# Research and Environment News from China

# December 6 - December 2004

*Please note that the previous newsletters can be downloaded from the Website of the Embassy of Switzerland in China:* www.eda.admin.ch/beijing. *To subscribe/ unsubscribe or send us your welcome, please send an eMail with the coresponding subject to* ziwen.zhu@eda.admin.ch.

## Introduction

*This end of year's highligh is certainly the popularization of renewable energy as a result of the recent energy crisis. Today, as this letter is published, the National People's Congress is debating a law –that might become effective in June 2005- that will set obligations for the production of renewable energies. Needless to say, this is also good news for many Western companies.But it is also accompanied by increased focus on research in these fields (see for example below article on fuel cell car research)*

*Another topic of interest is the lifting by WTO of quotas on textile trade. Last month, we were reporting on the study financed by SECO on the impact of WTO on the environment and related recommendations (see also "Le Temps", December 28). Textile was one focus industry, because of the impact of tis water discharge. As China is currently focussing on textile policy, the recommendations of the International Institute for Sustainable Development and the China Council for International Cooperation on Environment and Development have a chance to be considered. China is introducing export taxes on textile categories which will encourage lower end industries(see article below) to produce more competitive products and therefore encourage the use of better textile machinery, typically energy-efficient and less polluting..*

*We wish you a very happy and successful 2005.*

## Contents - Science & Technology

## Contents - Environment

***KEYWORDS***

## Activites coming up soon

| |
|---|
| Feb. 28th , 2005 |
| **Food Ingredients Asia-China 2005** |
| City and Venue: Shanghai |
| Contact: Ms. Meng Yining, Tel: 021-52895151ext.128 Fax: 021-52895263 |
| myn@stcec.com |
| |
| March 1, 2005 |
| **The 1st Int'l Conference on Technologies of Intelligent and Green Buildings and the 1st Int'l Expo on Technologies and Products of Intelligent and Green Buildings** |
| City: Beijing |
| Contact: Mr.Linyong , Tel: 010-68394535 Fax: 101-68394530 |
| |
| March 18, 2005 |
| **The 15th International multi-subjects biology material research seminar** |
| City: Shanghai |
| Contact: Mr.Songyang, Tel: 021-63267373 Fax: 021-63584450 |
| |
| March 22, 2005 |
| **China (Shanghai) Int'l Expo for Water Supply Technology and Equipment 2005** |
| City: Shanghai |
| Contact: Ms. Meng Yining, Tel: 021-52895151ext.128 Fax: 021-52895263 |
| myn@stcec.com |
| |
| |
| March 23, 2005 - March 25, 2005 |
| **the 5th China Int.Electric Power Equipment& Tech Exhibition** |
| City and Venue: Shanghai Exhibition Center, Shanghai, China |
| Tel: 86-21-54592323*332 Fax: 86-21-54253480 |
| Email: Stanley@zhongmao.com.cn |
| Website: www.epetee.com |
| |
| March 29-31,2005 |

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|---|
| **Water & Membrane China (Shanghai) 2005** |
| Venue:Shanghai Exhibition Center, Shanghai, China |
| Contact: Julius Zhu, Grand Exhibition Services Co., Ltd. |
| Tel: +86-10-8401-8151 / 6405-9097 Fax: +86-10-8401-2838 |
| Cell: +86-13901048399 |
| Email: julius@grandexh.com / juliuszhu@vip.sina.com |
| Web: http://www.grandexh.com/ |
| |
| April 5, 2005 - April 7, 2005 |
| **The 5th China International Petroleum & Petrochemical Technology & Equipment Exhibition** |
| City & Venue: Beijing Exhibition Center, Beijing, China |
| Tel: 0086-10-88414751, 68488273 Fax: 0086-10-88414752 |
| Email: zw-sophia@china-zhenwei.com.cn |
| Website: www.cipe.com.cn |
| |
| April 20-22, 2005 |
| **The 6th China International Water Supply and Drainage and Water Treatment Technology and Equipment Exhibition** |
| Venue: Shanghai Everbright Convention and Exhibition Center |
| Contact: zmes@zhongmao.com.cn http://www.wsdwtf-sh.com |
| |
| April 20-22, 2005 |
| **The 6th China International Environmental Protection Technology and Equipment Exhibition** |
| Venue: Shanghai Everbright Convention and Exhibition Center |
| Contact: Zmzl@sh163.net http://www.eptee.com |
| |
| May 25-27, 2005 |
| **The 2nd China International Renewable Energy Equipment and Technology Exhibition and Conference** |
| Venue: Beijing International Convention Center |
| Contact: qyic@163.net qyic2004@vip.bbn.cn qyic2005@vip.bbn.cn |
| Tel: 86-10-64290047, 64291832 |
| Fax:86-10-84255706 |
| |
| June 5, 2005 |
| **The 9th China Int'l Environmental Protection Exhibition and Conference-CIEPEC 2005** |
| City: Beijing |
| Contact: Mr.Zhu Qinxue, Tel: 010-68394581, Fax: 010-68393748 |
| Caepi@public3.bta.net.cn |
| |
| June 2005 |
| **2005 China International Nano Science and Technology Seminar** |
| City: Beijing |
| Contact: Tel: 010-62652123 Fax: 010-62653690 wangqx@iccas.ac.cn |
| |
| September 25-29, 2005 |
| **7th World Congress on 3R (with Exhibition)** |
| Venue: Beijing Friendship Hotel |
| Contact: Prof.Dr.Huizhou Liu |
| Tel: 86-10-62554264 Fax : 86-10-62561822 |
| Email : hzliu@home.ipe.ac.cn |
| |

## Environment-related international tenders and investment opportunities:

*211.147.20.16/bizchina/bidding.shtml*

english.cepi.com.cn/homepage

# Science & Technology

### China sets up "small satellite" engineering center

(December 14,2004)

China wrapped up construction of a national engineering and research center on small satellites and their application in Beijing Tuesday, paving the way for large- scale development of small satellites.

"The center has a designed production capacity of six to eight small satellites. It is the largest small satellite development and experiment base in the world at present," said an official with the center, owned by the Dongfanghong Satellite Company of the China Aerospace Science and Technology Corporation.

The 16,135-sq m complex, located on Beijing's northwestern outskirts, consists of a design center and an assembly, test and experiment center. Its business scope ranges from research to the design and assembly of small satellites.

China has launched a number of small satellites over recent years for use in scientific experiments, resource surveys, disaster alert and environment and agriculture monitoring. The latest launch was made in mid November from the Xichang Satellite Launch Center in southwest China's Sichuan Province

### SARS vaccine primarily proved safe and effective

(People's Daily Online, December 14,2004)

The Chinese government announced in Beijing on December 5 that the world's first vaccine for severe acute respiratory syndrome (SARS) emerged from the phase-one clinical test as both safe and effective.

The Ministry of Science and Technology, the Ministry of Health and the State Food and Drug Administration are organizing the joint research program to develop and possibly manufacture the inactivated SARS vaccine.

Wang Xiaofang, a senior official with the Ministry of Science and Technology, said at a news briefing that all 36 volunteers, after being injected with the vaccine 56 days ago, did not report any abnormal physical reactions. Antibodies were found in 24 volunteers.

Yin Weidong, director of the research program, said the clinical test was strictly secured. The phase-one test was aimed at verifying the safety of the vaccine.

He said his research team has already set technical standards for manufacturing the vaccine.

Lin Jiangtao, a professor at the Sino-Japanese Friendship Hospital who coordinated the clinical test, said that the test involved healthy people, 18 men and 18 women, who are aged from 21to 40.

The first four people were given the vaccine on May 22, 2004. On Sept. 29, medical observation of all 36 tested was completed.

The Chinese government began the research for a SARS vaccine last year. More than 100 scientists and researchers from Beijing Sinovac

Bio-products Company, the Chinese Academy of Medical Sciences, the Chinese Center for Disease Control and Prevention and the Sino-Japanese Friendship Hospital joined the program.

Phase-one clinical test was carried out after successful animal tests. Experts estimated that the drug will not be ready for commercial use until the completion of both phase-two and phase-three clinical tests.

**Progress made in the development of DNA test reagent localization**

(People's Daily Online, December 14,2004)

The test reagent can replace the imported reagent completely.

It can cut the cost of DNA testing in a big margin.

According to the Ministry of Public Security, the research result of DNA test reagent for medical jurisprudence, one of the key scientific projects set for the national "tenth-five-year" plan and undertaken by the Second Institute under the Ministry of Public Security has been passed the appraisal by the Ministry of Public Security recently, marking a key step made in DNA test reagent localization.

Confirming suspected criminals with DNA information by abstracting the biological evidences from the actual locale of the crime is one of the most effective measures for criminal techniques. The DNA key test reagent in China, for a long time, has been dependent on importation. After more than two years of efforts made in tackling hard-nut problems in science and technology, China has developed the localized DNA test reagent that can substitute for the imported reagent completely, reducing the cost of DNA testing in a big margin. Currently, the localized reagent has been under trail in more than 10 units across the country. The Second Institute under Ministry of Public Security is turning the scientific achievement into production and trying to put the reagent into scale production at an early date.

**Anti-terrorism robot developed in China**

(People's Daily Online, December 7,2004)

Chinese scientists at prestigious Shanghai Jiaotong University have succeeded in developing an anti-terrorism robot to help dismantle explosives after more than four years of strenuous effort.

The robot, code named Super-D, is expected to serve at airports and in other public places.

The research, headed by Prof. Yang Ruqing, was funded by the "863 Program," China's first technology research and development funding program initiated in March 1986.

The one-armed robot is controller by an engineer via a remote controller, noted Yang. It is 120 cm tall, weighs 200 kilograms, can move 40 meters per minute and can climb ladders or slopes above 40 degrees in gradient.

**China develops fish-shaped robot for underwater archeological research**

(People's Daily Online, December 7,2004)

The project of underwater bionic robotic fish co-developed by the Institute of Robot under Beijing University of Aeronautics and Astronautics (BUAA) and the Automation Research Institute under Chinese Academy of Sciences (CAS) has passed the relevant check and test on 5 Dec.

Featuring outstanding creativeness the achievement of the project has laid an important theoretic and practical basis for the engineering of underwater navigating objects.

With a black body, the 1.23-meter-long robot is much like a real fish in shape and movement. Through a palm-size remote control pad, technicians gave different instructions, making it swim supplely up and down, said Tan Min, deputy director of the Automation Research Institute under the Chinese Academy of Sciences (CAS).

The experiment shows the underwater bionic robotic fish, which has independent intellectual property right of China, has the advantages of stability, flexible movement, automatic navigation control and underwater operation for two-three hours at a speed of 4 kilometres per hour.

"The robot is able to work for two to three hours under water with the maximum speed of 1.5 meters per second," said Wang Tianmiao, director of the Institute of Robotics at Beijing University of Aeronautics and Astronautics.

The robot is flexible in action, easy to operate and makes little disturbance to surrounding environment. The robot had been tested in an underwater search of a sunken ancient warship last August.

Additionally, the robotic fish also sees bright future for use in the fields of underwater archaeology, photography, mapping, water cultivation and fishing as well as underwater carrying of small-sized object.

**China ranked fifth in scientific and technological papers**

(People's Daily Online, December 8,2004)

As learned from the Institute of Scientific and Technical Information China published a total of 93,352 international scientific and technological papers in 2003 increasing by 20.6 percent compared with last year. China continues to rank fifth after the United States, Japan, Britain and Germany. Number of papers cited and number of citations for those included in the Science Citation Index have grown by 29 percent and 39.3 percent respectively, which indicates considerable improvement in the quality of papers.

