

## **SANITATION COUNTRY PROFILE**

### **CHINA**

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## Urban and Rural Sanitation

Time-bound Targets and Commitments: Relevant departments of the Chinese government have set the following goals for the development of sanitation in urban and rural areas:

- By 2010, no less than 60% of the cities should have wastewater-treatment facilities; drastically increase waste treatment rate so that all cities and towns in the country will have waste treatment facilities.
- By 2005, 55% of rural households will have sanitary toilets; by 2010, that ratio should rise to 65%; by 2005, 15 million rural households will use methane for fuel, bringing the prevalence rate to 6.8%. Between 2003-2010, 4,200 poultry farm-based methane works will be built and 60,000 residential wastewater purification ponds will be built for methane generation; by the end of 2010, 20 million rural households will be methane users, bringing the methane prevalence rate to 11%.
- Strictly prohibit development and construction at scenic spots that are inconsistent with the purpose of ecological preservation; reinforce the sustainability of scenic resources; enrich the heritage of cities and towns; ensure that no less than 71% of key scenic cities have wastewater treatment facilities and 30% of them recycle and reuse wastewater.

### Latest Progress

(a) By the end of 2002, 88.3% of industrial wastewater discharged complied with statutory standards, 22.3% of municipal residential wastewater was treated, 53% of industrial water was reused, 40% of municipal wastewater was treated centrally with a capacity of 38.13 million cubic meters/day. Between 2001-2002, in particular, the country's municipal wastewater treatment capacity newly increased by 12.3 million cubic meters a day.

(b) Waste treatment picked up in various places. By the end of 2002, 660 cities had built 651 waste treatment plants with a daily capacity of 220,000 tons; 54% of the waste was treated centrally.

(c) 49% of the 248 million rural households used various forms of sanitary toilets; 9.84 million households used public toilets; 53% of rural households treated human and animal excrement. In 2002, in particular, 6.56 million sanitary toilets were newly built and the prevalence rate of sanitary toilets nationwide rose by 2.57 percentage points over the preceding year.

(d) By the end of 2002, civilian methane ponds numbered 11.1 million, methane projects 1,560, urban methane purification ponds 115,000.

(e) Adequate attention has been paid to the building and management of sanitary facilities at scenic spots. As a result, scenic spots are much cleaner, and much progress has been made in the research and application of key technologies related to the disposal of living waste at scenic spots.

### Means of Implementation

(a) Introduced a new concept of development centering on human development and comprehensive, coordinated and sustainable socioeconomic development, which calls for the coordinated development of urban and rural areas. Sanitation – for both urban and rural areas – is an important component of that concept and has been incorporated into socioeconomic planning.

(b) Enacted laws and set standards to ensure sanitation in the course of urban development and renovation. This includes the revision of the Law on Prevention and Treatment of Environmental Pollution Caused by Solid Wastes, promulgation of the Technical Regulations for

Sanitary Landfill of Residential Waste, the addition of compulsory provisions to regulations on percolation liquids and methane treatment, and the publication of the Marks for Sorting Municipal Residential Waste, Regulations for Planning Urban Sanitation Facilities, and the Standards for Managing Sanitation at Scenic Spots.

(c) Made advisory and practical policies, guidelines and measures in line with best practices and national conditions on rural sanitation. The Chinese government's position on rural sanitation is: "government advocacy, interagency collaboration; public support and individual participation; private investment supplemented with government support and fund-raising through multiple channels; customized solutions with scientific guidance". Increase funding through enactment of the Agricultural Law, Energy Conservation Law and other related policies; allow farmers to play a leading role in ecological buildup. Integrate central government funding with matching funds provided by local governments and self-raised funds from farmers. Combine methane building with conversion of kitchens, toilets and pig pens to promote new modes of energy consumption, such as the "pig-raising, methane generation and fruit-growing" model in southern regions and "pig house, biogas digester, vegetable culture in one green house" model in northern regions.

