



# Research and Environment News from China

## Number 2 - August 2004

### Introduction

*An interesting foretaste of the type of projects in the area of Sustainable Development, Energy, Transport and Environment Protection that are going on in China can be found on the following websites. The first one lists the international tenders that have appeared in the press:*

[211.147.20.16/bizchina/bidding.shtml](http://211.147.20.16/bizchina/bidding.shtml)

[english.cepi.com.cn/homepage](http://english.cepi.com.cn/homepage)

*This month, we replicate in this newsletter a sample of international tenders from this source for illustration purposes.*

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 activities.

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.



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8. Damming the Yangtze's polluters
9. Energy pricing: new thinking
10. Environment fair attracts global interest
11. Pollution paradox not solved by chief's firing
12. Change of emphasis on growth called for
13. Xi'an Tackles Water Pollution Issues
14. Giant Pandas to Have Larger Habitat at 'No. 1 Home Place'
15. Euro III in the Pipeline
16. Environmental damage to be counted in GDP



## Activites coming up soon

September 16-18
<b>International Forum on the Sustainable Development of Shandong Province &amp; International Exhibition of Environmental Technologies (Qingdao)</b>
<a href="http://www.goodlink.cn">www.goodlink.cn</a>
September 19
<b>China Forestry Products Fair (Heze near Qingdao)</b>
<a href="http://www.cfp919.com">www.cfp919.com</a>
September 20-24
<b>Yunnan Sustainable Development Symposium (Kunming)</b>
Contact: <a href="mailto:henryvoigt@web.de">henryvoigt@web.de</a>
September 21-24
<b>Environmental Protection &amp; Energy Saving Exhibition (Beijing)</b>
<a href="http://www.chinamachine.org/emaocu/lhzi/lhzi-huanbao.htm">www.chinamachine.org/emaocu/lhzi/lhzi-huanbao.htm</a>
September 23-27
<b>Sixth Int'l Fruit/Vegetable Exposition (Yantai, near Qingdao)</b>
<a href="http://www.fruitveg-expo.cn">www.fruitveg-expo.cn</a>
September 27-29
<b>Water &amp; Membrane China 2004 (Beijing)</b>
<a href="http://www.grandexh.com/water2004/">www.grandexh.com/water2004/</a>
October 12-15
<b>2nd Int'l Conference on Environmental Concerns (Xiamen)</b>
<a href="http://www.ICEC2004.org">www.ICEC2004.org</a>
October 12-14
<b>2004 International Symposium on Water Resources Management and Development of Cities</b>
<a href="mailto:liuyk@bjwater.gov.cn">liuyk@bjwater.gov.cn</a> , <a href="mailto:Huangyzzh@bjwater.gov.cn">Huangyzzh@bjwater.gov.cn</a>
October 12-17
<b>European exhibits at the China Hi-Tech Fair in Shenzhen</b>
October 22-26
<b>Regional Environmental Quality Change and Environmental Security in China</b>
<a href="mailto:ydavidchen@cuhk.edu.hk">ydavidchen@cuhk.edu.hk</a>
October 27-29, 2004
<b>Development Forum of Sino-overseas on the Construction of Small Cities and Exhibition on Feasible Technologies and Equipments for Environment Infrastructure</b>
Place: China Science and Technology Hall (No.3, Fuxing Road, Beijing)
Contact: Liangzi, Wanghong <a href="mailto:chinajianshe@163.com">chinajianshe@163.com</a> (Tel) 010-68353952
October 31-November 4



<b>3 rd World Wind Energy Conference and Renewable Energy Exhibition Including Wind Power Asia 2004</b> <a href="mailto:sg@wwindea.org">sg@wwindea.org</a> , <a href="http://www.wwindea.org">www.wwindea.org</a> , <a href="http://www.wwec2004.cn">www.wwec2004.cn</a>
November 3-5
<b>Pollutec China 2004 (Shanghai)</b> <a href="http://www.pollutec-china.com">www.pollutec-china.com</a>
November 9-11
<b>IWA International Conference on Water Conservation and Management in Coastal Areas</b> <a href="mailto:zhengyan@ouc.edu.cn">zhengyan@ouc.edu.cn</a>
November 18-19
<b>Global Food Safety Forum</b> Dr. Horst Betz, GTZ China, <a href="mailto:Horst.Betz@gtz.de">Horst.Betz@gtz.de</a>
April 20-22, 2005
<b>The 6<sup>th</sup> China International Water Supply and Drainage and Water Treatment Technology and Equipment Exhibition</b> Venue: Shanghai Everbright Convention and Exhibition Center Contact: <a href="mailto:zmes@zhongmao.com.cn">zmes@zhongmao.com.cn</a> <a href="http://www.wsdwtf-sh.com">www.wsdwtf-sh.com</a>
April 20-22, 2005
<b>The 6<sup>th</sup> China International Environmental Protection Technology and Equipment Exhibition</b> Venue: Shanghai Everbright Convention and Exhibition Center Contact: <a href="mailto:Zmzl@sh163.net">Zmzl@sh163.net</a> <a href="http://www.eptee.com">www.eptee.com</a>

## Sample environment-related international tenders in *China Daily*

We list below a sample of tenders published on China Daily's business website ([211.147.20.16/bizchina/bidding.shtml](http://211.147.20.16/bizchina/bidding.shtml)):

- Xin Environmental Improvement Project
- Nanning Water Environmental Improvement Project
- Henan Environmental Improvement Project
- Anhui Environmental Improvement Project
- Tangshan No. 2 Xijiao Wastewater Treatment Plant
- Gansu Clean Energy Development Project
- Anhui Environmental Improvement Project
- Huai River Pollution Control Project
- Anhui Environmental Improvement Project
- Liao River Basin Project
- Jiangxi Urban Flood Control Project
- Beijing Vehicle Emission Test Laboratory Project
- Traffic Air Pollution Monitoring Systems
- World Bank Financed Huai River Pollution Control Project
- Guangxi Urban Environmental Project
- Nanning Water Environmental Improvement Project
- Baishio Municipal Solid Waste Landfill Project-Phase I



Second Inland Waterway Project (Guangdong Provincial Component)  
Henan Environmental Improvement Project  
Liao River Basin Project  
Hefei-Xin Railway Project  
Tangshan No. 2 Xijiao Wastewater Treatment Plant  
Hebei Zhanghewan Pumped Storage Power Station Project  
Anhui Environmental Improvement Project  
Henan Panshitou Reservoir Construction Project  
Shijiazhuang Urban Transport Project  
Jiangxi Urban Flood Control Project  
World Bank Financed Huai River Pollution Control Project  
Guangxi Urban Environmental Project  
Nanning Water Environmental Improvement Project  
Wuhan Urban Transport Project  
National Railway Project II (Zhe-Gan Line)  
Yichang-Wanzhou Railway Project  
Hefei-Xi'an Railway Project  
Hefei-Xin Railway Project  
Shijiazhuang Urban Transport Project  
Harbin Water Supply Project  
Gansu Clean Energy Development Project  
Anhui Environmental Improvement Project

## Science & Technology

**Chinese Academy of Science , 2004-8-15**

### **CAS physicists observe a new isotope**

After their success in synthesizing and identifying the new superheavy nuclide  $^{259}\text{Db}$  ( $Z=105$ ) in 2001, CAS researchers have recently succeeded in observing a new isotope of the Element No. 107.

As reported in the recent issue of the European Physical Journal A, a new isotope  $^{265}\text{Bh}$  was produced and identified at the Sector Focus Cyclotron of the Heavy Ion Research Facility in Lanzhou by Prof. Gan Zaiguo and colleagues from the CAS Institute of Modern Physics. This experiment was performed via the reaction of a  $^{243}\text{Am}$  target with 168 MeV  $^{26}\text{Mg}$  ions. The achievement is hailed as a new step forward in studies on superheavy nuclides by the Chinese physical community.

During the past two decades since the identification of the first isotope of the Element 107,  $^{262}\text{Bh}$ , by German scientist G. Meunzenberg and colleagues in 1981, five other isotopes have been synthesized by the researchers from the US and other countries. However, there are still missing links on the isotope chain of the element, such as  $^{263}\text{Bh}$  and  $^{265}\text{Bh}$ . The recent work by CAS scientists has added a new member to the new nuclide family.

**Chinese Academy of Science , 2004-9-3**

### **Progress in one-dimensional carbon nanotubes studies**

One-dimensional carbon nanotubes (CNT) have received considerable attention from researchers worldwide. It is not only because of their unique physical properties, but also their potential applications. Recently, researchers of the CAS Institute of Physics have made progress in their studies in the field.

In cooperation with a research group headed by Prof. Xu Ningsheng from Sun Yat-sen (Zhongshan) University, Prof. Wang Enge and his doctoral student Zhong Dingyong from the CAS Institute of Physics are conducting theoretical and experimental studies into physical mechanism responsible for initiating a vacuum breakdown process of a single carbon nanotube during field emission. They have developed a quasidynamic method to simulate the breakdown process and calculate the critical field, critical emission current density and critical temperature beyond which thermal runaway occurs before the CNT temperature reaches its melting point. This model is in good agreement with experiments carried out with a single CNT on a silicon microtip. The researchers have shown that thermal runaway is a mechanism responsible for initiating a CNT vacuum breakdown. The underlying physics is the inability of dissipating the heat generated in a positive feedback process. Critical conditions for initiating thermal runaway are dependent of structural and boundary factors. The calculated results are in good accordance with experimental findings. Their work was reported at Phys. Rev. Lett. 93,075501(2004).