It is leaned that these data come from three major international retrieval tools. They are Science Citation Index (SCI) which reflects the situation in basic research, Engineering Index (EI) and Index to Scientific & Technical Proceedings (ISTP). Number of papers included in the SCI reached 49,788 which is ranked sixth worldwide. Papers included in the EI were 24,997 ranked third and papers included in the ISTP were 18,567 ranked sixth worldwide.

**Breakthrough made in China's chicken genome research**

(People's Daily Online, December 10,2004)

The world-famous scientific magazine *The Nature* issued three thematic scientific papers on Dec. 9, illustrating the major achievements the Beijing Genome Institute under the Chinese Academy of Sciences has made in polymorphous research on jungle fowl and chicken genomes.

This is another major breakthrough made by Chinese scientists through their participation in and management of the research under the framework of international cooperation, with their accession to the "Human Genome Project" as the starting-point. The breakthrough further consolidates China's leading position in the international genome science field.

According to Liu Bin, a research fellow with the Beijing Genome Institute under the Chinese Academy of Sciences, they have found more than 2.8 million variation points through making a comparison between the genome sequence of three kinds of chickens and the frame diagram of red jungle fowl, which has provided a huge amount of first-hand research materials for chicken biological research.

Meanwhile, the drawing up of a chicken genome frame diagram and the comparison made between genome sequences of vertebrate and human have also furnished a fresh basis for the research on the evolution of animal genome.

The research result established the world's first genome frame diagram on farming animals and will definitely accelerate the basic subject research on living things with chicken as the pattern.

The result will also boost the research on the hereditary character of the local improved variety and quantity of specific chickens in China, providing necessary experimental tools for improved breeds. Modern technologies such as the genetic marker and gene chip are used to study the law governing the expression of chicken genes and carry out research on chicken biology (disease resistance, growth rate and the amount of eggs laid) and genetic breeding that directly serve production.

**China makes breakthrough on food safety surveillance**

(People's Daily Online, December 13, 2004)

China's 1 billion yuan investment on the program of "key technologies of food safety" has be rewarded with an array of tech breakthroughs in research and development of monitoring, inspecting and surveillance systems and apparatus during the 10th Five-year Plan. This has made the gap between China's food safety system and the international criteria regime very narrow in these fields.

Besides adopting foreign testing techniques which have been tailored for the situation in China, the country has developed fast sampling techniques which is urgently needed for efficient enforcement of the rules. China is the holder of some of the intellectual property rights.

The studies on testing and fast sampling of residue of pesticides, veterinary medicine, bio-toxin, and food additives have led to 18 important testing equipment and 25 testing reagents. The testing process for the avian flu and NDV, which used to last 21 days, takes only 4 hours now.

In addition, an integrated testing system to detecting residue of 180 types of pesticides in tea, rice and fruit juice has been invented which makes it possible to use a uniformed criteria for the 180 varieties of pesticides. In the old practice, each pesticide needs a unique standard of testing.

The dioxin analyzing technique is a cut-edge technique in the science of food safety and environment. China has had its own dioxin testing and analyzing system in place which has proved to be in compliance line with the international analytical quality assurance (AQA).

In the field of food monitoring technologies, China has established the food safety system for key chemical pollutants and microbe which causes diseases. There is a food pollutants monitoring network covering 13 provinces in the country.

China has also placed its first system for food surveillance, pre-warning and risk analyses and control.

Significant breakthroughs have also been made on Hazard Analysis Critical Control Point System (HACCP).

**China to set up new nuke tech company**

(China Daily, December 14,2004)

In an effort to build up its nuclear power capacity, China plans to set up a new nuclear technology company.

The prevailing power shortages in about two-thirds of China's provinces last year has propelled the government to more than double nuclear power generation by the end of 2020.

And to prevent further air pollution, the country -- the second highest power user in the world -- is looking to shift from relying on coal-fired plants to nuclear power stations.

The Preparatory Office of the State Nuclear Power Technology Corporation (SNPTC) is already working. It kicked off in September under the direct authority of the State Nuclear Power Self-reliance Leading Committee.

Chen Zhaobo, the State Council-appointed project chief, said the preparatory office's goal is to set up the nuclear power corporation, organize tenders, carry out technology transfers and negotiate contracts for nuclear power projects.

"We are busy preparing for two new unclear power reactors, composed of four units, in Guangdong and Zhejiang," Chen told China Daily.

The initial goal of the two projects is to shore up China's ability to independently design, build and operate third generation pressurized water reactors, Chen said.

"Those will become part of our own technology to develop our nuclear power blueprint," said Chen, adding that nuclear power is a power source integral to China's ongoing economic boom in the coming decades.

Still, he said, even after the current four units are finished, China plans to continue working with its partners to further promote nuclear power.

China currently has nine operating reactors, with a capacity of 6,450 megawatts. Together, they account for 1.4 per cent of the country's total power supply.

Even with the surge in reactor construction, nuclear power will only account for 4 per cent of China's electricity output by 2020, analysts estimate. The average among countries with nuclear power plants is 17 per cent.

The government has made it clear that there are many challenges ahead to ensure nuclear safety and it will expand international nuclear safety co-operation and strengthen supervision to guarantee safe operation of its nuclear installations.

"China will sincerely implement the Convention on Nuclear Safety and draw on the advanced technology and experience of other countries to ensure its nuclear safety meets international standards," said Xie Zhenhua, minister of the State Environmental Protection Administration.

**Country a 'model' of nuke safety practices**

In 1984, the country set up the National Nuclear Safety Administration (NNSA) of China, which has operated under the Environmental Protection Administration since 1989.

No major incidents have taken place at nuclear installations during the past 20 years, said Xie.

At the same time, radioactive elements in China's atmosphere, soil and surface and ground water are well within safety standards, he said.

However, he acknowledged that China still faces great challenges to ensure nuclear safety as it builds more nuclear power plants to feed the growing hunger for energy.

The NNSA's efforts have not gone unnoticed by the international community.

They have been praised by the International Atomic Energy Agency (IAEA), which said that the performance of nuclear power stations under its supervision has been excellent.

"The IAEA also sincerely believe that the NNSA, in the coming two decades, will strengthen its leadership role and continue to serve as a world model of good safety practices," said Tomihiro Taniguchi, deputy director of IAEA at a recent international conference.

China itself has already built up its ability to build nuclear power plants.

Vice-Premier Zeng Peiyan said China is capable of building 300,000 kilowatt-class and 600,000 kilowatt-class nuclear power stations -- of medium sizes in world standard -- after more than 20 years of efforts.

It can also manufacture key equipment for 1,000 MW-class -- of top class in world standard -- nuclear power stations, he said.

He said that in certain important fields, China has approached or reached international levels in the construction of nuclear power stations. In addition, the country has already established a rapid response system to deal with nuclear safety and potential accidents.

Chen Zhaobo said the active participation of foreign companies in nuclear power in China was a direct result of the government's move to accelerate construction.

Zeng Peiyan recently said more nuclear power could improve China's energy supply and ease shortages and also help boost the development of related industries and safeguard the national economic and energy security.

China's aggregated energy consumption now ranks second in the world, accounting for 11 per cent of the world total, according to Wu Guihui, deputy director of the Energy Bureau of the National Development and Reform Commission.

China's total energy consumption reached 1.68 billion standard tons in 2003, of which 67.1 per cent was coal, 22.7 per cent crude oil, 2.8 per cent natural gas, and 7.3 per cent renewable energy, said Wu.

**China starts high-temperature gas-cooled reactor demonstration project**

(People's Daily Online, December 17,2004)

China Huaneng Group, China Nuclear Engineering & Construction Group (CNEC) and Tsinghua University signed an investment agreement Thursday in Beijing to jointly construct a high-temperature gas-cooled reactor demonstration project. It marks a key step in implementing the plan.

To generate power with high-temperature gas-cooled reactor is a new generation nuclear power technology recently developed by China with independent intellectual property rights. One of its main characteristics is its safety. Tests in China's 10-megawatt high-temperature lab show that there is no core melt in the case of reactor losing cooling and safety can be maintain for a long time.

In order to apply this technology widely in China's power construction area, ensure the sustainable development of the Chinese economy, improve the energy structure and expedite advancement of China's electricity technology Huaneng Group, the CNEC and Tsinghua University decided to jointly invest in constructing a 200,000-kilowatt high-temperature gas-cooled reactor power plant for commercial demonstration. The plan was approved by the National Development and Reform Commission on August 17.

According to the agreement the three parties would form a nuclear power company, which would be responsible for the construction and operation of the project. Huaneng, the CNEC and Tsinghua University would contribute 50 percent, 35 percent and 5 percent of investment respectively. The other 10 percent would come from new investors attracted after consultation among the three parties. They would try to let the project generate electricity by the end of 2010.

**Expert: SARS more likely in warm winter**

(China Daily, December 20,2004)

China's top SARS expert has warned people to be alert against a return of the deadly disease as this winter's unusually warm weather is conducive to the growth of viruses.

"Warm winter weather is more beneficial to viruses reproducing and growing and is not beneficial to the prevention of infectious diseases," Zhong Nanshan, director of the Guangzhou Institute of Respiratory Diseases, was quoted as saying by the Beijing Daily Messenger.

"In the coming half month, we need to be more alert against SARS and other infectious diseases."

Temperatures this winter in Guangzhou city, where SARS first struck two winters ago, has ranged between 6 degrees Celsius to 25 degrees Celsius -- the best climate for viruses and bacteria to multiply, Zhong said.

Last winter when SARS resurfaced, the weather was also relatively warm, he said.

The researcher said it would not be surprising if a few cases of the pneumonia-like disease appeared but ruled out chances of a major outbreak, because he said the country was experienced and better prepared.

Zhong nevertheless warned the public to stay warm, ensure good ventilation in homes and work places and avoid eating wild animals, which carry the SARS virus and are believed to spread it to humans.

A survey found some people, about 5%, still consider eating wild animals as harmless, and Zhong said he was shocked by the survey findings after the outbreak of SARS two years ago. "These people should be considerate to their relatives, friends, even if they are not afraid of the infectious diease."

The Pearl River delta area in south China, where people used to love to eat wild animals, is a highly-probable place of SARS re-occurrence, and Guangdong province has announced plans to deal with such emergencies, a Southern Metropolitan News reported.

The warm weather this winter in the area might also become a contributing factor to the SARS comeback, it said.

Severe Acute Respiratory Syndrome killed almost 800 people, mostly in Hong Kong and the Chinese mainland, in a worldwide outbreak that infected more than 8,000 by the end of last year.

**Chinese mathematics is catching up, says professor John Coates**

(People's Daily Online, December 14,2004)

Professor of Pure Mathematics at Cambridge University John Coates is not only a mania for Chinese culture, he said he is also deeply impressed by Chinese students and universities.

Last summer, Professor Coates held a mathematics workshop at Zhejiang University which enabled Chinese students as well as those from neighboring countries a chance gain ideas and stimulation from world's top mathematicians.

"The best students in China equals the world's best," Professor Coates recalled his memories of dealing with several outstanding Chinese students while having an interview with Xinhua a few days ago. "Those students even solved the problems that I encountered in my research," he said with a pleasing smile.

He admitted that to compare with the world's top universities, Chinese universities were still lagging behind in terms of mathematics research level.

Coates received the International Cooperation Award at this year's International Congress of Chinese Mathematics.

He said that three crucial elements for a university to do well in academic research: good students, good facilities such as good libraries, and good academic staff.

"Chinese universities have already possessed the first two conditions, which are even better than some world class universities. But there is still a lack of excellent academic staff in China, therefore, the recruitment of them should come to priority," he said.

However, he said, "such a condition is improving, I noticed in the past six or seven years, many outstanding Chinese mathematicians have been going back to China taking up teaching posts."