(d) Drew up a sound master plan and implement it in stages. Improve planning for central treatment facilities for municipal wastewater and garbage, pipelines for water supply and drainage, and systems for garbage collection and transfer. Set up dustbins, garbage stations and toilets in scenic spots in a reasonable manner and managed them efficiently.

(e) Increased funding in sanitation. Governments at all levels were required to incorporate sanitation into their fiscal budget and increase funding for that purpose. At the same time, preferential policies were made to expand financing channels and attract private and foreign investment into the waste disposal sector. Long-term foreign loans on favorable terms were given first to the building of waste disposal facilities. Measures were taken to ensure a steady increase in funding for municipal sanitation, including an adequate force of cleaners and waste-treatment facilities; established a fee-collecting system for wastewater and garbage treatment to finance treatment facilities.

(f) Readjusted the resource-depleting model of development followed by many traditionally resource-rich industrial cities through industrial restructuring, significantly improving the environmental and sanitary conditions in some cities.

(g) Launched publicity and education campaigns on coordinated development of population, resource, environment and economy. Promoted awareness of personal hygiene in rural areas with austere natural conditions and helped them get rid of unhealthy and unhygienic habits and customs.

#### Major Groups Involvement

(a) Local governments, sanitation advocacy groups, youth and women's organizations at all levels have taken an active part in environmental preservation initiatives, creating synergies by working together to promote rural sanitation.

(b) The media have been instrumental in imparting knowledge on sanitation to the public, particularly farmers, resulting in heightened enthusiasm on the part of farmers to participate in sanitation work.

(c) Women's and youth organizations at all levels have mobilized women and youth groups to get involved in the whole process of environmental cleanup, from decision-making to

implementation, management and supervision. Rural women have gradually got rid of their unhealthy and unhygienic notions and habits in life and shifted to more hygienic and healthy lifestyles. This in turn has promoted the improvement of their living environment and economic status. Members of women's and youth organizations took the lead in remodeling their own toilets, helping others with financial hardship build and use sanitary toilets.

(d) Encouraged the establishment of various NGOs such as the Association for rural Water Supply and Sanitation. These NGOs have played an important role in various aspects of rural sanitation infrastructure-building, such as operation management, personnel training, information sharing, technical counseling, international exchanges and field research.

(e) Priority was given to improving sanitary conditions in ethnically-inhabited areas in western China. Minority ethnic groups are encouraged to take part in sanitation initiatives; their managerial and technical staff are trained; publicity and education campaigns were conducted in their own ethnic language; measures were taken to improve the living conditions and sanitary conditions in those areas, promoting ethnic harmony and social stability.

(f) Local governments, administrative authorities and tourists to scenic spots have also been scrupulous in keeping those scenic spots clean.

#### Challenges and Obstacles to Implementation

(a) The task of improving sanitary conditions in rural China remains an arduous one. There are vast disparities in different parts of the country with different natural, demographic and socioeconomic conditions. These differences add to the difficulty and complexity of the task. Farmers' needs for sanitation and health are to some extent conditioned by geological, historical, cultural and traditional factors. At present, nearly 130 million rural households still have no toilet. These people live mainly in impoverished areas, ethnically inhabited areas or remote mountainous regions where economic underdevelopment and limited incomes have seriously hampered the improvement of sanitary conditions. Management of rural residential waste has not been put on the agenda of local governments yet.

(b) In cities, wastewater and garbage collection, transit and disposal facilities are still in shortage and the waste disposal ratio is low. A market-driven operating system has not been established for wastewater treatment and waste treatment in a much larger context. The underpricing of sewage and waste treatment and the low rate of disposal fee collection are evidence of the low commercialization level of this sector, which means builders and operators cannot expect to reap reasonable returns on their investment. Most Chinese cities have not introduced garbage-sorting practices, which is not conducive to waste treatment and recycling. In environmental management, an environmental monitoring system is still not in place at most waste treatment facilities, and residential waste management remains to be improved. In science and technology, research in residential waste treatment is still very weak and the effort is further handicapped by a lack of technical talent.