In cooperation with Prof. Xiao Xudong and colleagues at the Hong Kong University of Science and Technology, Prof. Wang Enge and Guo Jianyong have carried out systematic studies into photoluminescence of single-walled carbon nanotubes by using near-field scanning optical microscopy (NSOM). They observed strong polarization of visible photoluminescence (PL) from the carbon nanotubes. By correlating with the absorption and Raman spectra, the researchers identify (3,3) and (4,2) tubes to be responsible for the PL peaks at 2.6 eV and 1.7 eV, respectively. The work was reported in Phys. Rev. Lett. 93,017402(2004).

### **China Science and Technology Newsletter, July 10, 2004**

#### **Priority High Tech Fields Defined**

Recently the State Development and Reform Commission, the Ministry of Science and Technology and Ministry of Commerce jointly issued a guideline on priority high tech fields, in an effort to attract private investment and accelerate the development of high tech industry.

The guideline has identified 134 high tech industrial priorities in 10 major fields, including information, biology and medicine, new materials, advanced manufacturing, advanced energy, environmental protection and comprehensive resources utilization, aeronautics and space, agriculture, and modern traffic.

Information industry will focus on the priority development of new generation high speed and broad band information facilities, computer and associated operational system, built-in software, integrated circuits under 0.18 micro and new components, e-government and e-commerce. Biological medicine will mainly work on new and efficient vaccines for both humans and domestic animal applications, genetically modified polypeptide and genetic medicines, biomedicine engineering, major preparations for treating cancers and immune deficiency diseases, and fermentation engineering. Advanced energy industry will place its weight on hydrogen energy, including fuel batteries, renewable energy such as winds, and clean coal burning, nuclear power technology, including pressurized water reactor and natural gas utilization.

### **Chinese Academy of Science , 2004-8-19**

#### **Prof. Bai Chunli: international cooperation vital for high energy physics research**

The Chinese government gives energetic support to international cooperation while developing large-scale facilities of high energy physics and other big science platforms for interdisciplinary studies, says Prof. Bai Chunli.

"As both the scope and budget of the experiment facilities of high energy physics are on the increase, the international cooperation in the field is becoming a common practice," he observes.

CAS researchers have scored high-level research achievements since 1988, when China was succeeded in establishing the Beijing Electron Positron Collider (BEPC) with limited resources, says Prof. Bai in his welcoming speech at the opening of the 32nd International Conference on High Energy Physics (ICHEP '04) held on August in Beijing.



The BEPCII, a project approved by the Chinese government in 2003 to upgrade the BEPC, will make the collider the most advanced one with double ring technology in the world. It is expected to help the country to maintain its leading role in the development and operation of similar facilities and enable Chinese scientists to achieve world-class research work in this field, he added.

He says that facilities such as the BEPCII and YBJ International Cosmic Ray Observatory have served as window to showcase such cooperation and exchanges. China welcomes scientists from across the world to join the BEPCII and other research projects. In addition, it will also support Chinese scientists to take part in other programs of high energy experiments in the world. He believes that international community of high energy physics will make more and greater contributions to the progress of science and society.

**Xinhua News Agency July 12, 2004**

## **First Superconductor Cable Network Operational**

China's first superconductor cable network became operational on Saturday, making the nation one of the three countries which have such advanced electricity transmission network.

The other two are the United States and Denmark. Superconductor refers to some metals or alloys that will lose resistance in power transmission when they are cooled to certain very low temperatures.

This amazing nature of metals inspired scientists to invent superconductor materials and try to make them available for commercial use.

China's superconductor network is at Puji Power Station in Kunming, the capital of southwest China's [Yunnan Province](#). It was a key project jointly sponsored by the [Ministry of Science and Technology](#), Beijing and Yunnan.

According to Han Zhenghe, director of superconductor research center of elite [Tsinghua University](#) based in Beijing, the superconductor network has lower operational wear-down, or 50 percent to 60 percent that of common cables, while has higher power transmission capability of up three to five times that of common cables.

He said the previous two-month trial operation showed that the network run well. China is suffering electricity starvation nationwide since this summer as both industrial and domestic power consumption is soaring. The use of superconductor network casts light on reducing power loss during transmission and so increasing power supply.

Scientists discovered superconductor phenomenon as early as in 1911. The United States pioneered in 1999 to put superconductor cables into commercial use and followed by Denmark in 2001.

Other countries like Russia and Brazil are also doing related research. China began its research and development of superconductor technologies in the mid-1990s and now is a leading researcher in this field in the world.



**Xinhua News, August 30 2004**

## **Cosmic Ray Cross Studies**

At a workshop recently held in Lhasa to limelight the Yangbajing platform based multi-disciplinary study, some 50 experts in astronomy, particle physics and space science from 26 institutions, including the Chinese Academy of Sciences, Peking University and Tsinghua University, discussed cosmic ray radiations and biological effects observed from the Yangbajing experimental platform. Experts also discussed at the meeting varieties of related topics, including particle physics of celestial bodies (dark matter and energy), space environment monitoring and prediction, global climate change and severe disasters, and links between some major diseases and cosmic rays. Experts also put forward numerous constructive suggestions on multi-disciplinary studies at the Yangbajing Cosmic Ray Observatory.

BAI Chunli, Vice President of the Chinese Academy of Sciences (CAS) told reporters that, the multi-disciplinary studies conducted at the Observatory have produced meaningful findings involving human health and major diseases, severe disasters and atmosphere, and energy and space environment. CAS will, along with the strategic deployment of national basic and multi-disciplinary studies, support the smooth development of the Observatory through a cross disciplinary research team.

According to a briefing, equipped with a number of advanced observation equipment, including neutron telescope and neutron sounding device, the Observatory has harvested massive experimental data, and achieved important findings in spotting  $\gamma$  rays.

**Xinhua News, 2004/08/30**

## **Electronic Traditional Medicine Database**

A multimedia database, containing precious ancient literatures on Chinese traditional medicines, has recently opened up for public access. The online ancient traditional medicine library has rescued and patched up together more than 1,100 invaluable Chinese traditional medicine literatures.

The initiative to rescue 1,100 ancient Chinese traditional medicine literatures, a prelude to the online database, was approved in 2001 by the Chinese Ministry of Science and Technology as an official project. Contracted to the China Institute of Traditional Medicines, the project has rescued 1,200 ancient Chinese traditional medicine literatures of high academic values, published in different dynasties, including 16 in the Song Dynasty, 50 in the Yuan Dynasty, 389 in the Ming Dynasty, and 1,045 in the Qing Dynasty. The database has meanwhile collected 146 ancient Chinese traditional medicine literatures that had disappeared in mainland China.

The multimedia database for precious ancient traditional medicine literatures, a product derived from the rescue project, has digitally processed 320 authentic precious traditional medicine works, and had some seriously damaged works repaired and restored. The database, using internationally recognized character system and XML format, together with accurate notes for the ancient literatures, has not only addressed technical requirements for sophisticated Chinese traditional medicinal terms and related characters, but also produced a module of full graphic and text applications. While facilitating search for ancient traditional medicine literatures, the database also



makes readers feel the authenticity of those ancient literatures. The new database creates a platform for people taking full advantage of those ancient literatures' value, as well as spreading them.

### **Chinese Academy of Science Newsletter, August 2004**

#### **New Flu Vaccine Produced**

Based on the flu strains published by WHO last March, the Shanghai Institute of Bioproducts, a part of China Biotech Corp, has recently produced a high quality new splitting flu vaccine. The first delivery that is able to vaccinate 30,000 people has been donated to the disease control and prevention centers at provincial and municipal levels, for free vaccination of medical people working at front lines.

Of the three popular flu vaccines, the splitting flu vaccine is not only able to produce a fine result, but also triggers few side effects, having a dominating market perspective for being a desirable vaccination for people in different age groups. The Institute successfully worked out the first domestic splitting flu vaccines in 2001, which brought down the flu vaccine price by 40%. The new home made splitting flu vaccines are not only applicable to young and middle aged and senior populations, but are also adequate for the children ranged from 6 months to 12 years old.

### **Chinese Academy of Science Newsletter, August**

#### **First Accelerator Spectrum Lab to be Built**

The Chinese Ministry of Science and Technology, the Chinese Academy of Sciences and the Ministry of Education jointly inked on July 5, 2004 an agreement on the construction of the Xi'an Accelerator Mass Spectrograph Center. The new center, upon its completion, will become the first accelerator spectrograph lab engaged in earth study.

Under the joint investment of the Chinese Ministry of Science and Technology, the Chinese Academy of Sciences and the Ministry of Education, the center will be built by the Institute of Earth Environment, a part of the Chinese Academy of Sciences and Xi'an Jiaotong University. Physically located in the compound of the Institute of Earth Environment and equipped with an accelerator mass spectrograph made in the Netherlands, the new lab will work on environment changes, a core earth study topic in recent years, and make itself a sharing base for large scientific instruments under joint construction. The new endeavor will greatly enhance China's S&T innovation capacity in the fields of earth science, archaeology and life science. The center will strive to become a national research and application sharing platform within 3-5 years, in line with international standards, fully open and running under a completely new operational mechanism.

### **Shanghai Daily, August 20 , 2004**

#### **Shanghai's Advanced Material Lab**

With an eye catching investment as much as RMB 536 million, the Fudan University is constructing a national key lab for advanced materials, in an effort to meet upbeating economic



demands for advanced materials. With an area space over 50 mu (1mu=0.0667ha.) and a total constructed area of 40,000 m<sup>2</sup>, the new lab will turn itself into a world class research base for advanced materials. The lab is currently working on new materials that are closely associated with high tech industrial development, including the materials characterizing excellent optic, electric and magnetic performance, so as to serve better the needs of information, energy, defense and life science.