China has got numerous great mathematicians, who have done remarkable achievements in their own disciplines overseas. If more of them are coming back, Coates expressed his confident that in about 10 years, mathematics research in Chinese universities would catch up and attain to the world class level.

Talking about Chinese mathematicians who are influential to Chinese mathematics circle, Coates showed his full admiration for Professor of Mathematics at Harvard University Yau Shing-tung.

"Yau has indeed put a lot of effort in the work of mathematics research in China, there is no one like him in the world," said Coates.

Although Yau still allocated most of his time teaching in Harvard University and in the eyes of Coates, Yau's heart has always been closely affiliated with China.

As one of the founders of the Morningside Center of Mathematics in China, Yau has took charge of the whole process of the establishment, from financial management to the design of the workshop and operation, Yau participated in every single item.

Exchanging ideas between mathematicians can promote inspiration and help facilitate each other's research work, which Coates thought was wonderful.

Mathematics is a beautiful and attractive subject, but it was never easy to solve a problem. Coates encouraged young people whose ambition is to become a great mathematician to prepare to work very hard, although talent and chances are also portant.

At the end of the interview, Coates asked the reporters about the custom of the porcelain city Jingde, and Mountain Huang, revealing his enthusiasm for China.

Coates is planning to hold a series of workshops next year in China. "If a large number of outstanding mathematicians is gathering in China, I would be happy to look for a teaching position here," said Coates.

**China speeds up research on fuel cell car**

(Xinhua, December 22,2004)

China invested 880 million yuan (106.4 million US dollars) into a state research and development project on fuel cell and hybrid cars, producing several prototypes.

Xu Jing, vice-director of the Ministry of Science and Technology High Technologies Department, told Xinhua Wednesday his ministry is overseeing the project of developing fuel cell, hybrid and electric cars.

Wan Gang, president of Tongji University in Shanghai and coordinator of the executive body for the research and development plan, said China's first fuel cell car ran more than 4,000 kilometers and the first fuel cell bus was tested for 8,000 kilometers.

The first hybrid bus, which was tested in commuter lines in Wuhan in Hubei Province, uses 30 percent less gas than a regular bus, said Wan, an auto designer who worked for Audi for over a decade.

Electricity-powered bus fleets were experimenting in Beijing, Wuhan, Tianjin and Weihai.

While organizing to produce cars, Wan said, the state project is also aimed to set up national technical standards for concerned auto products. Six tryout centers have already been established in Beijing, Tianjin, Shanghai and Dalian.

The electric car could reach the highest speed of 120 kilometers every hour and use 70 kwh in every 100 kilometers, he said.

The state project also stimulated over 200 corporate and individual investors to pour funds in developing the energy-saving and environment-friendly products.

With five percent of the R&D expenditure Japan or other developed countries spent, Xu said, Chinese technologists made similar advancement in the field in the past four years.

"The main purpose of the state project is to build our own capacity in competing with developed countries in tomorrow's auto industry," Xu said.

**China launches new generation Internet**

(China Daily, December 22,2004)

With the launch of the first backbone network of the next-generation Internet in China, the country is expected to dramatically narrow its gap with the world's leaders, officials and experts said.

Eight departments of the Chinese Government announced on Saturday in Beijing that CERNET2 was going into formal operation.

"We were a learner and follower in the development of the first generation Internet, but we have caught up with world's leaders in the next-generation Internet, become a first mover, and won respect and attention from the

international community," said Wu Jianping, director of the expert committee of the China Education and Research Network (CERNET) and a mastermind in the development of the next-generation Internet in China.

CERNET2 is the biggest next-generation Internet network in operation in the world and connects 25 universities in 20 cities. The speed in the backbone network reaches 2.5 to 10 gigabits per second and connects the universities at a speed of 1 to 10 gigabits per second.

A trial on CERNET2 between Beijing and Tianjin on December 7 achieved a speed of 40 gigabits per second, the highest in the world in real applications.

CERNET2 is also the first network based on pure Internet Protocol Version 6 (IPv6) technology, one major characteristic between the current Internet and the next-generation Internet.

One big benefit of the IPv6 is to solve the problem of shortage of IP addresses. In the current Internet based on IPv4 technology, the United States controls 74 per cent of 4 billion IP addresses, while the amount that China has is only equal to a campus of the University of California, despite its 80 million Internet users.

That is a major reason why Asian countries, especially China, Japan and South Korea, are showing strong interest in IPv6 technology.

The National Development Reform Commission (NDRC) set up a China Next-generation Internet (CNGI) fund of 1.4 billion yuan (US$169 million) to support six next-generation Internet networks. Half of them will be used on CERNET2-related projects. The rest of the money was given to five telecom operators.

The ministries of science and technology, information industry also have funds in related projects.

Zhang Ling, a member of Wu's committee, said 25 universities also contributed 5 million yuan (US$604,000) each to the CERNET2 project.

Gong Jian, a regional head of CERNET2 in the Southeast University in Nanjing, pointed out that if an IPv4 address has a weight of one gram, the weight of all IPv4 addresses is one 76th of the Empire State Building in New York, but the weight of all IPv6 addresses will be equal to the 56 times that of the earth.

He said most of the 25 universities connected applied for Slash48 IPv6 addresses, which are almost limitless for current needs.

CERNET2 coverage is expected to expand to 100 universities soon.

Xu Qin, deputy director general of the department of high-tech industries with NDRC, said he believed that progress in the development of CNGI will bring huge benefits of national economy and increase the country's competitiveness in national defence, economy, science and technologies.

In CERNET2, half of the key equipment, including routers, was provided by Chinese telecom equipment giant Huawei Technologies and Tsinghua Bit-Way.

Zhang said the Chinese equipment has a much higher cost-performance ratio and is very strong in applications, so its future will be very good.

Huawei has already become one of the strongest competitors to Cisco, which achieved prosperity with the Internet and has a dominant position in related technologies.

**China closes 12 key national labs**

(People's Daily Online, December 24,2004)

China has shut down 12 key national labs, accounting for 7 percent of the total, Cheng Jipei, vice-minister of Science and Technology said Thursday.

"According to the rule of survival of the fittest, key national labs with low efficiency, bad management, few research achievements and heavy brain drain will be closed, " Cheng Jinpei said, "while common labs with strong research ability and qualified research fellows can be promoted to key labs of national level."

The competitive mechanism helps the key national labs to maintain their high research standards, Cheng said.

In 1984, China started to establish key national labs aiming to enhance its basic research level. By the end of 2003, 161 labs and six pilot labs have covered almost all the key disciplines of basic research.

Together they contained more than 5,000 full-time research fellows, equipment worth three billion yuan (362 million US dollars) and annual research funds of two billion yuan (241 million US dollars), according to the ministry.

Qualified key national labs have become the research base for China's scientific research, training talented scientists and hosting international academic exchanges, he said.

**CAS to set up a tumor research center in Shanghai**

(CAS, December 24,2004)

CAS is to establish a center for oncology in Shanghai, focusing on basic research into such diseases as liver and nasopharyngeal cancers, which are frequently encountered in China. This was revealed by CAS Vice President Chen Zhu at a Sino-French workshop on cancer research held recently in Shanghai.

China has witnessed the development of a special spectrum of tumors among its people over the past two decades, observes Prof. Chen. While tumors common in developing countries still haunt in China's rural areas, those spreading in developed nations begin to appear in its urban areas.

To deal with the diseases, Chen says, we need a national comprehensive strategy, which is not available in China yet. The establishment of the future CAS center for cancer research will mean that more funds from the national government are to injected in this field. It will integrate the cancer prevention, treatment and research together, and pool resources in neoplastic departments of local hospitals and research institutes across the country.

**CAS scientists make progress in aridification studies**

(CAS, December 24,2004)

A national key project entitled "Predictive study of aridification in northern China in association with life-supporting environment changes" has recently passed the appraisal of a panel organized by the Ministry of Science & Technology in Beijing.

Under the support of the National Basic Research Program (dubbed "973 Program"), the five-year research project was joint led by Prof. Fu Zhongbin from the CAS Institute of Atmospheric Physics and Prof. An Zhisheng from the CAS Institute of the Earth Environment.

At the panel meeting, Prof. Fu gave an overall review on issues like the project implementation, its innovative results, and their expected contributions to the country's social and economic development, as well as achievements in talent training, research base development, organizational management and international cooperation. Prof. An and Dr. Wang Shuyu from the key CAS Laboratory for Regional Climate-Environment Research for Temperate East Asia made reports on two representative results of the project respectively.

The aridification in northern China became increasingly serious in recent years. This project, which involves both basic and applied studies, focuses on the regulation and mechanism of aridification. In the light of the theories of global changes, it is designed to analyze the natural regulations of the monsoon environment system composed of water, soil, air and biota, and to understand the processes and mechanisms by which global warming and human activities have impact on the aridification in northern China, by using the multidisciplinary synthetic analysis, ecosystem experiment and numerical simulation.

Under the well-concerted cooperation among the members of the research team, substantial progress has been scored in the following aspects:

1. The correlation between the long-term evolution of the Asian monsoon and northern China's aridification is analyzed, providing a natural background for understanding the developmental trend and formative mechanism of the process.

2. The pattern on the changes of humidity and aridity during the past century in north China is revealed, bringing

to light convincing evidence for the aridification over the past 50 years.

3.A regional integrated environmental modeling system (RIEMS) has been developed, which could be used in prediction of aridification and in virtual experiments on orderly human activities

4.An understanding has been obtained regarding the response and adaptation characteristics of northern China's typical ecosystems to the aridification and human encroachment at the levels of the individual, population and ecosystem.

5. A synthetic analysis has been given to the interrelation between the socio-economic development and climate change, land and water exploitation, developing an appraising model for aridity impact, the demand-and-supply system of the water resources and the yield changes of the main crops in the coming 50 years, and offering related countermeasures.

6. Observations, tests for digital simulation and ecological demonstration regions are established in detection of the human's orderly adaptation to aridity.

7. An integrated forecasting system with predicting capability for northern China's aridification has been developed.

Aridification in north China is a complicated and interdisciplinary issue involving the interaction between the ecosystems, environment and human society's socio-economic development, according to the scientists. This research has shown that it is proper to adopt an approach of global change to cope with the issue.

Yet, both the systematic observation and experiments are in their initial stage in probing human influence on the physical, chemical and biological processes in an arid/semi-arid area, said the experts.

"At present, we should further improve and perfect our survey and test systems in a bid to obtain long-time and continuous data so that fundamental materials are provided for making clear the aridification formative mechanism and modeling inspection."

By now, the simulation capacity of the digital model and parameterization of its main processes are in need of further perfection. The quantized degree of the research work in this aspect has to be raised so that it can better offer its service to decision makers for macro-management in governmental departments, note the scientists.

**Scientists map out silkworm's genetic blueprint**

(CAS, December 16,2004)

The silkworm (Bombyx mori) is not a worm, but the larva of a moth. Being domesticated for silk production about 5,000 years ago, it is a well-studied lepidopteran model system, thanks to its rich repertoire of well characterized mutations affecting virtually every aspect of the organism's morphology, development, and behavior and its considerable economic importance.

Fresh progress has been made in the genetic studies of the silkworm in the teamwork of scientists from the CAS Beijing Genomics Institute, Southwest Agricultural University, James D. Watson Institute of Genome Sciences of Zhejiang University and the Genome Center of University of Washington in US.

The draft sequence for the silkworm genome, report the researchers, covers more than 90% of all known genes of the insect. The work is considered the most thorough genome sequence data so far for the silkworm, and published in the Dec. 10 issue of the journal Science.

Based on their work on draft sequence of the silkworm, the researchers made a comparative analysis between this lepidopteran and their insect relatives whose genetic codes have previously been sequenced (fruitfly, mosquito, spider, and butterfly). They found that the silkworm genome is larger than that of Drosophila (about 13,000) because of increases in gene number and size.

