

BUSINESS

Property rights go East

China's approach to patents is undergoing a sharp transition, as David Cyranoski reports.

A stroll through the streets of Beijing or Shanghai, past the arrays of knock-off DVDs and Rolex watches on sale, gives many visitors a simple view of patent protection in China: they think there isn't any.

But behind the scenes, China is rapidly developing a strong, if unsung, commitment to intellectual property, according to a growing number of specialists in the field. And they say that companies in research-intensive industries that shun China for fear of patent theft could miss out on an upsurge in inventive, properly protected work there.

All of this was highlighted at a forum held in Beijing on 17–18 October to mark the opening of the Institute of Molecular Medicine of Peking University. Ian Harvey, chairman of London's Intellectual Property Institute, presented a roomful of scientists and pharmaceutical-company representatives with a surprisingly upbeat report on the situation.

"The legal infrastructure is among the best in the world," says Harvey, a former head of the British Technology Group, who has been visiting China for 30 years. The patent office there delivers patents of "good quality and reasonable cost", he adds. China's basic intellectual-property law has been updated several times since it was enacted in 1984, and the State Intellectual Property Office in Beijing has hired hundreds of examiners since the country joined the World Trade Organization in 2001.

Patents up

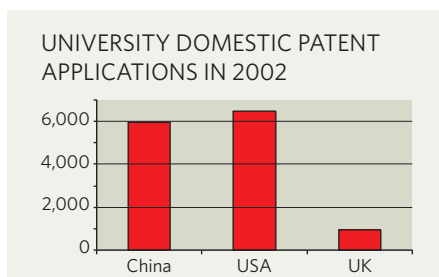
There is good reason for China to take intellectual property seriously — increasingly, it is producing its own. According to Harvey's data, Chinese universities applied for as many patents as US universities in 2002, and six times as many as Britain (see graph). Although the quality of these may be mixed, the boost in activity is undeniable. Paul Tam, vice-chancellor of the University of Hong Kong, says growing emphasis on intellectual property is transforming university research in China. "Patents are coming to be regarded as a sign of academic excellence," he says.

"There's nothing better for patent protection than the fact that there are now thousands of patents owned by Chinese citizens," says Robert Schaub, who heads the cardiovascular

and metabolic disease division of Wyeth, the Massachusetts-based drug company. Schaub, like many other drug-company representatives at the forum, is actively seeking opportunities for collaborative research in China.

The Achilles' heel of patenting in China is enforcement. Harvey admits that this remains a problem, with a major contrast between coastal cities such as Beijing and Shanghai, where he thinks courts are enforcing patent law, and parts of China's interior where they are not. But more courts are handling patent-infringement cases, and these are often speedy and cheap. Claims are typically dealt with in less than a year, Harvey says, compared with 18 months in Germany, two years in Britain, and five to six years in the United States.

Jiayang Yu, a partner at Beijing-based law firm Liu, Shen & Associates, says that enforcement is starting to work. In 2004 a Supreme Court ruling lowered the threshold for damages that allowed legal action for patent violations,



making it easier to sue. More than 2,500 infringement cases were heard in Chinese courts that year, up 20% on 2003. "The increasing number of cases shows growing confidence in the system," Yu says.

But many companies remain unconvinced. Some do not apply for patents in China because this would require them to release information to potential counterfeiters, says Ralph Koppitz, a lawyer for Taylor Wessing in Shanghai who previously worked for the intellectual-property division of the European chamber of commerce in China.

As the patent-protection system comes into effect, Koppitz explains, this approach may prove expensive. "Many companies try to make a patent-infringement complaint," he says, "but then realize they never bothered to register in China," says Koppitz.

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REASONS

Production of knock-offs of drugs such as Pfizer's Viagra could soon wane, China-watchers say.

Sceptics sometimes cite the case of Viagra, Pfizer's drug for treating erectile dysfunction, as an example of lax patent protection in China. The patent was overturned by a Chinese court, and is now under appeal. Yet the fact that Pfizer sought to protect it as a second-use medicine — it was originally patented as a cardiovascular treatment — complicates the case, points out Steve Smith, a patent lawyer at NuPharm Intellectual Property in Holmes Chapel, UK.

Infrequent disputes

Smith thinks that, for firms in science-led industries such as pharmaceuticals, the spectre of large-scale intellectual-property theft in China is "much more a perception than a reality. When you ask people, they can't come up with examples."

Indeed, although the number of patent disputes in other industry sectors has risen, the drug industry has seen few of them. Yu explains that the cost of drug development and clinical trials is so high that most people would want to work with a drug that could win if challenged in court. "Would you invest US\$10 million in a company if it might infringe on someone else's patent? Probably not."

The protection of trademarks in China remains a serious problem — as does the counterfeiting of manufactured products, including drugs. Koppitz says that courts in provincial cities simply will not act against local manufacturers of knock-off goods. But newly researched ideas can be effectively protected,

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and as high-tech companies realize this, they are contracting out more research there.