XU Guanhua, Chinese Minister of Science and Technology visited the lab on July 14, 2004, and expressed his wish to see the completion of the lab in 2005. It is said that the Lab will open its staff recruitment for both domestic and overseas talents.

### **China Science and Technology Newsletter, July 30, 2004**

#### **Chinese Scientist Won Catalysis Award**

LI Can, an academician of the Chinese Academy of Sciences (CAS), and research fellow at the CAS Dalian Institute of Chemistry and Physics, was honored with the International Catalysis Award, at the 13th International Conference on Catalysis recently held in Paris. The event marks the highest prize that Chinese scientists have so far obtained in the international catalysis community, as well as the first such honor received by a developing nation.

As an only award created by the International Association for Catalysis Societies (IACS), the International Catalysis Award is conferred to a winner once every 4 years, in honor of the scientists under 45 years of age who have made outstanding contributions in the field of catalysis. Engaged in research activities involving catalysis materials, reactions and spectrum expressions, Prof. LI has achieved major progresses in all three fields, which are thought highly of by his peers both at home and abroad. He has published more than 200 papers in domestic and international academic journals (over 140 in the latter). Prof. LI is also a winner of the Excellent Young Scholar Awards issued by Hong Kong Qiushi S&T Foundatio, China Young Scientists Award and Returned Overseas Personnel Awards.

### **China Science and Technology Newsletter, August 10, 2004**

#### **China's GM Corn**

A research team, headed by Dr. ZHU Dengyun, the Institute of Biology, a part of China Agriculture University, has worked out genetically modified corn species with potato's pollen genes. The efforts have resulted in an increased lysine and protein concentration in corns by 30% and 90% respectively, compared with regular corns. While working on a national research project for high protein and lysine hybrid corns and combinations, it takes 7 years for the team to have produced 10 new GM corn species, and have them grown over the experimental fields of the Bioengineering School, under Jinhua Technology College. The new GM species have produced a yield of 508.6 kg per mu for the YC combination, or 27.1% more than the control group named Danyu 13's 400.7 kg per mu, also a high-yield species planted by the School. The new corn species records an 88-day growth period. The research team will continue to screen out a combination suitable for growing in the Jinhua area, using comparative experiments and mixing growing techniques.



The study team, using hybrid combinations of both GM self-bred lines and conventional self-bred lines, screened out 18 hybrid combinations of fine integrated properties, including YC, Y642 and Y419. Researchers told reporters that those GM corns constitute the world's first instances of self-bred corn lines produced with genetic engineering techniques. So far researchers have completed the environmental release experiment, a part of the security assessment procedure. The high lysine and protein producing genes, and the GM techniques for producing high lysine and protein corn species, worked out by the study team, have applied for national invention patents.

### **China Science and Technology Newsletter, August 10, 2004**

#### **China's Progress in Stem Cell Study**

On August 3, 2004, three major national research projects, undertaken by the Northwest S&T University for Agriculture and Forestry, and the Shan'xi Branch of the National Stem Cell Engineering Research Center, including "Construction of Human Pancreas Stem Cells", "Plasticity of Epidermis Stem Cells and its Applications in Corneal Transplanting", and "Frozen Corneal Edge Stem Cell based Corneal Epidermis Construction and Associated Transplanting", passed the verification checks organized by the Ministry of Education in Yangling, Shaan'xi Province.

"Construction of Human Pancreas Stem Cells", a project undertaken by the study team headed by Prof. DOU Zhongying, a Chinese expert in stem cell engineering, has worked out the world's first human embryo's pancreas stem cells. The project "Frozen Corneal Edge Stem Cell based Corneal Epidermis Construction and Associated Transplanting" builds corneal epidermis tissue patches for transplanting, using frozen corneal edge stem cells and a cell cultivation system without feeding layer. The technique paves a new approach for treating corneal edge stem cell deficiency.

The project "Plasticity of Epidermis Stem Cells and its Applications in Corneal Transplanting", works out corneal epidermis tissue patches for transplanting, using human amnia based epidermis stem cells. The technique is able to grow out the tissue structures similar to normal cornea.

### **Xinhua News Agency, August 30, 2004**

#### **China Launches Science Satellite**

China on Sunday launched a recoverable science experimental satellite into a preset orbit, atop a Long March 2C carrier rocket from a launch center in northwest China.

Space officials said the satellite was launched at 3:50 PM from the Jiuquan Satellite Launch Center in Gansu Province, northwest China and the satellite is orbiting normally.

They said that it is the 19th recoverable science experimental satellite China has launched.

The satellite would remain in orbit for a few days before returning to Earth, and the satellite is mainly for space scientific research, land surveying, mapping and other scientific experiments, said the officials.



The Long March 2C carrier rocket used in the launch was developed by a Beijing-based rocket carrier research institute affiliated to the China Aerospace Science and Technology Corp.

The launch is the 78th by the country's Long March carrier rockets since 1970, and the 36th consecutive successful launch since October 1996.

The Xi'an Satellite Monitor and Control Center, based in the capital city of northwest China's Shaanxi Province, will monitor and control the orbiting of the satellite and recover its re-entry module as scheduled, the officials said.

**China Daily, August 25, 2004**

## **Chinese Physicists Help Unravel Life's Mystery**

Some of the world's top physicists made a hard yet crucial decision over the technological route of the construction of the largest-ever particle accelerator in history -- a step that may help us solve many more secrets of the universe.

The International Committee for Future Accelerators (ICFA), meeting during an international physics conference in Beijing last week, endorsed the recommendation of a panel of physicists on the technology choice for a proposed future international particle accelerator.

The 12-member International Technology Recommendation Panel (ITRP), chaired by Barry Barish of the California Institute of Technology of the United States, recommended the superconducting technology be adopted for the proposed International Linear Collider.

The superconducting technology has been developed by an international collaboration centered on the DESY lab in Germany.

The rival technology, which operates accelerating structures at room temperature, has mainly been developed in the United States and Japan.

According to the recommended proposal, the collider would occupy a tunnel of up to 40 kilometers long with experimental areas located at the midpoint, where the electrons and positrons collide.

"A decade ago such a high-energy linear collider was just a dream -- a vision for a revolutionary tool to answer some of the most fascinating and compelling questions about the nature of our universe," said Cornell University's Maury Tigner, chair of the International Linear Collider Steering Committee, which appointed the panel.

### **Particle research**

During their research, physicists discovered the universe, from stars, earth and trees to everything we see around us, is made up from a small number of basic building blocks, which are termed by scientists as elementary particles.

Some are stable and form the normal matter but others may live for just fractions of a second and then decay to the stable ones. All of them coexisted for an instant after the Big Bang.



In order to look back in time and to get a glimpse or even study how the universe, the stars, the earth or even ourselves are formed, scientists have attempted to recreate an environment somehow similar to the Big Bang.

What do they do? They have found that the environment similar to the Big Bang, or an enormous concentration of energy, can be reached somehow in an accelerator.

Today, it is estimated there are around 10,000 particle accelerators in the world. Over half of them are used in medicine and only a few in fundamental research.

In medicine, accelerators are used to obtain better imaging for more accurate diagnosis and to engage in therapy, fixing only to definite tissues or organs.

Accelerators are also indispensable assistants to researchers who have unraveled the structure of viruses like HIV, the age of artifacts like ancient cave paintings and the events that happen in the epicenter of stars.

Accelerators are used in industry as well. Engineers have turned to accelerators to improve the quality of manufactured goods, to sterilize medical equipment and food, to make semiconductors for the computer industry, to refine aircraft engines and artificial hips, to investigate how car engines wear out, to look for contraband in harbors and airports, and to help survey for underground tunneling.

### **New international accelerator**

However, scientists need to go further in their studies of the compelling questions about dark matter, the existence of extra dimensions and the fundamental nature of matter, energy, space and time, and eventually about ourselves.

The proposed international linear collider may help.

Thus, the ITRP's decision is viewed as opening the way for the world particle physics community to unite behind one technology and concentrate their resources on the design of a superconducting-technology linear collider.

### **Chinese contribution**

Chinese scientists, represented by the Institute of High Energy Physics (IHEP) under the Chinese Academy of Sciences, also participated in the international particle research, according to Chen Hesheng, director of the institute.

In fact, one spin-off of the international cooperation has enabled the IHEP to introduce the Internet to China.

Chen said at a press conference that Chinese physicists will get more involved in the future.

The institute also hosts an electron positron collider that has been running for 15 years.

"With the experience gained from our previous work with the collider, we are willing to make more contributions to this exciting project of building the international linear collider," said Chen.



**Shanghai Daily, September 1<sup>st</sup>, 2004**

## **City hails science advances**

*Cai Wenjun*

LOCAL science authorities said the city has made great achievements in scientific renovation, and their efforts have geared up the development of research and the economy. After launching a science renovation plan this year, Shanghai Science and Technology Commission has reported progress on several projects relating to information technology, traditional Chinese medicine industrialization and environmental protection.

Talent cultivation has also received more attention. The commission will support 83 young scientists and continue sponsoring 18 talents with a total investment of 11 million yuan (US\$1.33 million) this year, said Niu Xiaoming of the commission. He said the government is also focusing on professional staff training. By mid June, the authorities had trained 1,447 professionals in new industries.

The city also will introduce more technologies from military use to civil use and from abroad to the country. An international technology transformation ally will be established in September, said Chen Hongkai of the commission.

**China Daily August 17, 2004**

## **R&D Centers Draw Firms Closer to Clients**

Foreign investors have set up more than 600 research and development (R&D) centers in China as of June this year, focusing on telecommunications, electronics, automotive, pharmaceutical and chemical industries, according to a report from the Ministry of Commerce.