Using BGI GeneFinder, a computer software they developed for the differentiation of the silkworm's genetic information, the researchers made an detailed analysis on the biological implications of a huge amount of genetic information. And for the first time, they have found some major functional genes related to the insect's gender

control, growth and immunity.

The silk gland, essentially a modified salivary gland, is a highly specialized organ whose function is to synthesize silk proteins. Researchers identified a set of 1,874 annotated genes that are confirmed by silk gland expressed sequence tags. And about 97% of the genes are first discovered ones. In addition, they obtained convincing evidence on the hormone's activity in it.

Researchers also compared those 1,874 genes expressed in B. mori silk gland with all available spider data (1,482 from GenBank) and identified 107 homologous genes, including four B. mori counterparts for the major ampullate gland peroxidase in the spider, which is involved in silk fiber formation.

In the analysis of the gene sequences, the scientists brought to light a total of 87 neuropeptide hormones, hormone receptors and hormone-regulation genes. They also identified 18 EH-sensitive receptors and receptor-like transcription factors

Th studies on the genes and their functional analysis will remove bottlenecks in studying the cloning of related genes for silk protein synthesis, according to Prof. Xiang Zhonghuai, a well-known silkworm expert. A deep-going study on them will realize the artificial adjustment of the silkworm's growth and development, leading to the restructuring of the traditional industry so that sericulture will be able to serve human race in a more effective way.

**Sino-Korean seminar on nanotechnology held in Beijing**

(CAS, December 8,2004)

Co-sponsored by the Chinese Academy of Sciences (CAS) and the Korea Institute of Science and Technology (KIST), the first CAS-KIST Seminar on Nanotechnology was held on Nov. 26 in Beijing. The event was jointly organized by the National Center for Nanoscience and Nanotechnology affiliated to CAS and South Korean-China center for S&T Exchanges and co-chaired by CAS Vice President Bai Chunli and KIST Vice President Song HeuSup.

**Industrialization of CAS technology on bio-degradable plastics**

(CAS, December 6,2004)

On August 14, 2004, a research project titled "Preparation of Aliphatic Ester Polycarbonate and Degradable Foam Plastics by Using Carbon Dioxide" passed its technical appraisal by experts under the sponsorship of the National Bureau of Environmental Protection.

The research project is a brainchild of the rewarding cooperation between CAS Guangzhou Chemical Co. Ltd. under the CAS Guangzhou Branch and its business partner Golden Dragon Corp., a private firm in the city of Taixing, Jiangsu Province. According to the experts in the appraising panel, the project has reached the advanced international level in terms of catalysis and activation of the carbon dioxide and high bio-degradability of the polyurethane foam plastics.

The two sides signed a technical contract to jointly set up a Golden Dragon Green Chemical Co. Ltd. on April 10, 2003 based on the CAS technology. The partnership aims at taking advantage of the technology developed by the CAS company in Guangzhou and the rich underground deposit of carbon dioxide in Taixing City to manufacture liquid aliphatic polycarbonate ester with carbon dioxide and epoxide as its raw materials.The foam plastics made from the product is capable of carrying out bio-degradation automatically after being disposed as waste.

At present, the new plant built up in line with the project has an annual turnout from its demonstrative capacity up to 2,000 tons in aliphatic polycarbonate and 40 tons in PBM catalyst. It has been put into trial operation with expected sale revenue of 20 million yuan by the end of this year. At the same time, the company established its own research center for development of new products, diversification of their applicable routes and serialization of its staple products. The company's final goal is to grow itself into an industrial base for manufacture of carbon dioxide-based co-polymers with its performance which features the most distinct and most promising characteristics throughout the country.

### AsiaNano2004 held in Beijing

(CAS, December 3,2004)

Asian Conference on Nanoscience and Nanotechnology (AsiaNano2004) was held between Nov. 24 and 27 at the Yingjie Exchange Center of Peking University in Beijing. The meeting was organized by National Center for Nanoscience and Nanotechnology (NCNST), which is affiliated to CAS.

CAS Vice President Bai Chunli, who is also NCNST director, made opening remarks and chaired some invited-speech sessions. Vice President of Peking University Li Jianhua was present at the conference.

More than 260 scientists from Japan, South Korea, Singapore, U.S., U.K. Australia, New Zealand, Thailand and China attended the four-day conference. Their presentations focused on such issues as manomaterials, nanofabrication, nanoelectronic and molecular electronic devices, nanophotonics, nanobionics, nanodynamics, nanocharacterization, and single molecule science.

This is the second such event in Asia. The first was held in Tokyo, Japan two years ago. It has become an important academic symposium for nanoscience research in Asia, creating effective networking among the Asian scientists, institutions and companies, and promoting the inter-countries and interdisciplinary collaborations in nanotechnology. The third conference will be held in Pusan, South Korea, in 2006.

## Environment

### Four billion yuan put in metro construction in Beijing 2004

(People's Daily Online, December 7,2004)

The capital Beijing will have finished the investment of 4 billion yuan (about 480 million US dollars) in constructing three major metro loops this year, said an official with the Beijing municipal construction committee Tuesday.

The three metro line projects under way, namely loop 4, loop 5 and loop 10, with a combined length of 88.46 kilometers, are sure to greatly alleviate the ground traffic pressure of Beijing during the 2008 Olympics period.

The official noted that 70 metro sections will start construction next year. Completion of the loop 4 that links Beijing Zoo, Xisi, Xuanwumen and Caishikou and other stations, will make the south-north traffic much easier and unhindered by diverting passenger flows to metros.

Loop 10 will become the stem line between the third and fourth ring roads, and approximately 90 percent of the engineering work for loop 5 will complete in 2005.

The total metro lines in the metropolis have so far reached 114 km in length, according to statistics from the municipal construction committee.

### Xinjiang to produce the most natural gas in China

(People's Daily Online, December 8,2004)

As the Tarim Kela 2 gas field is completed next year Xinjiang's natural gas production would reach 10 billion cubic meters. By then Xinjiang would become the region which produces the most natural gas in China.

Estimated natural gas reserves in Xinjiang reach 10 trillion cubic meters accounting for almost one fourth of the total amount in China. In recent years driven by the West-to-East Natural Gas Transmission Project surveying of natural gas in Xinjiang is being intensified continuously. By now confirmed natural gas geological reserves has accumulated to 1 trillion cubic meters and Xinjiang has become one of the three natural gas regions to have more than 1 trillion cubic meters of natural gas reserves.

**Foundation set up to protect woodlands**

(China Daily, December 11,2004)

Following three years of pilot efforts to finance the protection of forests in 658 counties of 11 provinces and 24 national natural reserves, the government is extending its forestry rehabilitation programme with the setting up of a compensation foundation.

Beginning this year, the foundation has handed over its annual budget of 2 billion yuan (US$240 million) to some 800,000 forest rangers growing and protecting about 27 million hectares of forest throughout the country, an official announced on Friday in Beijing.

Li Yucai, deputy-director of the State Forestry Administration (SFA) made it clear at a national conference yesterday that, under the foundation, any one working with such forests is expected to receive 5 yuan (60 US cents) each year for every mu (0.07 hectare) of woodland they manage and protect.

"Such subsidies will be given to every worker in major State-owned woodlands and farmers working for individually-run forest farms," he confirmed.

Ninety per cent of the money must be used as compensation for the costs of afforestation with the rest set aside for controlling forest fires, diseases and pests or monitoring changes of such resources, he added.

Viewed as a milestone in China's history of forestry protection, "the foundation is an institutional renovation to encourage millions of forest workers and farmers to protect forest resources" rather than damage them as they did in the past, a SFA official surnamed Wang said.

The move is helping China bring two-thirds of its total forests into full protection by using government funds, Wang added.

China has about 267 million hectares of woodlands. They have been roughly classified as commercial forests and ecological woodlands with commercial logging banned for the latter.

Of the country's existing woodlands, 40 per cent totalling about 104 million hectares (156 million mu) have been saved for ecological purposes, of which, over 45 per cent belonging to natural forests have been protected at the highest level with a ban on logging since 1998.

Mostly growing along China's major rivers, areas surrounding large reservoirs, wetlands and key natural reserves, all non-industrial forests are of vital importance to the regional rehabilitation of ecosystems including water and soil conservation and biodiversity.

"With the help of the foundation, China has ended a chronic history of simply consuming the ecological benefits of its forests," Li said.

"From now on, the country is in a new era of using forest resources to ensure sustainable development for the economy and society," he said.

**Largest natural gas power-generating project in E.China gets 1 bln yuan loan**

(People's Daily Online, December 13,2004)

The bank group loan contract of Banshan Natural Gas Generation Project in east China's Zhejiang Province, one of China's key projects, controlled and constructed by China Huadian Engineering Co., Ltd has been signed recently.

According to the contract, Huadian Financial Co., Ltd, Industrial and Commercial Bank of China (ICBC) Beijing Branch and Bank of Communications (BC) Beijing Branch will form a bank group to provides Banshan Gas Generating Company in Hangzhou attached to China Huadian Engineering Co., Ltd with a loan worthy of 1 billion yuan for building combined gas and steam cycle project installed with three 390,000-kilowatts gas and steam generators

Banshan Gas Generating Project is a key project for China's West-East natural gas transmission project and the largest gas-generating project in East China with a total investment approaching 4 trillion yuan. Once the generating sets are put into production, the power shortage situation will be eased, the power structure in East China power grids improved and the sustained development of regional economy accelerated. The project was initiated in March this year and is expected to complete in June 2006.

**China first wind/PV hybrid system generates electricity**

(People's Daily Online, December 16,2004)

China's first wind/PV power hybrid system was successfully combined to the grid recently at Huaneng Nan'ao Wind Power Park and put to commercial operation. The 100-kilowatt solar photovoltaic equipment adopted in the system is also China's first solar photovoltaic system that has been combined into the grid and put to commercial operation.

The wind power-generating equipment in the system makes use of high-altitude wind energy while the photovoltaic equipment utilizes the ground solar energy between the turbines. These help to fully utilize land resources. Meanwhile the sharing of power transmission and transformation equipment and management personnel reduces operation cost. It initiates a new way to comprehensively exploit wind and solar energy resources and indicates that China has entered a new phase in exploiting and utilizing photovoltaic power generation. It is of great reference significance for constructing large wind/photovoltaic hybrid commercial projects in terms of technology and management. The system was developed and constructed by Huaneng Renewable Energy & Environmental Protection (holding) Corporation.

**China pays more attention to water and soil conservation in power projects**

(People's Daily Online, December 22,2004)

As learned from the Ministry of Water Resources China has stepped up its efforts on the water and soil conservation in power projects as the country accelerates the development of its power sector.

The Ministry has assessed and approved 120 power projects so far. Undertakings involved have performed their responsibilities defined in approved schemes for more than 200 million hectares of water and soil conservation and plan to invest 6 billion yuan plus for projects which are designed to save more than 60 million tons of water and soil.

Undertakings for power projects are required to prepare and submit programs to prevent water and soil from draining away, which are supposed to define the responsibilities, set goals, states clearly the measures and map out designs.

When a project is launched, undertakings must make sure that water and soil conservation items keep pace with the principal part of the whole project. Detailed requirements for site management concerning control over water and soil losses are also in place.

China ranks the second in the world in power generation following the US. More than 70 percent of the power is fueled by coal. But China is not rich in coal supply. The government has put hydropower on the top of its agenda of energy strategy.

China has been struggling amid power shortage since last year. The situation is particularly serious in eastern coastal areas where the more developed local economies need more electricity.