Beneficiaries of this trend include Shanghai-based WuXi PharmaTech, which was established only in 2001 but already makes drugs for 18 of the world's 20 largest pharmaceutical companies.

Theft of ideas is a major threat, concedes Ge Li, who heads the company. WuXi's plant is equipped with tight security measures. Material received from companies is made into digital copies and notarized so that the documents can be used to establish precedent in case of a patent dispute. "They only feel comfortable once they visit us," Li says of his customers.

But Li's best weapon is his willingness to use the legal system against errant employees. If someone in the company stole something related to intellectual property, "I'd go after him," he says. "Intellectual-property protection is the lifeline of this company."

Such dedication is winning over research-oriented companies. Last November, Roche announced the opening of a Chinese research unit, and Novartis followed suit this year.

This trickle could soon become a flood as firms respond to the growing scientific skill of Chinese laboratories and to an expanding Chinese market for pharmaceuticals, which grew in value by 28% to US\$20 billion in 2004, making it the seventh largest in the world. And the number of US patent applications from Chinese scientists and engineers grew from around 600 in 2002 to 1,800 last year. It is time to take China more seriously, declares Harvey. "It will become a major force — maybe the major force — in intellectual property." ■

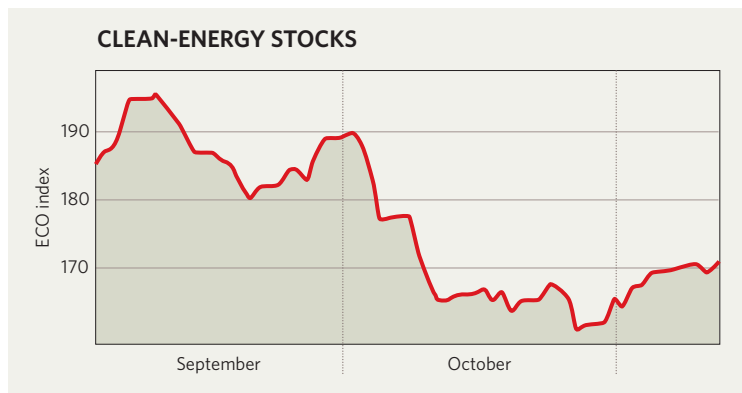
IN BRIEF

SUN RISING California computer maker Sun Microsystems has unveiled a chip, the UltraSPARC T1, which can process 32 threads of information at once. The Santa Clara-based company says that the chip consumes only 70 watts of electric power — less than half as much as some of its competitors. Computer-industry analysts say the chip, which will power large computer servers, breaks major new ground in terms of its parallel-processing power, but they point out that software compatibility issues might limit its success.

CHEMICAL SHIFT DuPont, one of the world's largest chemicals companies, has said it will shed 4,000 jobs in a major reorganization. No laboratory positions will be lost, the company says, but some research programmes, such as electronics and biologically based materials, will be given greater emphasis at the expense of others, including some polymer work. DuPont says the plan will save it \$2 billion over the next three years.

GENERIC GAIN The world's best-selling drug faces a looming generic threat after a company-sponsored study failed to prove that it is significantly more effective than a competitor in patients who have had heart attacks. High-dose Lipitor (atorvastatin), the \$12-billion cholesterol-lowering drug made by Pfizer, did not work significantly better than regular-dose Zocor (simvastatin), made by Merck, in preventing repeated heart attacks, cardiac arrest and deaths related to heart disease, *The Journal of the American Medical Association* reported last week (T. R. Pedersen *et al.* *J. Am. Med. Assoc.* 294, 2437–2445; 2005). The finding boosts the commercial prospects for generic versions of Zocor, which goes off-patent next June.

MARKET WATCH



Clean-energy stocks have slipped back over the past two months after hitting record highs in the summer, when oil price increases to \$70 a barrel alerted investors to the potential value of stocks in alternative energy sources.

The Wilderhill Clean Energy Index — whose symbol on the American Stock Exchange is ECO — tracks the performance of companies whose businesses rely significantly on energy sources other than fossil fuels or nuclear power.

And as oil prices have fallen this autumn, the index has taken a hit. Nonetheless, says Robert Wilder, the former political scientist whose company runs the index, money continues to pour into funds set up to track it. "That's an indication of

strong, ongoing interest in the sector," he says.

Big movers in the past two months included California microturbine-maker Capstone Turbine, whose stock halved in value as the speculative interest that had boosted its price fourfold in the summer wore off.

However, stocks in solar-panel supplier Evergreen Solar of Massachusetts advanced by 50%, to almost \$12, on powerful global demand for its photovoltaic cells.

If oil prices fall back further next year, Wilder suggests, speculative investors may start to frown on alternative energy sources. But even with oil at, say, \$50 a barrel, he says the sector could enjoy sustained growth in demand for its products in the medium term.

Colin Macilwain

WILDERSHARES