The report said foreign investors have stepped up establishing R&D centers with the government providing stronger support measures.

The report said the foreign-funded R&D centers, with a total investment of US\$4 billion, have mainly been set up during the past two years. Four hundred have been opened since June 2002.

Instead of setting up factories to manufacture gadgets or parts, multinational companies have established plants to produce telecommunications equipment, data processing equipment, and other high-tech products. As part of the change in approach, they are setting up R&D centers in China, the report said.

These R&D centers - mostly established in the Municipalities of Beijing, Shanghai and Tianjin, as well as Guangdong and Jiangsu provinces - permit multinationals closer access to their large Chinese customer base.

Multinationals, such as Hitachi, IBM, Dupont and Volkswagen, have set up R&D centers in China to satisfy local customer needs.



The recent trend, however, especially among high-tech firms, is to establish high-level R&D centers in China for advanced work that is expected to influence both China and the world.

For example, Microsoft, Nokia, Matsushita, and Sony-Ericsson have all set up their global R&D centers in China, the report said.

Policy incentives and the growing importance of the Chinese market have boosted the establishment of R&D centers by foreign investors.

Legislation on foreign-funded R&D centers offers various tax incentives to encourage foreign investors to enhance their core R&D establishments in China, the report says.

For instance, an R&D center may import certain equipment for its use duty and import tax-free.

In addition, revenue derived from the transfer of technology researched and developed by R&D centers themselves is exempt from business tax.

If R&D expenses increase by 10 percent year-on-year, foreign companies may also qualify for a special additional tax deduction, the report said.

Foreign-invested R&D centers are also allowed to import and sell small quantities of high-tech products produced by their parent companies for the purpose of testing market response for products under research at R&D centers.

**China Daily, August 17, 2004**

## **Panda Cloning May Save Species**

Cloning may save the world's "living fossil" from possible extinction, as the world's biggest panda cell bank has been established in China.

The somatic cells of 21 living pandas and 5 dead pandas are being preserved in the cell bank in Chengdu city in southeast China's Sichuan Province, according to CCTV.com.

Scientists say the bank will gradually expand its collection to include the cell samples of all the 161 pandas living in reserves around China. There are some 1,700 giant pandas living in the wild in China, most of them in 20 areas of 6 mountains. But their reproduction and survival abilities are declining due to inbreeding and loss of hereditary characteristics.

Scientists say successful cloning of the giant panda would be a significant step toward saving the endangered species from extinction.

## Environment

**China Daily, August 2, 2004**

### **Environmental industry booms**

*By Liu Jie*

The coming of the 2008 Olympic Games to China and the 2010 Expo Shanghai have pulled foreign giants into a booming environment protection industry in the country.

Official sources have revealed that China will invest US\$85 billion altogether in the environmental protection sector during the 10th Five-year Plan period (2001-05).

As the government has vowed the two international events in Beijing and Shanghai will be green, environmental protection projects and necessary renovation could offer great opportunities for firms in the sector.

In line with the nation's commitments to the World Trade Organization, tariffs for environmental protection products, such as catalytic agents in garbage treatment and water treatment agents, are to be reduced from the current 13.4 per cent to 6.9 per cent by 2008.

"(The above elements) prompt foreign businesses to actively seek opportunities in China," said Pan Yue, deputy director of the State Environmental Protection Administration.

Italian companies have taken the lead thanks to governmental support, with the State Environmental Protection Administration of China and the Environment and Land Ministry of Italy putting forward an environmental protection co-operation framework agreement in 2002.

The framework agreement, involving a combined investment of 100 million euros (US\$123.28 million), concerns projects in high-efficiency energy, natural resource protection, and building an environmental appraisal and inspection system for the Games and the Shanghai Expo.

So far, Italian companies have inked five Green Olympics contracts with the Beijing municipal government, including 300 natural gas engines, auto emissions purification equipment, an intellectual environment inspection system and a medical waste incinerator.

The municipal government says the 300 natural gas engines project is sponsored by Nanjing Iveko, a Sino-Italian joint venture, and is to be completed by the end of this year.

Italian firms are also trying to play an active role in the 2010 Expo Shanghai China.

Sources close to the Shanghai municipal government said the two sides had not reached any agreement yet, but they were expected to co-operate in the green renovation of the city's 18,000 buses.



French enterprises are eyeing China's water market. Veolia Water, one of the world's leading water companies, is the most vigorous one in China.

In December, it bought a 45 per cent stake of the Shenzhen Water Group for US\$400 million, which was the largest property rights purchase involving foreign investment in China in 2003 as well as the largest water project purchase ever in China.

Veolia has just signed a contract with the Beijing municipal government to build one of the facilities to be used during the 2008 Olympics.

The project, a waste water plant, is expected to generate 20 million euros (US\$23.99 million) in revenue over the next 20 years.

Veolia Water has also successfully won bids for eight water projects in China so far, with a total investment of 600 million euros (US\$744 million).

In line with the target set for the 2008 Olympic Games, the sewage treatment ratio should rise to 90 per cent by 2008 from the current 42 per cent. Beijing will spend 12 billion yuan (US\$1.45 billion) on building nine sewage treatment plants and eight recycling water treatment facilities by 2008.

## **Five Steps Treating Urban Waste Water**

On July 6, 2004, PAN Yue, Deputy Administrator of State Environmental Protection told reporters that the State Environmental Protection Administration would stage 5 major practices to effectively treat urban waste water, upgrading the urban waste water treatment process and ensuring a steady improvement of ground water quality. The five major steps include:

- 1) Further improving the legislation environment, by working out feasible policies able to forcefully promote and support infrastructure construction and operation. Developing overall and scientific regulations on wastewater treatment works' construction, technical standards and supervision. These policies and guidelines, are expected to be incorporated into laws or by-laws, when appropriate.
- 2) Clarifying government and industrial responsibilities in wastewater treatment. Government shall strengthen its supervision of and service for wastewater works. Wastewater works, under the precondition ensuring the treatment results and complying with emission standards, shall strive for efficiency, specialization and scale development.
- 3) Widening investment channels and enhancing government financial input at both central and local levels. The central government budget and state treasury bonds will be used to support wastewater infrastructures' construction. Bank loans, industrial bonds, credit funds and other commercial means shall also become effective channels for fund raising. Proven market mechanism such as BOT and TOT shall be encouraged. Private funds are also encouraged to find their way into wastewater treatment business, with favorable commitments on taxation, land use, utilities and indirect guarantee.
- 4) Continuously collecting wastewater fees, so as to provide a financial guarantee for the smooth operation of wastewater works.

Strengthening supervision and management, making wastewater works a full player in improving environment quality. A monitoring regulation shall be worked out as soon as possible to regulate the operation of urban wastewater treatment facilities, wastewater treatment fee collecting and payment, and treatment results. At the same time, tendering shall be organized to screen out professional operators having competence for efficient management, lower operation costs and desirable treating results. Winning candidates will be invited to run the daily operation and management of wastewater works.

**China Daily, August 5, 2004**

## **Environmentalists work to stem 'red tide'**

*Qin Chuan*

Protection of the marine environment in China has been hampered by a series of problems, environment inspectors have found.

A joint inspection made by the State Environmental Protection Administration and departments such as the State Oceanic Administration has found that sewage treatment in coastal cities is below standard.

Less than half of the sewage in almost half of the 20 inspected coastal cities is treated before being released into the sea.

In some cities, no sewage treatment plant has been set up at all, or if they do exist, they are dysfunctional.

The major reasons for this failure are a lack of investment, low treatment charges and the absence of a sound financial system that supports sewage treatment facilities, sources with the State Environmental Protection Administration said.

Inspectors have also nailed some enterprises that have been illegally discharging pollutants into the sea.

"That is an old problem," said a member of staff under the pollution control division of the administration, who only identified himself as Wu.

Wu said the environment authorities had suggested local governments shut down companies or order them to improve their environmental protection facilities.

The amount of waste going into the sea is on the rise and poses a severe threat to marine ecology and the environment.

Between 1999 and last year, 470 million cubic metres of waste entered the sea. The amount released last year was 144 per cent more than that of 1999.

There are other problems. There has been a poor response to accidents that leave pollution, and fish farming is carried out on a large scale in coastal regions and pollutes surrounding sea areas.



Wu said similar inspections would continue to be carried out in the future to improve marine protection.

In recent years the number of annual oil leaks in China's seas has averaged 500, causing great problems, according to a report on marine environment publicized by the administration in early June.

Meanwhile, 'red tide' in China's seas has been on the rise during the past three years. 'Red tide' is caused by pollutants that turn the ocean a reddish colour.

One of the most important actions China is taking to improve the environment is the Blue Sea Action Programme for the Bohai Sea, which was launched in 2001 to control the discharge of industrial waste, to decrease environmental pollution and to restore the damaged ecological system in the sea.

By the end of last year, more than 12 billion yuan (US\$1.4 billion) had been invested in the programme, which was launched in 2001.

To date the discharge of pollutants such as chemicals from Liaoning, Hebei and Shandong provinces and Tianjin Municipality around the Bohai Sea rim has declined at a stable pace. The country has also set up more than 80 nature reserves to protect marine life.

**China Daily, August 4, 2004**

## **Heilongjiang water artery helping save key wetland**

By Li Fangchao

HARBIN: By channeling huge amounts of water into a dried wetland for four years, Northeast China's Heilongjiang Province has solved some problems caused by decades of pumping oil.

More than 800 million cubic metres of water have been introduced into the Zhalong National Nature Reserve, close to China's largest oilfield in Daqing.