(c) China's scenic spots are plagued by a lack of waste and sewage treatment technology and capacity because of the belated launching of the sanitation initiative. Due to an absence of long-term, unified planning and problematic industrial policies and technical standards, the building of and site selection for environmental and sanitary facilities were not specified in the master plans for scenic spots. This has resulted in a shortage of waste collection, transit and disposal facilities, technologies and capacities. In addition, environment-monitoring systems are lacking and waste disposal has pollution and safety hazards.

### Recommendations

(a) Continue to focus on water source and toilet conversion in rural areas to spur on the improvement of sanitary conditions and prevent and reduce incidence of diseases. Continue to increase support for rural sanitary improvement initiatives and mobilize all quarters of society to participate. Improve wastewater and garbage collection and disposal in rural areas in accordance with the principle of “coordinated development and rational distribution between urban and rural areas”.

(b) Introduce, in a step-by-step manner, and improve upon an sanitation regime consistent with the requirements of market economics. Reinforce the government’s role in organizing and coordinating various parties in that process, delineate the government’s functions in social management and supervision, build a scientific policy-making procedure, and promote public awareness of participation in sanitation.

(c) Improve planning work and accelerate infra-structural buildup. Complete plans for sewage disposal and garbage treatment for key watersheds and regions at an early date; draw up plans for nationwide development of sewage disposal and waste treatment facilities; improve plans for environmental preservation at scenic spots and for rural sanitation. Further augment the building and renovation of sewage and waste disposal facilities; improve residential waste collection and disposal work in rural areas in line with the principle of “coordinated development of urban and rural areas”, in particular incorporating waste disposal at suburban areas into the municipal system of large cities. For densely populated urban areas, the building of waste treatment facilities should be centrally managed and resources shared across administrative divisions. Funding for environmental cleanup efforts at scenic spots and farmers’ toilets should be increased; waste discharge should be minimized, recycled and treated in an environmentally friendly way.

(d) Reinforce government regulation to safeguard public interest. Introduce an information disclosure system for project announcements, open bidding and appropriate technologies and equipment; strengthen regulation and oversight of the market for waste treatment project development, technology and equipment to prevent secondary pollution of the environment. Encourage cities where conditions permit to build integrated waste disposal facilities and promote technological advancement with reduced pollution and increased recycling.

(e) Accelerate the commercialization of the sewage and waste treatment industry and encourage domestic and foreign investment in building and operating waste treatment facilities; introduce a franchising system for waterless and waste disposal businesses and implement the fee-collection system on a full scale for sewage and waste disposal.

(f) Establish and improve upon the management system for sanitation at scenic spots. Improve planning for environmental facilities at scenic spots and incorporate it into the master plan. Improve the supervision of enforcement of national standards regarding sanitation at scenic spots. Introduce centralized building of waste-disposal facilities and resource-sharing in line with the principle of rational distribution.

(g) Wherever appropriate, step up piloting of dry eco-toilets to ease water resource strains in the course of accelerated urbanization.

(h) Develop a set of standards for rural sanitation; improve rural environment-monitoring networks and emergency-response systems; conduct relevant research and promote information sharing and application of appropriate technologies; enhance international cooperation and introduce advanced concepts and technologies from abroad.

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### **Environmental Education and Sanitation in Schools**

Time-bound Targets and Commitments: The Program of Environmental Education for Middle and Primary Schools and the Guide (Trial) for Introducing Environmental Education in Middle and Primary Schools, two documents released in 2003, set the following goals for introducing environmental education in schools: guide students, through interdisciplinary teaching and in the form of special lectures, to appreciate and care for nature, show concern for environmental issues facing their family, society, country and the globe, and properly appreciate the interrelationships between individuals, society and nature. This program also seeks to help students gain knowledge, methodology and capabilities needed for living harmoniously with nature, foster environmentally friendly sentiments, attitudes and values, guide students to choose environmentally friendly lifestyles, and encourage them to take an active part in sustainable development decision-making and actions and become socially responsible and capable citizens.

