



# **The Environmental Protection in Chinese Rural Area: Progress, Challenge and Countermeasure**

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**2007 • Erdos**

# **Brief outline**

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**I. Progress**

**II. Problems**

**III. Opportunities & Challenges**

**IV. Counter measures**

# Foreword

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Currently, China's rural areas are facing serious environment problems: the coexistence of point-source pollution and non-point pollution, the superposition of domestic pollution and industrial discharge, and the interlacing of new/old pollution and secondary pollution.

The present status of China's rural environment is unable to meet the urgent need of promoting peasants' health conditions, improving their life-quality, inspiring the vigor of the countryside, facilitating the economic development of rural areas, transforming the mode of agricultural production, enhancing the security level of rural environment, and accomplishing the overall construction of the affluent society and the new rural environment.

The rural environment protection, as the one of five key programs to be implemented by State Environmental Protection Administration, is about to launch...

# Special Column: "Five Key Battles" of State Environmental Protection Administration

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- ◆ "Restricted Approval" of areas with severe environmental law-breaking problems
- ◆ Strengthen the effort on the integrative rectification of the aquatic environment of key lakes;
- ◆ Strengthen the prevention and control of water pollution in key valleys
- ◆ Strengthen the prevention and control of industrial pollutions
- ◆ Speed up and propel rural environment protection

# **I. Progress of the rural environment protection efforts**

# Recent efforts made by related ministries and commissions

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State Environmental Protection Administration: villages & towns with an excellent environment, eco-town construction, scaled-up livestock breeding pollution control in key river valleys, soil pollution investigation, rural industry pollution control, certification of organic foodstuff production, general investigation on pollution sources and pilot projects related to countryside environmental protection. Ministry of Water Resources: countryside drinking water easing project, 11th Five-Year drinking water safety project. Ministry of Agriculture: soil testing and fertilizer recommendation, ecological homeland program, countryside cleaning program, countryside non-point pollution control, methane & livestock breeding pollution control Ministry of Public Health: countryside toilet reconstruction, drinking water sanitation, sanitation town, health education for peasants Ministry of Construction: pilot project of countryside sewage and waste treatment, relevant standards and technical specifications

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# Integrative rectification of the rural environment

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- — Countryside drinking water project. By the end of 2006, the water service has covered 61.12% of China's rural districts. More than 800,000 drinking water related projects have been launched in the countryside, well easing the drinking water problem of over 67 million rural populations.
- — Livestock breeding pollution control. During 2000 and 2001, an inventory survey on the environmental pollution caused by scaled-up livestock breeding farms was implemented by State Environmental Protection Administration. Great efforts have been made by the Central Government on the construction of over 2,200 methane projects boasting an annual processing capacity of 60 million tons of livestock dung.
- — Countryside methane construction. By the end of 2005, the number of methane users throughout the country has reached more than 17 million, with an annual methane output of 6.5 billion cubic meters. 137,000 methane-generating pits for domestic sewage treatment have been built.

# Integrative rectification of the rural environment

- — Construction of organic foodstuff production bases. 43 national organic foodstuff production bases have been so named to drive the industrialization development of organic foodstuff. Over 3 million hectares of areas are covered by the national organic certification.
- — New energy promotion in the countryside. By year 2005, more than 500 straw gasification & centralized gas supply projects have been constructed. The firewood-saving kitchen range has been implemented in 189 million of households, while 2,850 hectares of rural areas have been applied with the solar water heater. Meanwhile, the solar cooker, the wind energy, the terrestrial heat and other regenerative energies are also being promoted.
- — Reconstruction of the sanitary toilet. By year 2005, the coverage rate of sanitary toilet in China has reached 54.95%, and 32.31% for the harmless sanitary toilet.
- — Eco-town construction. By year 2006, six batches of towns (totally 425 towns) have been granted the title of "National Towns with An Excellent Environment", covering 26 provinces, autonomous regions and municipalities. In December 2006, the State Environmental Protection Administration printed and distributed "Norms for the Construction of A National-Level Eco-Village (for trial implementation)".