The water comes from a channel from the Nenjiang River, 150 kilometres away from the reserve. The channel is part of an irrigation project, designed to supply water for Daqing, the largest oil production base in China.

The reserve is the largest one of its type in the country and home to hundreds of endangered species of water fowl, fauna and flora. Around 500 flora species and 296 species of birds are found there.

### **Home for cranes**

It is a noted area for cranes, especially the red-crowned crane, which is under top-level protection. Among all the 15 breeds of crane in the world, eight can be found in China and six are believed to breed at Zhalong Nature Reserve.

It is estimated that there are 2,000 red-crowned cranes in the world. More than 400 inhabit Zhalong, which calls itself the hometown of the species.



Set up in 1979, Zhalong is also one of the seven wetlands in China that were placed on the International Important Marsh list in 1992.

Drought in recent years has made the wetland shrink a lot. A fire in 2001 turned 20,000 hectares of reeds into ash. The water covering the area shrank to about 130 square kilometres in the spring of 2001, which greatly threatened the survival of the endangered water species and seriously destroyed bio-diversity there.

The Wuyuer River, the reserve's main water source, has also seen a shrinking trend because of drought and overuse of the water resources in its upper reaches.

It is reported that the water flowing into the wetland in the last decade is 70 per cent less than that in the 1960s and 1970s. In a bad year like 2001, not a drop of water flowed into it.

Biodiversity. In order to save the endangered cranes and preserve biodiversity, the provincial government began to supply water to the wetlands in 2001. Great water supply efforts kicked off in 2002. Four years' successive "affusion" has supplied as much as 818 million cubic metres of water.

This has improved the situation a lot. Water-covered area expanded to 650 square kilometres in 2002 and now it has reached about 1,100 square kilometres, which is 400 square kilometres larger than the core area of the wetland - 700 square kilometres.

The wetland is recuperating now. The number of the red-crowned cranes has seen an obvious increase. According to a survey released recently, more than 70 nests of the red-crowned cranes have been seen, a 30 per cent greater number than 2001's count.

Although the thirst of Zhalong is quenched temporarily, more problems remain to be solved in the future.

Four years' practice has shown that it is hard to sustain the present situation by short-term water replenishment. The obvious drop in the water level of the Wuyuer River determined that the only way to provide the water needed to the wetland is through adding water supplies.

**China Daily, August 4, 2004**

## **TEDA promotes recycling economy**

*By Lao Tian*

TIANJIN: The development of the recycling industry, a modern concept worldwide, occupies a prominent place on the work agenda of the Tianjin Economic and Technological Development Area (TEDA).

The idea of recycling economy has been implemented in building the development area into an ecologically-sound industrial park.

In the park, wastes produced by one enterprise are raw materials for another. Circulation and interdependence among enterprises means there will be no waste discharge.



At present, developed countries such as Sweden, Canada and the United States are also building such industrial parks.

Recycling industry is under construction in Chinese cities on trial bases. TEDA, which has been chosen by the State Administration of Environmental Protection from China's 49 State-level development zones as a demonstration ecological area, has made bold steps in building circulation chains among its enterprises.

The area's first step in realizing a zero-discharge goal starts with its automobile industry, said Li Yong, director of TEDA. Waste recycling Tianjin Toyota is one of the key auto industries in China and an economic pillar in the Tianjin development area.

Close links for waste recycling and regeneration among the enterprises is taking shape in the industry.

Waste steel materials, leftover bits and pieces produced by Tianjin Toyota during the manufacturing process are purchased by a recycling company and a steel casting factory in the area. The waste is smelted into steel ingots and sold to Tianjin Toyota. The ingots will be used as raw material to make moulds.

"Effective waste recycling has cut costs and, more importantly, reduced pollution," Li said.

Now the number of auto-related enterprises has increased to 40 in the area. They include automobile assembling projects, parts suppliers and electronic products manufacturers. A new waste circulation system for auto disassembly, breaking up, retrieving and disposal is being built, Li said.

Motorola is the largest foreign-funded enterprise in TEDA. The company has succeeded in reducing pollution brought by the packaging of mobile phones.

At present, the phone producer makes soft packing for cellular phone boxes with recycled cardboard cases instead of foam plastics. Environmental improvement TEDA was carved out of barren saline alkaline land 20 years ago. Now it has been developed into an industrial zone with about 5.86 million squaremetres in green coverage, about 26 per cent of its total land.

Li attributed its success to a coal cinder and water recycling system in the area. Coal cinder produced by TEDA Thermal Power Company is a good material to build "green" land in the saline-alkaline area.

The company consumes 120,000 tons to 170,000 tons of coal a year. The coal cinder is mixed with waste from a soda factory and abandoned bay silt in scientific proportion and method. It is then used for paving saline-alkaline land which will be developed into land for gardens and meadows.

Apart from the area's central water treatment plant which treats 100,000 tons of waste water daily, the area has also built a centre to handle waste water produced during the electroplating process. Mobile equipment can arrive at any time at the work sites to collect waste water and turn it into usable water.



The Novozymes Group is the world leader in enzyme solutions. Its project in Tianjin, which is designed to turn out 2,000 tons of enzymes a day, is the largest enzyme solution producer in China. The product is widely used in detergent, textile, food and fodder industries.

The company's waste water flows into a pool and is treated with scientific methods. After treatment, the water measures up to irrigation standard and is used free of charge on public "green" land and for cleaning roads.

During the high water consumption period in summer, about 120 tons of treated water from the company is applied every day for public use.

Enzyme products are processed out of sugar, starch, potato, mineral elements and nutrients in fermentation. Residues produced during the processing contain rich organic elements: nitrogen, phosphorus and other nutrients, all of which are good for land improvement.

Tianjin Novozymes has also succeeded in producing Novogro30, an organic fertilizer, out of the residues. The company has provided over 40,000 tons of this fertilizer in the last six years for the development area to improve land quality.

Economic success TEDA was established in 1984. So far, more than 3,700 foreign-funded enterprises have settled in the area. Its GDP reached 44.5 billion yuan (US\$5.36 billion) last year, a 25 per cent increase over 2002.

TEDA's performance in the first half of 2004 is the best compared with those of the previous 10 years. Its GDP amounts to 25.96 billion yuan (US\$3.13 billion), 27 per cent up from the same period last year.

## **China Business Weekly, July 27, 2004**

### **Nation promotes renewable energy projects**

*By FU JING*

Entrepreneurs investing in renewable energy projects will not only enjoy preferential loans and tax policies, but also funding support from developed countries, according to a recently unveiled government regulation to develop the world's largest clean-development market.

But the new opportunities may also mean great challenges for Chinese investors.

The regulation was part of the Kyoto Protocol adopted on December 11, 1997.

It is being devised to assist developed countries in fulfilling their commitments on emission reduction.

At the same time, the protocol allows industrialized countries to earn emissions credits from their investments in emission-reducing projects in developing countries.

The new regulation on projects aims at lessening greenhouse gas emissions with advanced technology and capital from developed countries. It was recently approved by the National Development and Reform Commission (NDRC) and the Ministry of Foreign Affairs.

The clean development mechanism regulation took effect on June 30. It puts in place qualification requirements for new projects in terms of their energy consumption. "It's the rules for enterprises and developed countries to be involved in clean development mechanism projects," said Gao Guangsheng, director general of the National Co-ordination Committee for Climate Change.

Only Chinese enterprises and companies owned by Chinese investors can apply for clean development projects, according to the regulation. Priority will be given to projects aimed at improving energy efficiency and exploration of new and renewable energy sources, said Gao.

Renewable energy refers mainly to water, wind, solar, biomass, geothermal and marine-based energy.

China is the largest potential clean-development market in the world. It makes up about half the world's total, analysts say.

That's partly due to the country's heavy reliance on coal and its lack of up-to-date energy efficient technologies and renewable energy sources.

In 2003, China consumed 26.7 per cent of the world's steel output. Meanwhile, its domestic oil consumption rose 10.15 per cent year-on-year to 252.31 million tons. It is the world's second-largest oil consumer, after the United States.

Currently, China has about 20 small-scale projects that include hydropower, wind farming, energy-free refrigeration, municipal waste incineration for power generation and sugar-house, waste-based organic fertilizer production to avoid methane emissions.

After years of efforts, China has made substantial progress in the development of renewable energy, but still lags behind developed countries, and even some developing nations such as India and Brazil, said Xu Dingming, director of Energy Bureau of NDRC.

"Effective policies and legal systems must be formulated to identify the strategic status of the development of renewable energy in the growth of national economy and ensure the rapid development of related industries," Xu said.

Highlighting the significance of legislation on the development and utilization of renewable energy, he said legal support must promote the rapid growth of the nation's energy industries and help improve the structure of energy use to play an increasingly important role in the nation's sustainable economy.

Duan Ning, director of China Cleaner Production Centre, said besides the government's promotion, individual enterprises should actively seek energy efficient production to cut energy consumption.

The centre is affiliated with the State Administration of Environmental Protection.

"Currently, most enterprises do not have enough motivation to develop energy-efficient production because they lack funding stimulus," Duan said.



Most experts agree that China has abundant reserves of sustainable energy. Greenpeace said in a research report named Wind Force 12 that China's wind energy reserves will surpass the total amount of China's current power generation in the future.

The report predicts by 2020, China's electricity generated by wind energy could reach 14 per cent of the global wind energy outputs.

**People'Daily, August 13<sup>th</sup> 2004**

## **Premier Wen stresses efficient use of coal supplies**

Efficient use of the nation's coal resources is the best way for China to tackle its power supply problems, national leaders said Wednesday.

