CHINA

Govt moves to cut chemical plant risks

Special expert to be assigned, factories to be moved away from residential areas

By HOU LIQIANG
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Authorities said special experts will be designated to help govern the hazardous chemical industry in key areas, while ramping up efforts to move plants out of densely populated areas.

The move comes as an investigation into a deadly explosion at a chemical plant in Jiangsu province continues.

Counties listed as key ones for concentrations of chemical factories will be assigned at least two experts as special consultants to offer technical support to local authorities' supervision work, according to a guideline from the State Council's Work Safety Committee.

The document, published on Monday by the Ministry of Emergency Management, said the experts will be chosen based on each of the counties' needs and in light of possible differences in their major types of chemical plants.

It said the experts will also contribute to emergency rescue and safety training work. While assisting enterprises in their construction of safety infrastructure, they are also expected to help enhance grassroots law enforcement capabilities.

"The facilities and technologies in the hazardous chemical industry are complicated by their variety, and they also involve many flammable and combustible materials with huge potential safety hazards," the document said, adding that with the industry's rapid development, new facilities and technologies continue to emerge, making supervision work increasingly demanding.

It has been an increasing challenge that officers lack the expertise needed for proper supervision, which has been "a bottleneck that hinders further improvement of safe production", it said.

The document was made public as the probe into the deadly blast at a chemical plant continues in Xiangshui county of Yancheng, Jiangsu province.

On Monday, police detained another 17 people for their roles in the blast at Jiangsu Tianjiayi Chemical Co that claimed the lives of 78 and injured more than 600 on March 21.

The publicity department of Yancheng said the 17 people were from Tianjiayi and organizations suspected of providing fake evaluations of the company's operations.

So far 26 people have been criminally detained.

No conclusion has yet been made about the case, but multiple sources have suggested that the company's casual handling of its hazardous chemical waste could have contributed.

Local authorities will shut down the chemical industrial park where Tianjiayi is located.

Before the guideline's release, Wang Jiangping, vice-minister of industry and information technology, vowed to promote the relocation of hazardous chemical enterprises from densely populated areas by enhancing coordination in key areas and projects, according to a media release on Monday.

Wang made the comment during a conference of a special work group for the relocation work on Friday. The group has members from various central government bodies.

Wang, who is also head of the group, said his team will make efforts to promote local governments' awareness of the urgency of the relocations and intensify safety and environmental monitoring as the work moves forward.

According to a circular released by the General Office of the State Council in September 2017, China plans to correct, move or shut down all hazardous chemical enterprises located too close to residential areas by the end of 2025.

The minimum distance for different types of hazardous chemicals from residential areas vary in China's national standard, but many are set beyond 500 meters.

The country's top environmental watchdog has also pledged to enhance its management over chemicals.

Qiu Qiwen, head of solid waste and chemicals management at the Ministry of Ecology and Environment, said during a news conference late in March that the ministry would promote the draft of a special law or regulation regarding the assessment and control of environmental risks posed by chemicals.

Country to prohibit or restrict several polluting compounds

By LI HONGYANG
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China has banned or restricted certain chemicals that have been identified as persistent organic pollutants in order to fulfill its international obligations, according to the Ministry of Ecology and Environment.

According to a notice on the ministry's website, China in March banned most uses of perfluorooctane sulfonic acid, or PFOS, which is used to protect fabrics from stains, among other things.

Its use will continue in some manufacturing sectors, as allowed under the Stockholm Convention, an international treaty on pollutants that China formally joined in 2004 — for example, in photo imaging, semiconductors, aviation hydraulic fluids, fire-extinguisher foam and some medical devices.

Huang Jun, associate professor of environmental chemistry from Tsinghua University, said the United States phased out production of PFOS in the early 2000s after researchers found evidence that indicates the chemical is a hazardous pollutant.