That gives investors enough incentives for their venture in the power sector. Private capital is swarming into the market of small hydropower stations along China¡¯s rivers. Foreign investors are also eyeing the potential of the market. ABB, Alstom and Siemens are all suppliers of facilities for the Three Georges Project on the Yangtze River. Foreign capital has showed deep interest in building hydropower stations although their enthusiasm was dampened in recent years because of the market changes brought about by the reform of the sector.

Recently the first wholly foreign-funded medium-sized hydropower station - Qinghai Zhiganglaka on the upstream of the Yellow River dammed the river in Qinghai. With an investment of 1.42 billion yuan, it is jointly developed by the US AES Group and Hong Kong Zhenxing Group.

China also has exploited wind, thermal and solar energy which also has attracted foreign investment. A wind farm in Hainan has been built with German loans. China's first wind/PV power hybrid system was successfully combined to the grid recently at Huaneng Nan'ao Wind Power Park and put to commercial operation. And the country¡¯s nuclear energy is playing an increasingly important role in its energy mix.

But some people are concerned about the influence of the hydropower projects on the environment and life of local residents who face relocation.

The government is considering measures to curb the possible over-investment in power plants. Fire-fueled power plant with capacity of 135,000 kw or below will not be given a nod at the State Environmental Protection Administration.

**China rules out forming new energy ministry**

(China Daily, December 3,2004)

The top government decision-makers have basically ruled out the possibility of setting up a Ministry of Energy in at least the coming three years, industry sources said.

But the central government is considering establishing a special office directly under the State Council to help manage the energy industry. Senior officials, including one vice-premier, are likely to head the office, the source said.

The proposal, if finalized, may quell recent calls to reform the administration of the energy industry.

In the past few weeks, government departments have been mulling over some kind of body to replace the current Energy Bureau under the ministry-level National Development Reform Commission (NDRC).

Critics said the Energy Bureau, which only has a dozen members of staff, is too weak and inferior to oversee an energy industry that has total assets of more than 10 trillion yuan (US$1.2 trillion).

"Such discussions have cooled off after the top decision-makers suggested reform was so significant and complicated that they won't make it during the tenure of the current government," said one industrial source. "The reform needs to reshuffle the current energy administration."

The tenure of the current government is due to end in early 2008.

"There will probably be a senior-level office to help manage the energy industry," said the source, adding that the proposal is still under discussion.

Director of the Energy Bureau Xu Dingming refused to comment on the issue.

China set up the Ministry of Energy in 1988 but it was dismissed five years later because its administrative function overlapped with other departments such as the then State Development Planning Commission.

The ministry was pointless to some extent as big oil, power and coal companies also enjoyed administrative power under the planned economy at that time.

Facing increasing energy shortages, the government set up an Energy Bureau under the NDRC during reform of the administration in March 2003.

But the bureau failed to curb the widespread energy crunch that broke out in late 2002.

More than two thirds of the country's territory has now suffered frequent blackouts. Coal mines cannot keep up with the surging demand, while oil imports is rocketing as the nation becomes the second-largest oil consumer in the world.

Industrial experts and officials said the bureau was not powerful enough to co-ordinate relations between different sectors such as coal and power. The two sectors fight frequently over coal prices, with many power plants running out of coal stocks and shutting down.

"In most cases, the Energy Bureau is incapable of co-ordinating relations," said Wu Zhongwu, a senior researcher with Energy Research Institute.

The bureau is crippled because much of the administrative power in the energy industry is scattered between different government organs, Wu said.

The pricing department of the NDRC, for example, is in charge of setting energy prices, while the transport department oversees oil and coal transport.

Oil and coal imports and exports as well as management of the oil markets are controlled by the Ministry of Commerce, while the Ministry of Land and Resources steers resource exploration.

The legacy is that China's energy policy is not always consistent, and sometimes, even contradictory.

Zhu Chengzhang, a veteran energy expert, said the bureau lacks the staff and experts needed to handle such a big industry.

The bureau only has 20 some personnel compared with more than 1,000 employees in the Ministry of Energy in the United States.

The Energy Bureau is overwhelmed with specific issues such as project approval, but neglects more important issues such as strategic planning, Zhu said.

"It should study what kind of economy we will develop, what kind of energy we should use, how much should be imported, what are the possibilities for imports... These are strategic issues that need to be thought through," said Zhu.

Critics also said the bureau is too inferior, in terms of official ranking, to connect with other countries to resolve China's imports.

Experts are stressing the need to set up a more senior level energy department, either an Energy Ministry or an Energy Committee, to oversee the industry.

"The power needs to be consolidated into one higher-level government department," said Huan Guoyu, a researcher with a thinktank of the State Council Office for Restructuring the Economic System. "It is conducive for China to form a constant long-term energy policy."

But experts agreed that to reform the administration will be a touchy issue.

It is difficult to reshuffle the current administration and consolidate power.

"The reform has to be thorough to avoid overlapping decision-making," said Wu.

**300 million Chinese drinking unsafe water**

(Xinhua, December 23,2004)

More than 70 percent of China's rivers and lakes are polluted to different degrees, aggregating water resources shortage and threatening the drinking water safety, Wang Shucheng, minister of Water Resources said in east China's Suzhou city on December 22.

"Currently, 300 million Chinese people are drinking unsafe water, among which 190 million are drinking water with harmful substances above set standards," Wang said at a conference for directors of water resources bureaus.

Since the founding of the People's Republic of China, the government has solved drinking water issues for 273 million rural residents, sources with the conference said, adding Chinese government has allocated more than 18 billion yuan (2.17 billion US dollars) to build 800,000 drinking water projects in rural areas since 2000.

However, Zhai Haohui, vice-minister of Water Resources, said the drinking water safety in many rural areas has not been guaranteed yet. "More than 63 million peasants living in north, northwest, northeast and east China plains are drinking water with fluorine above set standard," he said.

In addition, 60 million people in 110 counties of Hunan, Hubei, Jiangxi, Anhui, Jiangsu, Sichuan and Yunan provinces are threatened by schistomsome disease, Zhai said.

To safeguard drinking water safety is the top priority of Chinese government's efforts to protect water resources, Wang said.

The Chinese government will take measures to ensure the drinking water safety for all rural residents by 2020, he said.

**New law to encourage use of renewable energy**

(CRI, December 25,2004)

The National People's Congress will examine a draft law to encourage the use of renewable energy. The draft law lists wind, water, and geothermal energy as renewable options.

An NPC environment spokesman says China faces a worsening environmental situation, and must urgently develop renewable sources of energy.

The draft law lists wind, solar power, water, and geothermal energy as renewable options and contains regulations for their exploitation and development.

The draft will be discussed at the 13th Session of the tenth NPC Standing Committee which starts Saturday.

Currently, 50 countries have enacted laws to promote development of renewable energies.

**Guangdong, Hong Kong to Battle Pollution**

(China Daily December 24, 2004)

An official from the Guangdong Provincial Environmental Protection Bureau said his bureau is forging closer ties with its counterpart in the neighboring Hong Kong Special Administrative Region to fight air pollution.

Starting in the first quarter of 2005, both sides will jointly launch 16 monitoring stations to further monitor the air quality in the southern Chinese region, particularly in the prosperous Pearl River Delta that borders Hong Kong and Macao, said the official, who preferred to remain anonymous.

And the online monitoring stations are expected to cover all the cities in the Pearl River Delta in the next few years.

A delegation headed by Li Qing, director of the Guangdong Provincial Environmental Protection Bureau visited Hong Kong on Wednesday to seek more co-operative opportunities.

In addition to participating in the fifth meeting of the Guangdong-Hong Kong Joint Working Group on Sustainable Development and Environment Protection there, the delegation has met Sarah Liao, secretary for the Environment, Transport and Works, and other major Hong Kong environment officials for expanding co-operation in curbing air pollution in the region, said the official.

And both sides have agreed to soon set up a special task force that consists of officials and experts from the two sides to promote the use of energy-saving and clean production equipment and technologies in the Pearl River Delta region, the official told China Daily.

He said the quickly growing number of vehicles are the cause of more than 80 per cent of the air pollution in Guangdong and become the culprit of the province"s worsening air.

In another development, the air pollution index in Guangzhou recorded a successive eight days of more than 100 between December 14 and 21, indicating a slight air pollution in Guangdong provincial capital.

**Fresh efforts to tap solar energy**

(China Daily 2004-12-24)

China is stepping up efforts to develop its solar energy industry, echoing the government"s promise to make renewable energy resources account for 10 per cent of China"s energy consumption by 2020.

Zhang Guobao, vice-minister of the National Development and Reform Commission, made the pledge at the International Conference for Renewable Energies held in Germany in July.

China is expected to boast a production capacity of 51 million square metres of solar heat panels by the end of the year, with a production value exceeding 10 billion yuan (US$1.2 billion). The figure will rank China first worldwide in solar heat panel production, Li Zhongming, an analyst from the National Engineering Research Centre for Renewable Energy, told China Daily.

China"s solar energy power generation is expected to reach 60 megawatts by the year end, Li said.

The world"s solar energy power generation industry has witnessed robust growth in recent years, industry sources said.

The solar energy power generation industry maintained an average 28.6 per cent growth rate over the past ten years on the international scale, and the figure rose to 36.8 per cent in the past five years, statistics from the Beijing Solar Energy Research Institute show.

Currently, China is framing strategic plans for renewable energy development and utilization for the period before 2020, bringing the development and utilization of renewable energy into State strategies, said Zhang Guobao.

China"s first law on renewable energy utilization will be first read by the National People"s Congress on December 25, and is expected to debut in the second half of 2005 at the earliest, after final approval from the State Council, according to Ma Shenghong, a professor from the China Academy of Sciences.

According to the drafted law, residents will receive extra allowance for using renewable energies. And power generation units are supposed to use renewable energies for a certain amount of its power generation, Wang Wenjing, deputy director of Beijing Solar Energy Research Institute told China Daily.

Building solar energy power plants in desert areas and places lacking conventional energies represents the preferred option for meeting electric power shortfalls, Wang said.

China, currently, is planning to construct a 8 megawatt solar energy power plant in Dunhuang, western China"s Gansu Province, Wang said.

According to CAS"s Ma Shenghong, who is also proposing the project, an initiative feasibility study has been completed and the project has been submitted to the NDRC for final approval.

"If all goes as expected, the 8 megawatt solar energy power plant will go into normal operation by the end of next year," Ma said.

In line with the country"s west development strategy, the country has invested 2 billion yuan (US$241 million) in building solar energy power plants in western China"s rural towns, with a total power generation capacity of 18 megawatts, Ma said.

"The project has benefited people in those areas, some of whom have otherwise never seen electric bulbs in their entire life," Ma said.

In addition, the NDRC is brainstorming another project for constructing solar energy power plants in western China"s over 30,000 rural villages, according to official sources.

If this project is completed, Ma said, China will be able to basically solve the power shortage problems in China"s western regions.

Li Zhongming from the National Engineering Research Centre for Renewable Energy said the coming events, including the 2008 Beijing Olympic Games, the Shanghai Expo 2010 and the 2007 World Conference on Solar Energy in Beijing, will play an important role in promoting China"s solar energy industry development.

"China will install two to three megawatt solar energy power generation machines in the sports facilities of the Beijing 2008 Olympics," Li said.

**Water Quality Deteriorates in Huaihe River**

(Xinhua News Agency December 20, 2004)

Water quality further deteriorated in the Huaihe River, China"s most polluted river, in November, with only 57.8 percent of the water considered safe for domestic, industrial or agricultural use.

The figure is about 15.5 percent points less than last year, according to the environment surveillance center on the Huaihe River.

The center carried out tests at 45 places along the river across Henan, Anhui, Jiangsu, Shandong and Hubei provinces, involving 20 indices including permanganate number index, ammonia and nitrogen content.

Chinese experts divide water quality into five grades. Grade I is the least polluted, while grade V water cannot even be used for irrigation.