A State Council meeting chaired by Premier Wen Jiabao pledged to develop and utilize the nation's coal resources in a sustainable and efficient way to ensure supply stability.

The central government will encourage coal mines to develop clean coal technology, while also working to increase coal output by updating the coal production facilities and transforming and expanding major mines.

Efforts will also be made to reform the pricing of coal and electricity and make the power price fluctuate with that of coal.

Comprehensive co-ordination of rail, road and marine transport must be intensified to expand coal transport capacity.

Participants at the meeting also urged local governments to close illegal small mines scattered across the country, while also laying stress on production safety.

More than 80 per cent of the nation's power plants use coal to generate electricity, with coal shortages resulting in power shortfalls in many provinces in past months.

More than 40,000 enterprises in Yiwu of East China's Zhejiang Province have stopped using electricity provided by the national power grid since July 24 to ensure residents have sufficient supplies.

Since the beginning of last month, 24 provinces have imposed restrictions on power supplies.

The power shortage in the third quarter was estimated to reach over 30 million kilowatts and East China's power grid will lack more than 18 million kilowatts, experts say.

China's national railway authority has urged local railway departments to make every effort to ensure coal transport in order to help ease the nation's power shortage.

Ministry of Railways statistics indicate that, among a total of 310,000 carriages of the nation's railway departments, 220,000 have been used to transport coal.

A total of 400 million tons of coal were transported via rail from January to May this year, a year-on-year increase of 46.82 million tons.



The nation's railway system has transported more than 62 million tons of coal in 20 days since late July, among which are 35 million tons for the use of generating electricity.

The ministry urged to stabilize freight charges to ensure transport.

**China Daily August 12rd, 2004**

## **Damming the Yangtze's polluters**

*By Liang Chao*

For thousands of years, rubbish and other pollutants have been lazily piled up along the banks of the Yangtze River in the Three Gorges Dam while sewage flowed untreated into the river.

A file photo taken last June shows garbage floating on the water in front of the Three Gorges Dam after the reservoir began to fill water one month earlier.

But despite the amazing engineering work of the vast dam and the benefits it should bring, little has changed even though there is the war on waste.

During the annual flood season, the tons of refuse are still being washed away by the rising waters which then drift downstream.

The great clean-up began in earnest but latest surveys show the number of those complying with green policies is woefully low. But there are some success stories.

Standing by operating treatment tanks owned by the Fuling Sewage Plant, manager Shi Benggao proclaims: "Fuling no longer has to discharge sewage directly into the Yangtze and its tributary, the Wujiang River."

The plant, which cost 320 million yuan (US\$38.5 million), is capable of treating 140,000 tons of sewage per day when fully completed, Shi told China Daily.

Fuling is a district of Southwest China's Chongqing Municipality and fronts a section of the huge Three Gorges reservoir.

In Wanzhou, the largest district of Chongqing, two sewage treatment plants have been operating since last year and treat 50,000 tons of domestic sewage per day or 85 per cent of the total within its service area.

Meanwhile, a refuse disposal plant with a daily capacity of 400 tons is also operating in Wanzhou to have all local household rubbish treated, Wu Zhenglong, a chief official of the district, said.

Fuling and Wanzhou are two areas among the Three Gorges Reservoir area's Chongqing section.

Such measures are working but far more needs to be done. Over the coming years, at least one such facility is to be built in each of the 19 counties or cities and over 100 towns.



The reservoir started filling last June and water level is now standing at its planned 135-metre level.

To maintain good water quality of the Yangtze since the damming, the Chinese Government has implemented a 40-billion-yuan (US\$4.8 billion) plan aimed at building more than 320 facilities to dispose of sewage and waste discharged upstream during 2001-10 period.

When all the facilities are completed, 85 per cent of the sewage and waste in the reservoir area will be disposed of and treated, according to Zhang Shaozhi, director of the Chongqing Municipal Environmental Protection Administration.

Currently, 81 per cent of the waste and 61 per cent of the sewage produced in Chongqing, the largest city on the upper reaches of the Yangtze with a population of 30 million, are handled by 30 waste and sewage disposal factories.

Before the Three Gorges Reservoir began to store water last year, nearly 4 million tons of household garbage and industrial waste had been thoroughly disposed of and all medical waste from over 600 hospitals and clinics had been burned while 5 million square metres of sewers had been disinfected in the Chongqing part of the reservoir.

Last year alone, 28 major urban sewage plants were said to have been built to keep water clean in the reservoir area, according to the State Council's Three Gorges Project Construction Committee.

By the end of last year, 19 new garbage disposal plants were required to be put into full operation in cities and towns along the reservoir. Spadework for four other projects designed for dangerous industrial wastes was also launched, the committee said.

The projects are expected to control garbage, sewage and industrial and sanitary waste, the major sources of water pollution threatening water quality in the reservoir.

### **Green thinking**

Environmental concerns have been an issue hovering over the 660-kilometre-long reservoir area since it started filling water last year.

Workers from Hubei environmental protection administration collect floating garbage in Xiangxi River, one of the main tributaries to the Yangtze River, last July.

A year later, Cao Guangjing, vice-general manager of China Three Gorges Project Corporation, told the media that "there has been no major changes in water quality of the reservoir."

Last year, water at the site mainly stayed at grade three or the minimum standard for sources of drinking water, said the China National Environmental Monitoring Centre.

This year, the authority confirmed that the water quality of the reservoir's Chongqing section has remained sound, with only the content of bacilli, oil and phosphorous slightly exceeding set standards in its tributaries.

Although authorities were confident that water of the reservoir can be kept clean, critics fear China has long way to go to effectively control pollution.



The water quality of tributaries on the lower reaches became worse as water tends to flow slowly when a reservoir starts to function. This has reduced the self-purification ability of the tributaries, Chongqing officials conceded.

There are other problems. The public ignorance about proper and effective environmental protection together with insufficient funds for protection are compounded by the failure of some official watchdogs to fulfill their basic environmental monitoring tasks. Planned industrial projects may also add to the problem if environmental decrees are not properly enforced.

Meanwhile, soil erosion upstream and from tributaries has failed to be checked and is contaminating water downstream, according to Zhang.

The State Environmental Protection Administration (SEPA), the nation's top environmental watchdog, is urging further improvements to pollution control.

Four months ago, SEPA found 51 of the 147 pollution treatment projects yet to begin construction.

Meanwhile, 206 of the 304 small-sized enterprises, such as leather and paper plants, blamed for polluting the water courses and ordered to close are still operating.

Worse, only 15 of the 242 large-sized companies emitting pollutants have managed to meet strict environmental protection goals. SEPA has repeatedly demanded they speed up the implementation of green policies.

Now the environment watchdog has given offending companies and authorities until the end of the month to implement new standards and complete assigned pollution treatment projects.

SEPA is threatening to shut down large enterprises which fail to meet pollution-control requirements.

### **Wastes from ships**

Land-based polluters are not the only offenders. Tens of thousands of cargo, transport and tourist vessels ply the waters discharging untold amounts of untreated sewage and other harmful waste into the Yangtze. Experts are calling for urgent action and want owners and staff of these ships and boats to clean up their act or face punishment.

State regulations demand all ships passing the Three Gorges area to treat all waste products to proper standards before discharging them into the river. Solid waste must be dumped in designated areas on the shore.

But an investigation by Xinhua News Agency found nearly all - 99 per cent-watercraft navigating the river discharge their sewage and oil waste into the Yangtze River without treatment.

About 100,000 watercraft navigate through the Three Gorges area each year on average, producing 42,000 tons of rubbish, 7 million tons of human waste, 15 million tons of sewage water and 100 million tons of oily waste water, local environmental protection departments estimate.

This poses a serious threat to the environment of the Three Gorges Reservoir, experts warned.



They urged authorities to take immediate and resolute measures to prevent environmental pollution and warned it would be too late to save the environment if measures were taken after the Three Gorges project is finally completed in 2009.

### **Race against time**

"The situation remains grim and arduous work has to be done," said Zhang, head of Chongqing environmental protection administration.

However, unlike Zhang, Lu Youmei, the former head of China Three Gorges Project Corporation and now an academician of the Chinese Academy of Engineering, is confident "water pollution in the reservoir can be controlled."

Lu said: "The reservoir is now holding 12.3 billion cubic metres of water, but it does not hold dead water in a closed pond as some thought." The water can be refreshed 36 times each year by the 450 billion cubic metres of water flowing through the dam of the Three Gorges project.

"Such water changes can occur at least 10 times per year even after the entire project is completed in 2009. Then it will hold a total of 39.3 billion cubic metres of water, once levels reach the required and planned 175 metres," Lu explained.

He agreed that environment protection around the reservoir and upstream should be further improved to prevent the reservoir from chronic pollution.

Meanwhile, Zhang, also a deputy to the National People's Congress, together with other experts are appealing for a special legislation to allow integrated management of the reservoir so as to ensure the safe operation of the mammoth water conservancy hub.

If the Three Gorges project is to provide clean water and this important environment saved, tough and urgent measures are needed - and soon, he says.

"Only through legislation can the duties of the reservoir's main administrator and the other parties concerned be clearly defined," he added.

**China Daily, August 13, 2004**

### **Energy pricing: new thinking**

*Zhu Qiwen*

Many local officials across China must be racking their brains to cope with worsening power shortages as high temperatures continue to put pressure on the country's already strapped power supplies.

In spite of the various emergency measures local governments have tried, the lack of a smart pricing system is still blinding the nation's policy-makers from finding a long-term solution to this burning issue.