"So a market opportunity was opened up for other countries like China," Huang said. "Since the industry has just started to boom in China, it is not an easy decision for China to restrict the production of PFOS. However, the government and green associations are moving forward with the restriction and seeking substitutes. Despite challenges, efforts will continue to protect the environment."

"Applications like this are about life and safety, which should be the top priority," he said.

The pesticides lindane and endosulfan were banned along with PFOS, the notice said. The two chemicals, used as insecticides for vegetables, trees, fruits and soil treatment, were listed as persistent organic pollutants by the Stockholm Convention. They are persistent and accumulate easily in the food chain.

The production and agricultural use of lindane was banned in 2009, and in 2012 a global ban on endosulfan took effect.

Huang said alternatives to the two include not only nonpolluting chemical substitutes that can be used without major changes in process design but also changes in agricultural processes such as using black lamps and sticky boards to trap insects.

Any breach of the ban will be subject to severe punishment, the ministry said. It issued the notice with 10 other government departments, including the Ministry of Agriculture and Rural Affairs, the Ministry of Commerce and the General Administration of Customs.

Yu Fawen, researcher with the rural development institute with Chinese Academy of Social Sciences, said joint actions should be taken by local authorities, farmers and business to eliminate the pesticides that pose threats to soil and underground water quality.

"It is urgent to ban the use and production of these chemicals, because they will eventually damage the health of humans," he said.

To further implement the convention, China plans to restrict certain flame retardants, by the end of 2021, according to a guideline unveiled by the central government in 2017.

Zheng Mengzhu (in bed), the first test-tube baby on the Chinese mainland in 1988, rests with her family after giving birth to her own baby on Monday in Beijing. ZOU HONG / CHINA DAILY

Test tube baby grows up, gives birth

By WANG XIAODONG
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The first test-tube baby on the Chinese mainland, a female born in 1988, is now an adult and gave birth to a healthy boy on Monday, Peking University Third Hospital announced.

The event proves the efficacy of the technology, the hospital said.

People had worried that if a couple had reproductive problems and resorted to in vitro fertilization, their offspring would inherit the same fertility problems. But the birth announced on Monday indicates that is not true. The baby was conceived naturally.

Qiao Jie, president of the hospital where both the mother and baby were born, said the birth of the healthy boy proves that infertility is not necessarily passed down genetically.

"It has been a public concern whether test-tube babies can reproduce naturally and their next generation remain healthy," Qiao said. "The birth of the healthy baby means some people's misgivings about IVF can be dismissed."

The newborn weighed just over 3.8 kilograms and was delivered via C-section, said Yang Dongping, a publicity official at the hospital.

Some male adults who had been conceived through IVF in China have fathered children naturally. One of the males, Luo Youqun, who was born at a hospital in Changsha, Hunan province in 1988, fathered a child naturally in April 2016, according to media reports.

But Monday's announcement represents the first instance of an IVF mother reproducing.

The mother, Zheng Mengzhu, was conceived through IVF and was born on March 10, 1988. Her birth was a milestone in the history of reproductive technology in China.

Although China's progress in assisted reproductive technology followed developed countries, the country has been making rapid progress in the field over the past few decades. It now ranks at the top of the world in certain aspects of the field, the hospital said.

The world's first test-tube baby was born in Britain in 1978.

The number of medical institutions certified for IVF reached 451 on the Chinese mainland as of 2016, and 23 medical institutions have been certified to maintain sperm banks, according to the National Health Commission.

Qiao said assisted reproductive technology has been widely promoted and is responsible for 1 to 2 percent of all babies born in China.

The developments will help more families in the future, including reducing the incidence of inherited diseases, she said.

Scientists get new molecular insights on bone loss

By ZHOU WENTING in Shanghai
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Scientists for the first time have clearly seen the molecular structure where a hormone related to osteoporosis attaches to the body, providing valuable insight into potential therapies.

World Health Organization statistics show that around 200 million people suffer from osteoporosis. Figures released by China's National Health Commission showed that nearly 20 percent of Chinese people over age 50 suffer from the disease, and nearly half of the country's population over age 50 had low bone mass.