# Related laws, codes and norms for rural environment protection

- The State Council issued "Decisions to implement the scientific concept of development and strengthen environmental protection";
- "Regulations on the control of livestock breeding pollution", "Regulations on rural environment protection" and "Regulations on the prevention and control of soil pollution" are all being drafted.
- A number of technical specifications, guiding rules and administrative measures for strengthening the safety of agricultural products and the environmental protection in small towns and scaling up the livestock breeding pollution control have also been formulated.

# Initiate two key countryside pollution survey projects

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- Soil pollution investigation: "The overall plan for the inventory survey on soil pollution status throughout the country"; specialized agencies; The collection of soil samples has been completed in such areas as YRD, PRD, Central and South Liaoning and Zhuzhou, Hunan.
- General investigation on agricultural pollution sources: "The first scheme for nation-wide pollution source investigation", "Technical specifications for the general investigation on agricultural pollution sources"; sectorization for the general investigation.

## **II. Environmental problems faced by the rural area**

# **(1) The drink water safety cannot be guaranteed in the rural area**

## ***Figures:***

- ◆ About 300 million people in China's rural area cannot enjoy clean water, and 60% of which is unqualified in water quality owing to unnatural causes.
- ◆ The result of 2005-2006 national environmental safety investigation indicates that: among 7555 chemical engineering and petrochemical projects, 1354 of them are nearby the river, lake, sea and reservoir, while 280 of them are in the upper reaches of protected drinking-water sources (within 10 kilometers).

## **(2) Severe domestic pollution in rural dwelling districts**

### ***Figures:***

- ◆ Upon preliminary estimate, the annual output of domestic sewage in China's rural areas reaches about 8 billion tons and that of domestic wastes hits about 120 million tons. Most of them are not effectively processed.
- ◆ The rate of harmless treatment of domestic wastes in villages and towns of Sichuan Province only accounts for 5.05%, while the rural garbage treatment rate in 15 cities along the south-north water transfer route falls below 40%, with the domestic sewage treatment rate being below 20%. Even in the well developed Jiangsu Province, the number of villages and towns constructed with the refuse transfer station in middle and north Jiangsu falls below one-half.

### **(3) Aggravated transfer of industrial & mining pollution and city pollution to the countryside**

#### ***Figures:***

- ◆ Some suburb areas have become the dumping ground of municipal wastes and industrial residues. Over 2 million mu of farmlands in China have been occupied and destroyed by the solid wastes.
- ◆ The polluting industries are moving from the city to the countryside and from east to west, becoming the new pollution sources of the rural environment.

## **(4) Severe pollution caused by such production wastes as the livestock dung and straw**

### ***Figures:***

- ◆ Upon preliminary estimate, the annual output of various crop straws in China can reach 650 million tons. With an annual production quantity of 1.3 million tons, the agricultural film has been applied in more than a hundred million mu of cultivated areas. 40% of crop straws are not effectively utilized, while the annual residual quantity of the agricultural film can reach as high as 450,000 tons.
- ◆ The total quantity of excrement of pig, cattle and chicken hits 2.7 billion tons, with COD output reaching 69 million tons, which is five times of the COD of the industrial and domestic sewage. Only 10% of scaled-up livestock breeding farms are assessed with their environmental impacts, while 80% of scaled-up livestock breeding farms are in short of the necessary pollution control measures.

## (5) Aggravated hazard from soil and agriculture non-point pollution

### Figures:

- ◆ Approximate 150 million mu of farmlands are suffering from severe pollutions, constituting 1/10 of the total cultivated area and resulting in a direct economic loss exceeding RMB 20 billion annually. There is no law related to the prevention and control of soil pollution.
- ◆ According to the statistics, the annual amount of pesticide application in China reaches as high as 1.32 million tons, and that of fertilizer application hits 44.12 million tons, while the application rate of organic fertilizers only accounts for 25%.
- ◆ Related studies have indicated that: In regard to the contribution ratio of total nitrogen/total phosphorus of the eutrophied Taihu, the agricultural non-point pollution accounts for 59% and 30%. The nitrogen and phosphorus in the upper reaches of Sanxia Reservoir constitute 70-80% of the total load, with the non-point pollution in the reservoir region accounting for 70-90%.