A recent news item really shocked me. It said that Yiwu, a booming city in Zhejiang Province of East China had ordered all its 40,000-odd industrial enterprises to unplug from the electrical grid from July 24 for 17 days.

Local business leaders began crying they'd suffer even greater losses than last year when they were hit by the SARS (severe acute respiratory syndrome) outbreak.

Thanks to government priority given to civic uses of electricity, city dwellers have only had a taste of the inconvenient brownouts, though most of us actually have no idea of just how much power shortages will cost.

A caustic comparison made by a Yiwu businessperson provides a vivid depiction of the tip of this dangerous iceberg.

The SARS outbreak last year - an unforgettable memory for the nation - compelled the country to go all out against a new and deadly disease with a thorough review of the nation's medical system.

But what about the power shortage problem which, in terms of economic consequences, is no less serious than the SARS epidemic? Where is the hue and cry to combat the power shortages?

Twenty-four Chinese provinces and municipalities have imposed power brownouts so far this year.

Not that local governments have failed to come up with stopgap measures.

For instance, on Wednesday, Beijing just initiated a yellow-orange-red alert system to inform citizens of the extent to which the city's power supply will fall short the next day.

A nice idea, in a sense. Such a not-so-early warning system can urge Beijingers to look to their current electricity consumption when power supplies are tight.

But defects of the red alert system are also obvious in the absence of a smart power pricing system that would be able to raise peak-hour power prices to a prohibitive level.

Though energy-saving awareness does affect consumer behaviour, there is little reason to expect that Beijingers will be much more power thrifty than dwellers in other cities, that's as long as they enjoy average power prices, if not lower, or at least no higher than others do.

Another obstacle is an implicit yet common view among Beijingers that the country's capital is just too important to be under-powered, though in fact, part of it already experienced a 47-minute brownout in July.

We can only hope that the toothless red alert system, by repetition, manages to drive some sense of crisis home over time.

Many other places like Yiwu surely don't have the good fortune of Beijing which, as the capital, enjoys more privileges in using electricity from the national grid.

It is reported that Yiwu's power demands almost doubled last year and have grown as fast this year due to robust industrial growth.



Yet the quota of electricity supply virtually remains the same.

Caught between climbing civic demand and soaring industrial needs, local governments usually have no choice but to sacrifice the latter.

Increasingly frequent brownouts have driven both local governments and businesses to take countermeasures.

To save local economic growth from the havoc created by power shortages, many local governments have rushed to establish local power stations.

To minimize their losses caused by power cuts, local enterprises have bought electrical generators to keep their workshops running.

Additional costs imposed on these enterprises are one problem. Yet, the potential consequences of local governments' efforts to construct additional power stations are another much more severe problem the country must promptly deal with.

While local governments speed up their efforts to expand generating capacity, there are already predication that the country's overall electricity supply might exceed market demand by 2007.

The current power shortages, to a large extent, should be attributed to insufficient power infrastructure investment years ago. Slack demand back then had eroded profit margins.

A similar situation that exacerbates fluctuations in the economy must not be allowed to occur again.

Therefore, clear thinking now is a matter of urgency.

Quenching the present power thirst simply by increasing supply must be fundamentally challenged.

A key reason why local governments are enthusiastic about building more power stations is because the costs to the environment and health impacts have not been included in either their decision-making or power prices, especially for those coal-fueled power stations. So even with a relatively low power price, power stations still can make money as long as demand is high. The strong growth of industrial demand for electricity across the country, in turn, provides a cheap current power supply.

But the country can no longer afford such ignorance of environmental and health impacts, pressing questions for which we need answers.

For enterprises, relatively higher power prices will increase production costs, but that still seems a much better option than the brownouts Yiwu businesses are suffering.

To effectively rein in excessive growth of power demands, a smart pricing system is indispensable. Only a stiff price ladder will persuade mass power consumers to aggressively control the amounts of electricity they consume while raising the efficiency of power use.

True, it will take a fairly long period for enterprises to adjust to energy-saving production approaches given the costs of doing so.



Introducing a smart power pricing system will impose different burdens on various groups.

But if the policy-makers acknowledge the necessity of adopting such a pricing system as a long-term solution, it should be started as early as possible.

At present, Yiwu's enterprises are still waiting for news if the power cuts will continue. Maybe they will have to live at the mercy of the elements this time.

Yet it is definitely a duty of the country's policy-makers to prevent such cases by crafting a far-sighted, market-oriented guideline for power development.

**China Daily, August 26, 2004**

## **Environment fair attracts global interest**

*Zhu Chengpei and Zheng Yanyan*

DALIAN: Delegates from the global business community will attend the biannual China International Environmental Protection Fair.

The event is widely viewed as an important environmental monitoring conference and will open next Thursday in the coastal city of Dalian in Northeast China's Liaoning Province.

More than 200 companies from countries such as the United States, Germany, Canada, France and Japan will take part in the three-day fair, crowned as one of the Global 500 by the United Nations Environment Programme (UNEP) three years ago.

It is sponsored by the State Environmental Protection Administration and the Dalian municipal government, said Dalian Vice-Mayor Song Zengbin yesterday.

"The latest technologies, products and related services of environmental protection industry all over the world will be on display," added Song.

Atmosphere pollution prevention and control, sewage disposal, urban garbage treatment, noise and vibration control and natural biological conservation, will be profiled.

An environmental monitoring seminar and an environmental engineering investment forum will also be staged.

Experts revealed China will have a total investment of 700 billion yuan (USD\$85 billion) in biological and environmental protection over the coming five years, providing a huge market.

In Dalian alone, about 100 companies have been shut down and more than 130 have been moved out of the downtown area in the past decade under the environment protection measures, said the vice-mayor.

"In the past five years, the city has invested more than 10 billion yuan (US\$1.2 billion) in the environmental infrastructure construction, Song added.

**August 12, 2004**

## **Pollution paradox not solved by chief's firing**

*Zhi Ming*

Luoyang, one of China's most famous ancient capitals, was named one of its most contaminated cities recently.

The State Environmental Protection Administration (SEPA) released a list of cities with the worst levels of air quality on July 13, with Luoyang of Henan Province occupying 10th place.

At the end of the month, Shi Jingpin, head of the local environmental protection bureau, stepped down.

The abrupt relief is closely connected with the city's face-losing listing by SEPA, according to a Xinhua report.

Directly in charge of local environmental affairs, Shi should be held responsible for the health-damaging foul air.

Suspended particles, a key gauge of air quality, have remained 50 per cent higher than the State standards in Luoyang in the past six years.

But given the current environmental management mechanism, will the new head be able to improve Luoyang's living environment?

In the administrative fabric, the environmental protection department is limited in power. It has the administrative power to issue warnings and expose fines. But it is not entitled to shut down any factories, however contaminating they are.

Very often, however, a factory owner can save more money by paying fines than taking preventative measures.

In this condition, they continue to produce pollutants while the environmental protection department can do little if anything to stop them.

The root cause remains the headstrong development mentality that some local governments hold.

They attach the utmost importance to gross domestic product and production, and give virtually no consideration to environmental factors.

The environmental protection department is not powerful enough to change the policy line of the government.

In Shi's case, we do not know whether he fulfilled his duty of reporting to his superiors that effective measures needed to be undertaken to improve local air quality. If he did, then he should not be the only person held responsible.

Interviewed by the Xinhua reporter, Luoyang leadership promised - after SEPA's "Top 10" list was released - to invest more funds to stem pollution.

They should have done it much earlier.

Shi was ousted. But if the local government fails to adopt real environmentally- conscious working methods, the new environmental boss won't see many better days than his predecessor.

**August 16, 2004**

## **Change of emphasis on growth called for**

*Sun Min*

China should put more emphasis on sustainable growth and adjust its model of economic development to improve environmental quality and energy efficiency, economists said.

David Wyss, Managing Director and Chief Economist of Standard & Poor's, said that China's economy had staged an outstanding performance when most industrial countries were suffering from a decline.

And the momentum is expected to continue.

But growing together with the gross domestic product (GDP) is increasing demand in energy and other natural resources as well as imbalances in economic development, which all exert a great pressure on China if it wants to make the growth sustainable, Wyss said in an interview with China Daily last week in Beijing.

China is not alone in facing such an issue, he said, but its fast growth will intensify the challenge.

The world is expected to see energy demand increase by about 50 per cent in the next 20 years.

About 85 per cent of the increase will come from Asia and China is expected to take up half of that, Wyss said.

Therefore, China should adjust its model of economic development and make it more sustainable, especially given its large population base.

The Chinese authorities, also aware of the challenge, have been urging enterprises and local governments to focus on efficient energy-use and environmental protection.

Niu Wenyuan, who is leading the sustainable strategic development research panel at the Chinese Academy of Sciences, said that China had paid a heavy price in natural resources for its fast economic growth over the past two decades.

The heavy waste of resources and environmental pollution have actually reined in much of the real economic efficiency and that must be corrected, he said.

Niu has been invited by many government departments to give lectures to top officials and entrepreneurs on sustainable growth.

But changing the development model will take some time, experts said.

In the near term however, the major challenge for the Chinese authorities is the cooling down of the economy that is already overheating in some sectors, with excessive investments recorded in industries like aluminium, cement and construction.

The government has taken a series of macro tightening measures to reduce credit supply and curb over-investment and slow down the pace of GDP growth, which reached 9.1 per cent last year and 9.7 in the first half of this year.

"But I don't think the slow-down would last very long," said Wyss with Standard & Poor's.

The prime concern is, however, that instead of simply using administrative orders to control the economic growth and lending, China should let the market forces play a bigger role in determining the flow of loans and investments, he said.

On the other hand, to reduce the imbalance in development, especially in the financial sector, regulators should make some regulatory changes and clean-up efforts.