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> **Wang Mingwei,** researcher at the Shanghai Institute of Materia Medica

Zhao Lihua, one of the leading researchers on the team and an associate professor from the Shanghai Institute of Materia Medica affiliated with the Chinese Academy of Sciences, said the successful viewing at near-atomic level resolution enabled them to see the exact position of the hormone as it attaches to the receptor, as well as the corresponding reactions.

"It will allow scientists to screen small-molecule compounds that fit this exact position," she said, which could help researchers develop oral drugs. Currently, such medicines can only be injected.

Patients who suffer from osteoporosis need to take medicines simulating the hormone to stimulate the hormone receptor, and thereby regulate calcium levels in the body.

Zhao said the institute has started screening such small-molecule compounds.

An important factor hindering researchers from developing oral medicines has been that they were not sure exactly how the drug targets the receptor and what reactions the receptor will have, researchers said.

A paper about the study conducted by Shanghai Institute of Materia Medica in collaboration with researchers from Zhejiang University School of Basic Medical Sciences and University of Pittsburgh School of Medicine in the United States was published on the website of US-based journal Science on Friday.

"Diseases related to the receptor involved in the research affect tens of millions of families in the country," said Wang Mingwei, a researcher at the institute.

Looking for love

People exchange water in paper cups during a blind date event in Shijiazhuang, Hebei province, on Sunday. About 100 people from local construction companies and hospitals participated in the quest for romance. JIN LIANGKUAI / XINHUA

Turtle species nears extinction as last known female dies

By CANG WEI in Nanjing
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The Yangtze giant softshell turtle, a critically endangered species that has populated the earth for 270 million years — outliving the dinosaurs — has taken a step closer to extinction following the death of the only known female.

The female turtle died after an artificial insemination procedure at the Suzhou Zoo in Jiangsu province on Saturday. Though Chinese and foreign experts confirmed that it was healthy before the surgery, the animal went into a coma and never woke up.

The operation went well, according to the zoo. The female turtle was more than 90 years old and had gone through four such procedures.

The experts harvested the turtle's ovarian tissue and stored it in liquid nitrogen for future research. They are working on the carcass to determine the cause of death.

The turtle came from Changsha Zoo in Hunan province in 2008 to meet the only male specimen in China, which continues to live at the Suzhou Zoo.

The male turtle, thought to be more than 100 years old, has poor sperm motility and its genitals were damaged. Since it could not naturally impregnate the female, experts had undertaken four insemination procedures since 2015.

"It's a disastrous loss for the protection of the species," said Liu Nonglin, chief engineer of the Chinese Association of Zoological Gardens. "The experts had researched former insemination surgeries, consulted colleagues and made the best surgery and rescue plan. The team even experimented on three male and two female large-sized

The only female Yangtze giant softshell turtle in China as seen in 2015. It died on Saturday. WANG JIANZHONG / FOR CHINA DAILY

Asian turtles using the same surgical procedures. But the tragedy happened even though the surgery was well planned."

More than 1 meter in length and weighing more than 100 kilograms, Yangtze giant softshell turtles are the world's largest freshwater turtles. Besides the one male left in China, two other animals, whose sex is unknown, have been observed in the wild in Vietnam.

"Artificial insemination surgery for the turtle requires procedures such as anesthesia, blood sampling and sperm extraction," Wen Cheng, a turtle expert with International Union for Conservation of Nature, was quoted by Lifeweek.com.cn as saying.

"The turtles' circadian rhythm is slower than a mammal's, which means that the signs of trouble during the procedure will not be as obvious as with mammals. It is easier to cause irreversible damage if an unexpected situation is encountered."

"It's obvious that their near-extinction was caused by humans," he said. "We haven't done the basic work of researching the turtles' biological information, behaviors and genetics. The knowledge we have is too limited to save the species."

Guo Jun contributed to this story.