The Regulations for Guiding Sanitary Work in Schools, published in 1990 by the Chinese government, set forth the following requirements for schools: compliance with national standards for school buildings, environmental noise, indoor microclimate, natural lighting and lighting, as well as the setup of blackboards, desks and chairs. Site selection and design for newly built, renovated or expanded schools should also comply with national standards and obtain approval from local health authorities. Local health authorities should also be present at the on-site inspection of a completed building; schools should build toilets and lavatories for schools in compliance with regulations. Boarding school should provide sanitary facilities such as washrooms and bathrooms for students. Schools should provide students with sufficient drinking water that meets sanitary standards. In addition, schools should establish procedures for oversee students' personal hygiene, sanitation and the cleanliness of classrooms and dormitories.

Latest Progress: Incorporated courses such as understanding the relationship between environment and development and shaping correct values on environment into the curriculum of elementary education. The Program for Geology Teaching for Junior Middle Schools, for example, proposes that students "form correct views on resource, environment and population, understand the importance of coordinated human development and environment", and "correctly understand the relationship between man and nature from the environment-resource-human activities perspective". The Program for Nature Teaching for Primary Schools proposes that teachers cite anecdotes to help students understand issues such as protection of wild animals and plants, protection of water resource, protection of mineral resource, afforestation, protection of the ecological environment and prevention of air and water pollution.

(a) Middle and primary schools pioneered environmental education. Some provinces such as Jiangsu, Inner Mongolia, Gansu, Guizhou, Yunnan and Shanghai developed textbooks with local characteristics. Schools have staged various environmental education activities, encouraging students to be aware of environmental protection.

(b) Marked improvement has been made to environmental and sanitary conditions of schools. Currently, most schools in cities comply with national standards for teaching and living conditions (including drinking water), but rural schools still have a long way to go in these respects.

(c) Great progress has been made in Green School building. The Ministry of Education and the State Environmental Protection Administration jointly launched the Green School initiative in a bid to encourage schools to introduce environmental education in their curriculum and adopt green lifestyles. By the end of 2002, 13,000 schools had been certified as “green”.

#### Means of Implementation

(a) Great attention has been paid to environmental education among middle and primary school students. The Ministry of Education has issued a series of documents guiding local education authorities to implement the program. The ministry decided, for example, to introduce environmental education into middle and primary schools starting in spring, 2003. According to the Program of Environmental Education for Middle and Primary School Students, students from grade one through eleven have an average of four hours per school year on environmental preservation. A Guide for Introducing Environmental Education in Middle and Primary Schools has also been published to facilitate the program. New curricula being pioneered by elementary schools now list environmental awareness as a major goal for students. In practice, the goals, criteria, teaching activities and assessment requirements for environmental education have been built into the course syllabus; in addition, to ensure the effective implementation of the program, environmental education has also been incorporated as an interdisciplinary subject into an integrated practice course for middle and primary schools. Local education authorities and schools are encouraged to introduce environmental protection into their curriculum in light of local needs.

(b) Promulgated standards and regulations on sanitation for schools to help improve the teaching and living conditions on campus. These include the Norms for Designing School Buildings in Middle and Primary Schools, the Standard for Classroom Natural Lighting, Lighting and Sanitation in Middle and Primary Schools, the Sanitary Standard for School Desks and Chairs, the Standard for Seating Arrangement, Lighting and Sanitation in TV Classrooms, the Standard for the Safety and Sanitation of Blackboards, and the Rules for Sanitation Management at School Cafeterias (Ministry of Education and Ministry of Health).