The tests show only 35.5 percent of the water can be used as domestic water, 17.8 percent in industry, 11.1 percent in irrigation and 35.6 percent in none of the above.

Experts attribute the degeneration to scarce rainfall in the Huaihe River basin recently, preventing fresh water from diluting pollutants, which the towns and cities continue to discharge pollutants into the river.

The Huaihe River has suffered a drought since October and the rainfall has halved from last year, according to local observatory.

The Huaihe is one of China"s major rivers, running through the country"s east between the Yangtze and Yellow rivers.

In 1994, China launched campaign to clean the river, which has been heavily polluted since the 1980s, but recent media reports show the pollution remains unchecked despite a decade of expensive control efforts.

**Law Expected to Push Clean Energy**

(China Daily December 20, 2004)

China's law on renewable energy may come out in June, says a senior legislator.

The law may push the proportion of renewable energy used in China up to 5 percent of the total power supply by 2010 and 10 percent by 2020, said Feng Zhijun, vice-chairman of the Environmental and Resources Conservation Committee of the National People"s Congress (NPC) on Saturday. The NPC is the country"s top legislature.

Feng said currently the proportion stands at 2 to 3 percent.

Feng attended a ceremony over the weekend in Baoding, Hebei Province, to mark the expansion of the country"s only production base of silicon wafers, solar cells and solar modules.

The Tianwei Yingli New Energy Resources Company opened the base last December. It can produce enough silicon wafers and solar cells in one year to produce 6 megawatts of power, and enough solar modules for 50 megawatts.

The company is now spending 400 million yuan (US$48 million) to expand the base. The expansion will allow it to produce enough silicon wafers to pump out 70 megawatts of power, solar sells for up to 50 megawatts and solar modules for 100 megawatts, said Ding Qiang, the company"s chairman.

The expansion will put Tianwei Yingli among the top 10 photovoltaic producers in the world, he said.

He Zuoxiu of the Chinese Academy of Sciences said solar energy should be given top priority among renewable energy development.

"The expansion of the base is an important event in the development of solar energy," he said.

He said the potential of solar energy in China is huge.

Within a desert area of 100,000 square kilometers, 2.5 billion kilowatts of power can be generated if 15 percent of the solar energy there can be transformed, he said.

That is the percentage of solar energy the company"s products will be able to transform after the expansion. Deserts in China cover a total area of 854,000 square kilometers.

China"s power generation capacity needs to hit 2.5 billion kilowatts by 2050 to meet increasing demand.

He said China"s market for renewable energy, especially solar energy, will grow greatly after the law on renewable energy comes out.

Li Ye, an official from the National Development and Reform Commission, said at the ceremony that supplying a certain proportion of clean energy should be made compulsory for power companies.

**Greenpeace: APP damaging forests**

(China Daily 2004-12-17)

BEIJING, Dec. 17 -- Greenpeace China yesterday alleged again that a paper and pulp giant is damaging forests in Southwest China"s Yunnan Province.

The environmental rights group is appealing for Chinese consumers to refrain from using APP paper products for the sake of the dwindling forests in the country.

The environment organization also said it is willing to face Asia Pulp & Paper Co Ltd (APP) in court if the company thinks it has been defamed.

Greenpeace is contacting other international environmental organizations to push for an international campaign against the Indonesian company, said Greenpeace China Campaign Director Lu Sicheng.

APP China sources could not be reached for comment yesterday.

Greenpeace yesterday publicized the result of a survey it conducted late last month in remote rural areas of Yunnan, which shows illegal logging and unfair requisitioning of farmland from farmers.

Local farmers shown in the video filmed by Greenpeace during the survey say it was APP that cut down large areas of trees and planted non-native eucalyptus trees.

The farmers, living in rural areas of Simao, say their farmland has been requisitioned at a price as low as 0.8 yuan (9.7 cents) per mu (0.06 hectare) per year.

Such a price is even lower than that for desert land in North China''s Inner Mongolia, which stands at 1 yuan (12 cents), said Liu Bing, Greenpeace China''s forestry project deputy director.

The farmers say to date they have not received their money. Contracts were signed last December.

The result is further support of Greenpeace''s report on November 16, which questions a large paper and pulp project, agreed to in 2002 by APP and the Yunnan provincial government.

The project involves 1.8 million hectares in the regions of Wenshan, Lincang and Simao.

According to Greenpeace''s November report, 42 per cent of the area is forest and APP has been cutting trees in natural forests there and planting non-native eucalyptus trees, which are used by the company to produce paper and pulp.

APP responded on November 24, saying the claim is "unrealistic and irresponsible."

It also filed a lawsuit against the Zhejiang Hotels Association on November 30 for infringement of its reputation, because the association in East China''s Zhejiang Province called on its member hotels to resist APP products after reading Greenpeace''s report.

APP products, which range from office paper to toilet paper, take up a large share of the Chinese market.

Lu said yesterday the organization has been contacting APP and demanding the company stop logging in Yunnan, halt the Yunnan project and respect local farmers'' interests.

So far APP has refused to make any promises, he said.

If APP wants to sue anybody, it should choose a "correct rival," rather than a social organization such as the Zhejiang Hotels Association, Lu said. The "correct rival" is Greenpeace itself.

Du Juexiang, deputy secretary- general of the Zhejiang Hotels Association, said yesterday it was for environmental protection that the association called on its members to resist APP products.

Several lawyers in Beijing, including Wei Rujiu from the Huicheng Law Firm and Pu Zhiqiang from the Beijing Huayi Law Firm, said there are no grounds for APP to sue the association.

**Shanghai strengthens sewage treatment**

(China Daily 2004-12-17)

BEIJING, Dec. 17 -- Shanghai will be able to treat 70 per cent of its sewage by the end of next year, thanks to eight new sewage treatment plants and the enlargement of 16 existing ones.

Currently, the city has 34 sewage treatment plants to deal with some 5.4 million tons of sewage discharged every day from homes and work units.

By the end of this year, the overall sewage treatment rate in the city is expected to be 65.3 per cent, up 2.5 per cent from last year. The goal for next year is to hit 70 per cent.

"To achieve that, the city needs to improve the current sewage pipeline networks," said Gu Jinshan, deputy director of the Shanghai Water Affairs Administrative Bureau, during an environment inspection organized by the Shanghai Municipal People"s Congress yesterday.

"Some 12 new pipeline networks will be finished next year."

However, the problem with the silt left during sewage treatment remains unsolved.

Currently the city yields some 1,000 cubic metres of silt every day during its sewage treatment process. most of that silt is dried and buried but due to the lack of treatment it may pose another risk to the water and soil.

"We have conducted research into the problem and a rough timetable to address the silt treatment is in the making," Gu said, pointing to a plan to treat 30 per cent of the silt by next year.

Inspectors yesterday also visited a local factory which has transformed its coal-burning boiler into a gas burning one, to reduce air pollution.

"In the past few years, the city has shut down over 6,000 factory boilers which burnt coal," said Wang Jue, an official with the Shanghai Environment Protection Bureau.

The remaining 30 coal-burning boilers in the centre of downtown will all be shut down by the end of next year and transformed into gas burning ones, Wang said.

By then the city"s downtown area, at the size of 100 square kilometres, will be a coal-free zone.

"As the cost for using clean energy is about five times higher than using coal, the job to shut down these boilers has always been difficult," Wang said.

**Cuts in Carbon Dioxide Emissions Urged**

(ENN 2004-12-16)

December 15, 2004 -- By Charles J. Hanley, Associated Press
BUENOS AIRES -- The world"s chief climate scientist on Tuesday disputed the U.S. government contention that cutbacks in carbon dioxide emissions are not yet warranted to check global warming.

Experts readied a report, meanwhile, saying 2004 will be one of the warmest years on record.

"The science says you"ve got to reduce emissions," Rajendra K. Pachauri told The Associated Press in an interview midway through a two-week international climate conference.

The Kyoto Protocol, the international accord requiring cuts in carbon dioxide, "is driven by the need to reduce emissions, and on that there is no question," said Pachauri, chairman of a U.N.-sponsored network of climatologists.

Scientists largely blame the accumulation of carbon dioxide and other "greenhouse gases" in the atmosphere for the rising temperatures of the past century.

The 10 warmest years globally, since records were first kept in the 19th century, have all occurred since 1990, the top three since 1998. Specialists here this week will issue a report saying 2004 ranks as the fourth- or fifth-warmest year recorded.

Conference delegates from dozens of nations are fine-tuning the workings of the Kyoto pact, which takes effect Feb. 16. It sets targets for 30 industrial nations -- excluding the nonparticipating United States and Australia -- to reduce emissions of six greenhouse gases, most importantly carbon dioxide, a byproduct of coal, oil and gasoline use.

The United States is a member of the umbrella U.N. treaty on climate change, and it signed that treaty"s Kyoto Protocol in 1997. But President Bush renounced the Kyoto agreement in 2001, saying emission reductions would hurt the U.S. economy.

Before leaving for the annual climate-treaty talks, U.S. negotiator Harlan Watson told reporters in Washington that the United States -- the world"s biggest emitter of carbon dioxide -- would eventually stop the growth in its emissions "as the science justifies." After arriving here, he said the Kyoto Protocol"s approach was "not based on science."

Asked about Watson''s statements, Pachauri was emphatic.

"The science says you''ve got to reduce emissions of greenhouse gases. The science says you''ve got to stabilize concentrations of greenhouse gases in the atmosphere," he said. "What may be subject to uncertainty and subject to debate is who is to reduce how much."

As chairman of the Intergovernmental Panel on Climate Change, the Indian scientist oversees the work of hundreds of specialists who regularly assess the latest research on climate change and its likely effects.

In its last major report, in 2001, the panel projected that global temperatures in the 21st century would increase by 3 to 10 degrees, depending on many factors, including how quickly and deeply gas emissions were cut back.

Warming is predicted to cause greater extremes in temperature, and possibly dry out farmlands, stir up fiercer storms and raise ocean levels, among other impacts, the panel said. At the conference Tuesday, European scientists said even an additional 2 degrees might threaten South American water supplies and reduce Asian food yields.

One of the world''s leading climate institutes, the British government''s Hadley Center, issued a report at the conference Tuesday on work done to narrow the uncertainties, by running many dozens more model scenarios through its supercomputers.

It said temperatures would most likely rise by an additional 5 degrees by later this century if the carbon dioxide concentration in the atmosphere doubles from its pre-industrial levels -- a probable scenario if emissions are not controlled.

Pachauri said the evidence of change is everywhere -- in the doubling of extreme weather events recorded by the World Meteorological Organization, in the melting of glaciers worldwide, and in the one-degree global temperature rise of the past century.

"The evidence is so strong, the observations so strong, it''s very difficult to close your eyes to it," he said. "I was born in the mountains in India. I''ve seen the kinds of changes that have taken place with snow cover, with the seasons, with the extent of warming, precipitation patterns, the impact on forests."

Delegations at the conference are searching for ways to bring the United States into the Kyoto process and acceptance of mandatory reductions in gases. Besides the economic argument, Bush complained that some poor but rapidly industrializing nations, such as China and India, were not obligated by Kyoto''s short-term targets.

Pachauri said he was heartened by the actions of individual U.S. states, particularly in the U.S. Northeast, to impose carbon-dioxide reductions on power plants, for example.

"I think the next round of action will only come from an acceptance of the science," he said.

**SEPA Pushes Environmental Impact Assessments**

(China Daily, China.org.cn December 14, 2004)

At the First China International Forum on Environmental Impact Assessment, which opened Monday in Boao, Hainan Province, a senior environment official listed 10 causes for rejecting project applications or shutting down ongoing projects.