And China should further open up the financial system and give foreign institutions equal treatment as soon as possible, he said.

Talking about Sino-US trade, Wyss said that China's trade surplus to the United States could be understood, given China's trading structure.

And that China is not to be blamed for rising unemployment in the manufacturing industry in the United States.

Trade is only a small part of the unemployment issue, he said.

High productivity in manufacturing is a major reason. And normally as a country gets richer, it would spend less in manufacturing, he said.

Moreover, much of China's exports are made by foreign companies in the country, many of whom are using China as an assembly factory since labour in the country is cheaper.

If the US wants to increase exports in general, that has to be based on an overall recovery of the industry and stronger buying strength there, Wyss said.

He also predicted a mild recovery of the global economy.

The economy of Japan, for example, should be picking up to reach 4 per cent growth this year, the best in almost a decade.

The US Federal Reserve already announced a quarter-point interest rate hike last week.

Wyss expected another rate hike after the US presidential election and possibly another move next year.

**China Daily, September 1, 2004**

## **Xi'an Tackles Water Pollution Issues**

This capital city of northwest China's Shaanxi Province is taking effective measures to better protect and improve its environment both for local residents and tourists.

As part of the effort, local government decided to install special equipment to monitor and control those enterprises which make water-polluting materials during their production, according to Gao Xian, director of the Xi'an Municipal Environmental Protection Bureau.

The project, named Network for Monitor and Control Pollution Sources, will begin in September, and will make it easier for environmental protection officials to monitor factories online that drain polluted water into rivers, Gao said.

"We put water monitors which can keep watch and check out water at factory drain pipes and the black boxes are linked with computers in environmental protection offices at our bureau," the director said.

The monitors keep watch around the clock, Gao said.

At present, Xi'an has 79 factories which produce pollutants during production and drain into rivers.

"These factories are being ordered to treat their waste water properly before discharging. The water monitors will be installed in these factories beginning in September," the director said.

Other measures, such as installing special electricity meters used for wastewater treatment equipment and checking for additives used for wastewater treatment, will also be adopted to see if factories are treating waste water properly, Gao said.

The local government has decided to close 34 paper-making factories before September since they produce a large amount of polluted water, Gao said.

The effort is aimed at enhancing the control of polluted water draining into the rivers around the city and improving the quality of the surface water, the director said.

From June to November, the local government is making an environmental protection drive to rectify the polluting enterprises, Gao said.

The drive will focus on water pollution made by the industries of paper-making, printing and dyeing and electroplating in the Weihe River Valley in which Xi'an is located, the director said.

And it also focuses on the pollution and ecological damage made by mineral resources developers, and the pollution of radiate resources during use, transportation, storage and dealing, the director said.

"Local government pays great attention to protecting the environment of urban water resources, ecological and tourism zones in order to provide better living conditions for our people," Gao said.



**Xinhua News Agency, August 25, 2004**

### **Giant Pandas to Have Larger Habitat at 'No. 1 Home Place'**

Baoxing county, in southwest China's Sichuan Province, plans to spend 180 million yuan (about US\$21.8 million) to build a giant panda protection and tourism zone.

With a designated area of 1,200 sq km, the Baoxing Jiajin Mountain Giant Panda Ecological Tourism Zone will comprise the state-level Fengtongzhai giant panda nature reserve, a safari park, a station for panda observation and a state forest park.

The official said that expansion of protection zones would play a vital role in avoiding inbreeding and helping increase the number of the rare creatures.

The world's first giant panda was discovered in Baoxing county in 1869. Currently, more than 140 giant pandas live in the Fengtongzhai Nature Reserve in the county, accounting for more than 10 percent of the national total.

An official with the nature reserve said that Baoxing county had invested more than 2.5 million yuan (some US\$30,000) in building a nature reserve for the pandas, which covers 400 square kilometers.

Giant pandas are said to have been around during the time of dinosaurs and regarded as a "national gem" of China.

About 1,590 giant pandas still live in the wild, mostly in the high mountains around Sichuan Basin, and 160 live in captivity.

The central and provincial governments have invested 160 million yuan (nearly US\$20 million) into panda protection programs since 1992.

China built its first natural preserve for giant pandas and began to ban poaching in the 1950s. The pandas have been under state protection since 1962.

**Global Times, August 9, 2004**

### **Euro III in the Pipeline**

*Translated by Li Jingrong*

On July 1, the State Environmental Protection Administration (SEPA) implemented nationwide auto emission standards equivalent to Euro II. There are plans to adopt standards equivalent to Euro III in Beijing next year and to extend these across the country by 2008. The topic has attracted much attention in China. How will Euro III affect the Chinese auto industry and people's daily lives?



## **No auto price increases**

According to the SEPA plan, from the day that Euro III is introduced all new automobiles will have to conform to the demanding new standards. However existing owners needn't worry for vehicles already on the roads at that time.

The experts say the standards required by Euro III are much higher than those of Euro II. To be able to comply with them, automobile manufacturers will need to carry out research and development to update their engines. It marks yet another stage in the development of China's automobile industry. They predict that for current domestic models, Euro III might mean additional expenditure perhaps exceeding 1 million yuan (about US\$120,750) or even 10 million yuan (US\$1.21 million) per model. This may not be much of a problem for large volume, well capitalized joint ventures like Volkswagen and Ford but could put quite a strain on smaller domestic manufacturers.

Gao Lixin, president of the Chery Automobile Engineering Research Institute, said, "Implementation will eliminate some of the weaker small and medium-sized domestic automobile manufacturers. Mature enterprises like Chery will have no difficulties either in terms of the new capital investment or in the technology required."

Gao said that the necessary innovations were in the core technologies of engine electronic spray atomization control systems and purifying systems. Even large joint ventures have to out-source these from specialist manufacturers. Suppliers such as United Electrics are already operating in the domestic market so auto manufacturers here won't have a problem in meeting the technical requirements of Euro III.

"Automobile production costs will rise with the implementation of Euro III," Gao said. "Considering the present state of the auto market, manufacturers will likely absorb the additional costs themselves rather than passing them on to the consumers in order to maintain market share."

## **No Euro III gasoline at the pumps**

More than just engine modifications will be required if Euro III standards are to be met. The quality of the gasoline is also a key factor. Take the sulphur content of diesel oil for example. Euro III requirements will mean a reduction in sulphur content to only one seventh of what is acceptable under Euro II.

SEPA official Wang Jian said, "None of the gasoline currently available on the domestic market conforms to Euro III, not even the 98 octane so called noble gasoline. If consumers put the currently available gasoline into new vehicles conforming to Euro III standards, not only will they damage their automobiles but the Euro III emission standards will still not be met."

In order to be able to ensure the smooth introduction of Euro III in Beijing and elsewhere, the China National Petroleum Corp. (CNPC) and Sinopec Corp. started work on updating their technologies and equipment several years ago. An employee at the CNPC research office said that some of the products produced by the company's refineries can already meet Euro III standards. Beijing has now issued local quality standards for oil products. These two big companies will make special arrangements to supply Euro III standard oil to Beijing.



## Little impact on gas prices

Some people are concerned that Euro III implementation will mean higher prices at the pumps. If gasoline and diesel to be supplied are to meet Euro III standards, then the oil refineries will need to invest in updated technology and new equipment and this must be reflected in increased costs. Experts at Sinopec Corp. put the additional expenditure as high as several billion yuan.

However, Zhang Xingye, honorary chairman of SAE-China said, "Although the move from Euro II to Euro III will no doubt increase costs, this will have only a small effect on the price of a liter at the pumps. Even if a new item of equipment were to cost say several hundred million yuan it may well have a working life of twenty years and the capital cost could be depreciated over many years."

"So the implementation of Euro III won't make much difference to oil prices," Zhang said. "The real decisive factor for price increases will remain fluctuations in international crude oil prices."

**China Daily, September 2, 2004**

## Environmental damage to be counted in GDP

*Xiao Qin*

An experimental framework for calculating green GDP in China has been set up, Vice-Minister of the State Environmental Protection Administration Pan Yue said yesterday.

The pilot system will be implemented in some regions as soon as possible, he said.

Green GDP (gross domestic products) is an amendment to GDP that deducts the cost of environmental damage caused by economic development.

As China's economy is growing rapidly but its environment has been worsened in turn, environment officials and experts have been calling for the adoption of green GDP.

Some experts said if environmental costs are deducted, average annual GDP growth between 1985 and 2000 would drop by about 2 per cent.

Since March, the administration and the National Bureau of Statistics have been co-operating in research of green GDP.

At a recent forum on green GDP, two reports on the basic theories of green GDP were discussed. Experts said the reports construct the framework for basic green GDP theories and set the foundation for the green GDP calculations.

By December, the administration may release calculations on the cost of pollution between 1998 and 2003, Pan said.

Meanwhile, six provinces will be selected as pilot regions to adopt a green GDP.

But Hu Tao, chief economist of the Policy Research Centre for Environment and Economy is not so confident in the results.



Though green GDP is a good idea, it is technically hard to implement, Hu said. Many countries are studying green GDP, but to date no one can calculate it in any real sense.

The economy and the environment are two different variables that cannot be covered by one single calculating system, he added.

Alongside green GDP, environment officials and experts have urged that environmental protection should naturally be included in the country's system for officials' job performance assessments.

Feng Dongfang, a researcher with the administration's Policy Research Centre, said environmental protection is too tiny a part of the system to assess officials' performance.

Feng said some regions have started to make environmental protection a more important criterion. They are Guangdong, Chongqing, Hebei and Sichuan, said Feng Dongfang.

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