(c) Increased funding to improve the teaching and living conditions for schools. In 2001 and 2002, the central government earmarked a special fund of 3 billion yuan for renovating dilapidated school buildings in rural areas. Local governments provided 9 billion yuan in matching funds. Altogether, 30 million square meters of floor space was renovated, and schools improved their dining halls, drinking water facilities, dormitories and toilets. Today, in many rural areas, the best local building and the most beautiful place is the local school.

(d) Incorporated sanitation (teaching and living facilities) into school rating sheets, compliance records and other review systems for schools, in a bid to motivate schools to keep improving their environmental and sanitary conditions.

(e) Conducted international cooperation in environmental education and campus sanitation. In 1997, for example, the Ministry of Education launched Operation Green Education in China's Middle and Primary schools, in conjunction with the World Wildlife Foundation (WWF) and BP. Currently, that program has been implemented in 17 provinces, benefiting 1.5 million students.

Under the program, environmental education research centers have been established at 12 teachers' colleges, and wildlife bases for environmental education have been set up in Beijing, Yunnan, Shanghai and Chongqing. To recognize the contributions the Chinese government made to environmental education, the secretary general of WWF, Dr. Claude Martin, presented a Gift to the Earth to the Ministry of Education on November 2, 2003 in Beijing. Dr. Martin spoke highly of the Guide for Introducing Environmental Education in Middle and Primary Schools issued by the Ministry of Education. In 1999, the Ministry of Education, in collaboration with UNICEF, undertook a project in Inner Mongolia and Heilongjiang to refit drinking water and toilet facilities in schools. That project greatly promoted similar refitting work in other school, significantly improving their sanitary conditions.

#### Major Groups Involvement

(a) Teachers and students all over the place have taken an active part in the Green School initiative, a program launched jointly by the Ministry of Education and the State Environmental Protection Administration to promote environmental education in schools. This program has not only promoted environmental awareness of teachers and students alike and improved the environment on campuses, but has also, through students' ties with their family and communities, mobilized many more people to get involved in environmental protection.

(b) Schools have also seized occasions such as the World Environment Day, World Health Day and World Smokeless Day to launch various publicity and education campaigns in collaboration with relevant government departments and social organizations. Local education authorities, for example, worked with health authorities in launching Health Promotion Schools and Smoke-Free Schools to create a healthy environment for students.

#### Challenges and Obstacles to Implementation

(a) Environmental education provided by schools pays great attention to knowledge the imparting of but not enough attention to fostering students' environmental ethics and social responsibilities. Students did not learn enough problem-solving skills. Since the 1980s, environmental education has been introduced to many schools in China and certain progress has been made so far. Experiences have been had which have played an important role in disseminating environmental knowledge and promoting environmental awareness. However, schools have over-emphasized the impartation of knowledge but neglected the teaching of values and skills.

(b) Great disparities exist between schools with regard to environmental education and sanitary improvement. This is due to the vast differences between the eastern, central and western parts of the country, and between urban and rural areas.

#### Recommendations

(a) Establish rules and procedures to introduce environmental education in middle and primary schools tailored to local conditions. As part of a new round education reform featuring a three-tier management system consisting of central, local and school authorities, provide institutional guarantees for schools to build their own curricula by allowing local education authorities and schools to design courses for 16-20% of the new curriculum for basic education. Many localities and schools have taken the initiative to develop courses tailored to local needs and with local characteristics. Environmental education is an important element of those courses.

(b) Boost capacity-building. Continue to train key teachers, enhance their environmental awareness and build up their capacity in order to implement environmental, health and sustainable development education in Y-12. Encourage all parties concerned to develop and open

course resources to advance environmental education and help schools; continue to encourage schools, teachers and students to stage environmental education activities.

(c) Create and improve upon a fund-raising mechanism to finance rural schools. Both central and local governments should increase funding for renovating dilapidated rural schools and improving their living and sanitary conditions. Continue to keep the pressure on schools for improving their working and living conditions through stricter inspection and rating procedures; continue to work with relevant government departments and social organizations to help create a healthy environment for students to learn and grow.

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