The projects include those being phased out or banned by state industrial policies, those located in such areas as drinking water sources and nature reserves and those that do not match regional development and environmental protection plans, as well as energy-guzzling and high-pollution projects.

State Environmental Protection Administration (SEPA) Vice Minister Pan Yue called on environment authorities across the country to watch closely and conduct environmental impact assessments strictly.

Severe penalties should be levied on those responsible for projects that are launched without environmental impact assessments, Pan said.

Environmental impact assessment for construction projects has become a legal requirement in most countries. Assessments of policies, plans and programs are required in an increasing number of places so that environmental considerations can be integrated with overall socioeconomic development planning.

However, China faces a number of challenges in implementing an effective environmental impact assessment system.

Many local governments give approval to projects without regard to their potential for environmental harm because of the immediate economic benefits the projects offer. Further complicating the issue is the fact that a number of assessors are operating illegally, often failing to use sound scientific methods and even offering falsified reports.

Projects that have not been properly processed should be stopped and officials who do not fulfill their responsibilities should be punished, Pan said. Those who give false assessments will be sacked.

Public participation and supervision in the decision-making process will be strengthened to give the concerned citizens an avenue to be heard.

Pan pointed out that foreign environmental impact assessment bodies are welcome to enter the Chinese market.

Richard Fuggle, president of the US-based International Association for Impact Assessment, said Pan"s commitment to strengthening environmental impact assessments in China is impressive because it shows political will.

"In the West, we have lots of talk, but little political will," he said.

China"s Law on Environmental Impact Assessment went into effect on September 1 last year. It requires that plans for land use and for the development of land, river and sea areas be assessed for their potential impact on the environment.

The law also requires that the opinions of the public be sought, through meetings or public hearings, on plans that could have a negative impact on the environment.

The First China International Forum on Environmental Impact Assessment is being held from December 13 through 15 in China"s southernmost province of Hainan. It provides an information exchange platform for related management and technical personnel from around the world.

Topics of discussion at the forum include processes, legislation, methods, procedures and tools of environmental impact assessment.

The forum is sponsored by SEPA and organized by SEPA"s Appraisal Center for Environment and Engineering, the Chinese Society for Environmental Sciences and Hong Kong"s Department of Environment, Transport and Works.

**Beijing plans to shut down non-coal mines**

(China Daily, 2004-12-15)

December 15 -- Beijing may shut down a large portion of its small mines by the end of 2007.

The move would not apply to coal mines but other operations such as gold, copper and iron digs, said the Beijing Municipal Administration of Work Safety.

The proposed move is the continuation of a three-year restructuring of the industry during which more than 1,100 mines in the city have been shut down since 2001.

There were 1,606 non-coal mines scattered on the outskirts of Beijing in 2001, but now, only 435 remain with qualified work safety conditions, said Ding Zhenkuan, vice-director of the administration, during a conference held last week in Beijing.

Ding said Beijing is not a suitable locale for such mines in terms of resources, ecology and the city"s economic development strategy.

At the same time, the administration plans to work with other related government departments to shut down all clay-brick operations by the end of this year and plans to close the city"s only gold mine -- in the northeastern outskirts -- by the end of next year, according to sources with the administration.

In April, hydrogen cyanide gas leaked from the gold mine, killing three people.

Other non-coal mines that will probably be shut down by 2007 include iron mines whose annual production is under 100,000 tons and lime mines with production capacity below 50,000 tons annually.

Small-scale copper mines and manganese mines may also be shut down in the next three years, sources said.

As to the coal mine sector, the city is planning to close all its township-owned coal mines by 2010, according to a local economic development programme.

Currently, Beijing has 213 coal mines with a combined annual output of 16 million tons. Half of the production is from township collieries.

However, coal mine accidents have been reported from time to time in Beijing due to a complicated geological structure that adds to the difficulties and dangers of mining.

Statistics provided by the work safety administration show that 19 coal mine accidents leading to 31 deaths were reported by November 8.

Beijing"s coal industry accounts for less than 1 per cent of local gross domestic product (GDP), but the death toll from the industry accounts for more than one quarter of work-related causalities reported in Beijing.

According to the Beijing Municipal Commission of Development and Reform, the city"s coal output will probably be reduced to 9 million tons by the end of 2007. By then the number of township coal mines would be cut down to 60, or one-third of the current figure.

**Province cuts fewer trees to save forests**

(China daily, 2004-12-15)

December 15 -- Nearly 1 million tall trees were spared the axe this year in Northeast China"s Heilongjiang Province, said the Heilongjiang Forest Industry Bureau.

The rare save was the result of the province"s efforts to preserve its forests, which have shrunk sharply due to years of excessive exploitation.

The province is one of the country"s major forest reserves.

The province"s timber output over the last year declined by almost 320,000 cubic metres from a year earlier.

Heilongjiang is among the few provinces in China with rich forestry resources and plays an important role in the country"s timber industry, supplying millions of cubic metres throughout the country each year.

It takes three trees with a diameter of about 30 centimetres to create one cubic metre of timber.Thus the 320,000 cubic metres of timber saved equals about 1 million trees.

The smaller supply has naturally led to fewer sales.

Statistics from the sales department of the bureau show that it had sold 265,000 cubic metres less than last year.

"But the ecological value of the saved trees is incalculable," said Qin Xianshun, who heads the sales department.

"It usually takes several decades for the trees to grow that big. And once they are gone, they are perhaps gone forever," he said.

The move is part of a decade-long countrywide programme launched in 2000 to protect forests.

The main goal of the national programme is to stop commercial logging of natural forests in the upper reaches of the Yangtze River and the Yellow River and gradually cut quotas for Inner Mongolia and Northeast provinces.

According to the national forestry industry quotas, the province"s timber output this year should be no more than 4 million cubic metres.

The quota remains very high though it has seen a gradual decline.

However, the province has taken the reduction a little further. The 320,000 cubic metres of timber it did not log were included in the quota and could have been legally felled.

"But we tightened our belts and managed to save them," Qin said.

Statistics also show that though less trees were felled, actual income was no less than that of last year.

This is the result of the adoption of a "bidding system" adopted last year.

"The bidding system means those who pay the highest price will get the timber, not the large customers who once monopolized timber with low prices," he said.

The price of timber used to be decided by top forestry officials and some large customers would buy up all the timber in one fell swoop.

"That usually led to a very low price and caused huge losses to the State," he said.

In order to eliminate these loopholes, the bureau strengthened its surveillance and demanded transparency in sales.

The bureau set up a special timber inspection team in August and sacked four people, who were heads of local forest centres, after they were found selling timber to fatten their own pockets.

Each local bureau has set up a surveillance telephone number and the floating price of timber has to be displayed to let everybody see it.

As a result, the average price of each cubic metre saw a year-on-year rise of 59 yuan (US$7) this year. That has led to a revenue increase of more than 30 million yuan (US$3.6 million).

"Although we sold less, we earned more," he said.

The bureau will stick to the same measures the next year to save more trees, he said.

**Pull plug on polluting enterprises**

(China Daily, 2004-12-14)

BOAO, Hainan, December 14 -- A senior environment official yesterday listed 10 kinds of projects that should be halted due to their negative environmental impacts.

The projects include those being phased out or banned by State industrial policies, ones located at such areas as drinking water sources and nature reserves, and those that do not match regional development and environmental protection plans.

Projects that consume large quantities of energy and discharge more pollutants than permitted should also be rejected.

Vice-Minister of the State Environmental Protection Administration Pan Yue called on environment authorities across the country to closely watch and strictly conduct project environmental impact assessments.

Severe punishments should be levied on those responsible for projects that are launched without environmental impact assessments, Pan said at the First China International Forum on Environmental Impact Assessment, which opened yesterday in Boao of South China"s Hainan Province.

Pan said environmental impact assessments in China face many challenges.

Some local governments, solely paying attention to the introduction of investments, give approval to projects without regard to whether they are environmentally harmful.

And a number of unqualified environmental impact assessment bodies fail to stick to scientific assessments and even offer false statistics.

Projects which do not go through environmental procedures should be stopped and officials who do not fulfill their responsibilities should be punished, Pan said.

Public participation and supervision in the process of decision- making will be strengthened so that public opinion can be taken into full consideration.

Those who give false assessments will be sacked, Pan said, adding that foreign environmental impact assessment bodies are welcomed to enter the Chinese market.

Richard Fuggle, president of the US-based International Association for Impact Assessment, said Pan''s commitment to strengthening environmental impact assessments in China is "very impressive" because it shows political will.

"In the West, we have lots of talk, but little political will," he said. He was also attending the forum.

Conducting environmental impact assessment will help China deal with the dilemma between economic development and environmental protection, he added.

China''s Law on Environmental Impact Assessment took effect on September 1 last year.

According to the law, plans on land use and for the development of land and river regions and sea areas have to be assessed to see how they might impact the environment.

The law demands that public opinion on development plans which could have a negative impact on the environment should be solicited through meetings or public hearings.

**Provinces Urged to Turn in Polluters**

(China Daily December 9, 2004)

On Wednesday the State Environmental Protection Administration issued a circular to four provincial authorities in the Huaihe River region urging them to do more to stop river pollution.

Provincial environmental protection authorities are being asked to turn in small companies, such as paper plants and alcohol producers, that should be shut down for polluting practices.

Controls for major companies that discharge pollutants and sewage treatment plants should also be in place by the end of the year, the circular said, and companies that release more pollutants than permitted should be publicized through the media and reported to the administration.

The circular suggests that provincial governments sign papers with city and county governments making them take responsibility for monitoring targets and making requirements clear.

The Huaihe River, one of the largest rivers in China, supplies water for around 165 million people in Henan, Hubei, Anhui and Jiangsu provinces in central and eastern China.

In late October, a State Council conference on pollution control for the river was held in Bengbu, Anhui Province and attended by Vice-Premier Zeng Peiyan.

At the conference, governments of the four provinces signed a pledge to cut pollution along the river, which was endorsed by the State Council.

The provinces have promised to increase control of industrial pollution along the river from next year and to build additional sewage treatment plants. They say they will also curb agricultural pollution.

**Emission Quota Trading Help Cut Acid Rain**

(China Daily December 9, 2004)

Two local plants under China's leading power producer Huaneng are about to sign a deal to buy and sell sulphur dioxide emission quotas.

It"s expected to be the ninth deal since the start of a pilot emission trading program between the State Environmental Protection Administration (SEPA) and the US-based Environmental Defense (EDF) in 2002.

The program, which was mainly implemented in the Yangtze River Delta region which sees a lot of acid rain, is targeted to help China cut sulphur dioxide emissions by 10 percent between 2000 and the end of 2005.

In it, factories which produce less than their permitted quota of emissions can either store up what they do not use or sell off the rest to factories that produce more than their emission quota.

The plants, potential buyer Huaneng Nantong Power Plant and sellers Huaneng Taicang Power Plant, operate under Huaneng Power International in Jiangsu.

According to a feasibility report, Huaneng Nantong will need to produce more emissions as it strives to generate more electricity to meet local demand.

The expansion plan will generate another 14,810 tons of sulphur dioxide during the 2006-2008 period, which is far beyond the original emission quota the company is permitted.

Huaneng Taicang, however, by using state-of-the-art technology to decrease sulphur dioxide emissions, will produce far less and be in a position to sell off what it does not emit.

The report says Huaneng Nantong will pay 31 million yuan (US$3.7 million) for a three-year emission quota from the Taicang plant.

Such emission trading schemes have come about because of government"s caps set on the amount of pollution that can be produced by industrial sources, such as power plants and factories.

Experts said further work should be done to look into the environmental impact on locals if the deal comes into effect.

"We should investigate whether there will be more acid rain in Nantong if the plant in the city generates more power and emissions," said Lin Hong, a scientist with the China Environment Science Research.

