTM-DOWNLOAD:
oami.eu.int/search/trademark/la/en_tm_search.cfm (OHIM)

—Contd
Annexure I—Selected intellectual property office Internet sites from around the world with significant patent and other industrial property information databases—Contd

CTM-ONLINE. Community Trade Mark Consultation Service. CTM-AGENT. OHIM professional representatives, and associations of representatives, consultation service. CTM-DOWNLOAD. For licensees only, download service for Community Trade Mark data. (More information on OHIM and its services, and related services in the trade mark and design fields, is available in an article by Salmi*.


Trademarks: http://www.patent.gov.uk/tm/dbase/index.htm
Includes register search, as well as search by word or proprietor.
Patents: http://www.patent.gov.uk/patent/dbase/index.htm
includes Patent Status Information Service and Supplementary Protection Certificate (SPC) Service
Designs: http://www.patent.gov.uk/design/dbase/index.htm
Includes images of UK registered designs, along with bibliographic information, and a Design Status Information Service.

First Page Data Base: www.uspto.gov/web/tws/sh.htm (Trilateral Database-hosted by USPTO)

The FPDB is the database which contains the bibliographic data, abstract and representative drawing of patent gazettes published by the European Patent Office, France, Germany, Great Britain, Switzerland, Japan, United States and the World Intellectual Property Organization, and provides links to the pages of each of the trilateral offices' searching services.


Note: The summary data provided in Annexes 1 and 2 is largely based on the description at the specified Internet sites, from which more extensive descriptions and up-to-date information should be sought. It is also based on information at the British Library site†.

†http://www.bl.uk/services/stb/patents/home.html
Annexure 2—Selected Internet sites of intellectual property offices in South East Asia, especially those having useful patent and other intellectual property databases


A range of industrial property databases is available in the IPDL. For example, English abstracts plus drawing of Japanese patent applications - formerly from 1993 only but much material from 1976 has now been loaded. Includes legal status data. Computerized translations are available at this site. After the search is entered, click on "index indication" for list of hits. Click on the wanted hit. When the abstract appears, click on "Detail" at top to begin translating. The Japanese document is available as "Japanese". For specific patent numbers, the search box defaults to filing numbers. For kokai, A publications, click on "publication number".


SurpIP is a useful intellectual property portal. It is free, but with many added features and a wide range of intellectual property search and other services for subscribers. Enables a single search among several databases of patent authorities plus some non-patent literature. At present these include WO, EP, US, SG, GB, TW, JP, and CA, although coverage and results will vary.

India : did.nic.in/vsdid/ipr/cgpdtmain (Patent Information System, Nagpur)

Provides patent copies of Indian patents, as well as for many other countries, such as US, EP, GB, WO. It has large holdings of abstracts, including Japan, and provides a variety of search and other services.

Korea (South): www.kipo.go.kr

KIPRIS Services. Cover domestic industrial property rights information - including patents, utility models, trademarks, industrial designs, from 1947 (3.5 million cases). Includes bibliographic, technical and status data. Most information is updated daily. Links to USPTO, JPO and EPO sites.

Malaysian Patents Database:

http://www.sirim.my/intellectual_property/sirimlink_patent.htm (SIRIMLINK®)
Access to Malaysian and many foreign patents.
Annexure 2—Selected Internet sites of intellectual property offices in South East Asia, especially those having useful patent and other intellectual property databases—Contd

The Philippines http://www.ipophilippines.gov.ph/

Includes trade mark searching at PhilTM-Search.

China: www.cpo.cn.net (State Intellectual Property Office of the People’s Republic of China)

Thailand: www.ipthailand.org; www.ipic.moc.go.th (Department of Intellectual Property-Industrial Property Information Centre)

Taiwan http://nt1.moeaipo.gov.tw/eng/ipo.html Database search planned.

Indonesia http://www.dgip.go.id/