But local environmental officials said even if the deal is struck in 2006, the total emission quota in Nantong is below what is allowed by the government.

The situation is expected to improve because of the improved technology used in the Taicang plant.

China"s first agreement on sulphur dioxide emission trading between two plants in different cities came into effect in July 2003.

SEPA Minister Xie Zhenhua said the pilot work should be extended to other regions and research should be carried out to set up a legal framework for the trading.

But EDF chief economist Daniel J. Dudek said there was still uncertainty ahead about the deal as the plants have not been given emission quotas for the 2006-10 period.

The central government is busy preparing a blueprint in various areas during the 11th Five Year (2006-10) Plan Period.

"The government should have a plan with a longer time range, which is useful for companies to know where they should be going," said Daniel, non-profit, non-government organization has championed successful sulphur dioxide emissions trading programmes.

SEPA and the EDF are now working towards setting up a regional market for emissions trading on the Yangtze River Delta, which is vital for the successful development of the area"s economy while protecting its environment.

An earlier report from Tsinghua University said the worsening contamination of major rivers and lakes and atmospheric pollutants, especially sulphur dioxide -- the cause of acid rain -- have become major environmental problems in the region.

**Polluters Ignore Environmental Laws**

(China Daily December 7, 2004)

Environmental inspectors are involved in an uphill struggle against polluting companies. They say local protectionism and light punishments for violations are hindering efforts to counter widespread pollution.

There has even been violence against inspectors; each year, about 120 assaults take place, along with 4,000 incidents in which inspectors encounter intentional barriers.

The campaign against polluters started in April, a joint move by six ministries, including the State Environmental Protection Administration, the National Development and Reform Commission and the Ministry of Supervision. It is the second year for them to carry out such action.

In recent years, complaints by the general public about environmental problems have increased 20 percent annually and the number of telephone complaints was up 330,000 last year, said Wang Jirong, State Environmental Protection Administration vice-minister.

According to Chen Shanrong, from the administration"s Environment Supervision and Inspection Bureau, 470,000 companies had been inspected by the end of September.

About 23,000 cases involving violations were filed, with more than 5,000 companies shut down, and 3,000 ordered to stop production.

Meanwhile, 4,500 companies have been required to make improvements within a limited period.

In addition, about 3,100 spotlighted problems in which water quality, air quality and noise affected people"s daily lives.

However, Chen said one-third of cases have not been concluded. He called on government at all levels to make sure that each of them is dealt with.

It was also found that half of existing sewage treatment plants are not operating normally. Chen said many of them do not have compatible sewage collection systems.

Lu Xinyuan, head of the bureau, said similar actions against polluting companies can be traced back to 2001.

In the past four years, about 10,000 companies were shut down or ordered to stop production and take pollution treatment measures.

However, about 50 percent of such companies reappear, sometimes with even more serious pollution problems, he said.

Small companies such as cement, papermaking and coal-burning power plants, which use outdated techniques, consume large quantities of energy and result in serious pollution.

And some big companies do not use their pollution-treatment facilities and illegally discharge pollutants.

The fines that authorities levy on polluters are far less than the profits such companies earn.

Currently, the highest fine is 1 million yuan (US$120,000) for those who cause very serious pollution, such as a chemical fertilizer plant that caused pollution on the Tuojiang River in Sichuan Province in February and March.

The accident caused economic losses of 300 million yuan (US$36 million).

Local protectionism is another contributor to the rampancy of pollution, Lu said.

Many projects that should not be approved are built just because of the support of local governments, who pursue economic growth without paying attention to environmental protection.

Lu suggested that environmental authorities should be given the right to stop projects"approval and that the maximum fine on polluters be raised.

Lu also said that some local governments do not punish those who assault inspectors severely enough, effectively condoning them.

**Hydrogen electricity a priority for China's energy supply**

(CRIENGLISH.com)

BEIJING, Dec. 1 (Xinhuanet) -- The People"s Daily reports that electricity derived from hydrogen is an important principle of China's energy development.

The paper says as the world's second biggest energy consumer, China currently gets most of its energy supply from burning coal, something which causes severe environmental pollution, China Radio International reported Wednesday.

Meanwhile China is short of oil and natural gas reserves, but rich in hydrogen energy.

Many countries have exploited 80% or 90% of their hydrogen energy potential, but in China it is less than 25%. So, the paper says, the potential for exploitation is still enormous.

**Scientific co-operation makes headway**

(China Daily 2004-12-07)

China and Germany have scored a big success in scientific collaboration since the two countries officially established governmental scientific links in 1978.

Over the past two decades, scientific co-operation has expanded from original energy resources, the metallurgical industry, aviation, agriculture, medical sciences, mathematics, physics and chemistry, to nuclear energy, manufacturing technology, scientific policy and document studies, covering nearly all aspects of science and technology, China Daily learned from the Ministry of Science and Technology.

Fields of co-operation

Renewable energy: The two sides started a pilot project to use solar energy in Daxing county in Beijing in the early 1980s. Scientists from the two sides have set up 60 sets of wind power equipment in the Inner Mongolia Autonomous Region and five other regions of China. The wind power equipment has played an important role in helping supply power in the country's remote areas, according to the ministry's Department for International Co-operation.

Aviation: More than 300 Chinese scientists and 200 German scientists have launched collaboration in aviation over the past two decades, focusing on air dynamics, wind tunnel technology and other important technology. Scientists from the two countries will concentrate on such aspects as air acoustics, material science, transportation management and air psychology in the future.

Ocean study: Scientists from the two sides have conducted four inspections of the South China Sea. They have also studied subjects including the ancient climate, biological diversity, the formation and impact of monsoons, the scale and causes of ocean pollution, and ocean testing and monitoring technologies.

Advanced manufacturing technology: Successful co-operation includes the popularization of such technology in the Shenyang No 1 Machine Tools Factory in Northeast China's Liaoning Province and the Zhengzhou Textile and Machinery Factory in Central China's Henan Province. This technology has greatly helped these factories raise their productivity.

Cultural relics protection: Scientists from the two sides have jointly developed technology to protect the ruins of the mausoleum of Qinshihuang (the first emperor in the Qin Dynasty from 221-207 BC), and other relics in Xi'an in Northwest China's Shaanxi Province.

Environmental protection: The two sides have contributed a lot to the development of high-efficiency and energy-saving technology for waste water treatment.

Exchanges

This May, Vice-Minister of Science and Technology Li Xueyong visited Germany. Officials from the two countries signed a memorandum on revitalizing the old industrial bases in Northeast China.

The two sides are planning to set up a Sino-German Optics Centre and a Sino-German Optics Industrial Park in Changchun in Northeast China's Jilin Province.

Sources from the Ministry of Science and Technology said Germany, as a major scientific power, is an important partner of China. Sino-German scientific co-operation plays a significant role in China's international scientific co-operation.

Scientific co-operation has entered a phase of steady, sustainable and comprehensive development. Headed by governmental co-operation, colleges, research institutes and non-official institutions have conducted active exchanges and co-operation on multi-level, multi-channel and multilateral basis.

Colleges and research institutes from the two countries have expanded their co-operation from the previous mutual visits or staff exchanges, to the present establishment of joint research centres, such as the Sino-German Science Promotion Centre which was set up in 2000 in Beijing.

**Panels to watch price order of textile exports**

(China Daily, 2004-12-30)

About 50 major textile exporters have agreed to set up six price co-ordinating panels to keep an eye on export orders through self-discipline, as textile quotas are set to be removed on Saturday.

To ease concerns that competitive Chinese textiles will soon swamp the world market, the Chinese Government will impose an export tax on certain textile exports from Saturday. Goods subject to the tax include knitted shirts, non-knitted shirts, underwear and night clothes, overcoats, skirts and trousers.

The tariff mostly ranges from 0.2 yuan to 0.3 yuan (2.4-3.6 US cents) for every item or set.

The official said the six panels were regarded as supports for the export tax, since big companies fear that the tariff is not enough to prevent small manufacturers selling their products at lower prices after the quota is lifted.

"The impact of the export tax is not significant as we save the payment for quotas," said Wei Bensen, a manager of the Import & Export Department under the China Yeliya Garment Group.

Bill Shields, vice-president of global sourcing at Pacific Trail Sportswear, said his company is used to paying US$3-4 in quota charges per garment made in China.

Replacing that with a 2 or 3 per cent tariff is fairly insignificant and would not prompt the removal of production from China, he said.

It remains to be seen if the panels and export tax will move the US Government which is being lobbied by US-based manufacturers to cap the growth rate of Chinese textiles.

Officials from the Chinese Ministry of Commerce flew to the United States last week to discuss the textile issue with the US Department of Commerce.

The US side felt positively about China's new export tax, said an official from the Ministry of Commerce in China.

"We will stage further negotiations on the textile trade next month," the official said.

The Bush administration imposed safeguards on Chinese imports of knitted fabrics, dressing gowns and bras in November, 2003, and socks this October.

It was also considering many requests from the US textile industry to cap shipments of Chinese-made trousers, shirts, sheets and underwear.

China agreed to allow such safeguards until 2008 under the terms of its entry into the World Trade Organization (WTO).

Following the United States, Turkey and Argentina have decided to impose safeguards on Chinese textiles.

The US and European Union (EU) governments promised to lift the quotas as agreed despite pressure from domestic textile manufacturers, but they also asked the Chinese Government to keep a leash on the growth of textile exports.

The European Commission said in a statement that the steps taken by China should help "ensure the expansion of textile exports from China happens progressively."

But the Financial Times commented that the Chinese move to collect an export tax was a step backward for the world trading system and a blow to the world's consumers.

"However, it would be unfair to blame China. The fault lies with the EU and US. If some restraints were becoming inevitable, it made sense for Beijing to move first and capture the rent for itself," the newspaper said.

Some even said the Chinese measure is similar to past actions by other governments, notably Japan, which in the 1980s voluntarily restrained exports of machine tools and automobiles to the United States in a bid to avert protective tariffs. But since no WTO member would likely challenge China's export duties, it is unlikely they will pose a problem.

However, some US manufacturers are still arguing the export tax will do little to mitigate the overall competitive advantages of Chinese textile and garment exports.

"Yes, they are right. The move will not have a big impact on Chinese textile exports," said Sun Huaibin, spokesperson of the Chinese Textile Industry Association.

Even in the long run, the tax, a heavy blow to producers of low-end goods, will push companies to make more goods of high added value and help the industry become stronger, he said.

"But China has given up something it honoured by world trading rules. Those who are still unsatisfied should make improvements in their own production rather than try to stop others," he said.

Countries strong in the textile industry have prepared to cash in on the quota-free trade. India said it will seize the opportunity and double its current exports of US$13 billion in two years.

Pakistan also wants to increase its textile exports from US$7 billion to US$14 billion in four years.

## *Contact*

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## Appendix: background

This newsletter is motivated by the growing cooperation between Switzerland and China in the areas of Environment, Science and Technology.

At the end of 2003, both countries have signed a Memorandum of Understanding to strengthen scientific and technological cooperation in varied areas including medicine, biotechnology, nanomaterial, fuel cell, microsystems, environment protection, communication and information technologies, fine machinery. Implementation of this MOU requires increased contacts between Swiss and Chinese research teams, and ultimately joint research activites.

At the beginning of 2004, Switzerland has become a full participant in the European Union's FP6 large-scale research platform. On the other hand, China has an agreement with FP6 allowing its researchers to take part and contribute to research programmes. In practice, this also facilitates joint research between Swiss and Chinese researchers.

In the area of environment protection and sustainable development, Switzerland and China are actively cooperating with generous support of the Swiss government. In June, Switzerland has granted China a new mixed credit line allowing import of Swiss technology with a positive impact on the environment with a grant of the Swiss government.