## **(6) Irrational resource exploitation resulting in aggravated ecological damages**

### ***Figures:***

- ◆ The reclamation has resulted in the disappearance of more than 1,000 lakes;
- ◆ The regional ecological environment is apparently impaired by the demolition of forests.
- ◆ In China's rural areas, there are also irrational short-run acts trading the ecological environment with economic growth, such as quarrying, mining, river dredging for sands, farmland destruction for earth, land reclamation, polderization, deforestation and etc, which are worsening the rural environment.



## **(7) Emerging pollutions caused by rural tourism**

- ◆ The rural tourism is booming in recent years. However, it has resulted in the disruption and pollution to the environment: destruction of vegetation, house/shed building, waste dumping and sewage flowing.
- ◆ The tourism management in many rural areas is not well regulated.
- ◆ The food and beverage service offered during the rural tourism has brought about increased waste water and discards, thus increasing the chance of rural environment pollution and the gross amount of pollutants.

## **(8) New problems**

- Persistent pollution caused by organic pollutants (POPs)
  - Invasion of the undesirable foreign species into the agricultural ecosystem
  - Pollution of the deep underground water in rural areas
  - Water-soil-atmosphere combined pollution in rural areas
  - A series of problems caused by the urbanization of rural areas
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# Rural environment - cause analysis

**"City, countryside; industry, agriculture; inhabitant, peasant"...**

1. Insufficient concern on the environmental protection in rural areas;
2. Unsound legal system for the environmental protection in the countryside.
3. The rural environment infrastructure construction is severely lagged behind.
4. Scarce capacity of rural areas in the supervision and control of environmental protection.
5. Weak scientific and technological support to the countryside in environmental protection.
6. Insufficient publicity, education and training in countryside environmental protection.

# **III. Opportunities and challenges of rural environment protection**

# Historical opportunities

## **1. Rural environmental protection is being attached importance to**

- "11th Five-Year Planning for the National Economy and the Social Development"
- "Decisions of the State Council to implement the scientific concept of development and strengthen environmental protection"
- 2005 Workshop of the Central Government on Population, Resource and Environment
- December 2006: Approval of the Prime Minister

## **2. Promote the socialism new countryside construction, and offer the economic foundation and system guarantee for addressing rural environment related problems.**

## **3. The urgent need of peasants to change the existing environmental status will provide the extensive mass foundation for addressing the environmental problem in rural areas.**

# International Experience on Environmental Protection in Rural Areas

"Community Movement" in Korea

"Agricultural Modernization" in Japan

Water-saving agriculture in Israel

Macropolicy regulation and control in United States, Germany, Italy and etc.



# Pressure and challenges faced

- 1. With the swift growth of economy, the rural environment will be bearing the unprecedented pressure.**
- 2. New changes in the environmental problems in rural areas make it more difficult to address those problems.**
- 3. The weak foundation of environmental protection in rural areas is unable to accommodate to the needs arisen from new situations.**

*Coexistence of new opportunities and challenges...*



# Orientation of the new countryside policy

- Production development is the material basis;
- An affluent life is the concrete expression;
- Civilization in the countryside is the conceptual foundation;
- Visual tidiness in the countryside is the key part: the most urgent and the most practical need;
- Democracy in management in the political guarantee.

## **IV. Counter measures for rural environment protection**

# Counter measures and suggestions

**(1) Six key areas**

**(2) Six dominated actions**

# Counter measures and suggestions

## (1) Key 1: pollution control of rural drinking water source

- Identify the protected drinking-water sources
- Investigate the existing environment status of the drinking-water source and learn about the present status of pollution
- Enforce the environmental management regulations for drinking-water sources and carry out law enforcement examinations
- Conduct water quality monitoring & evaluation

### *Key areas:*

◆ Priorities shall be given to the water pollution control of such key valleys as Huaihe River, Haihe River, Liaohe River, Yellow River, Songhua River, Taihu Lake, Dianchi Lake and Chaohu Lake, as well as such the south-north water transfer route and Sanxia reservoir area. Recently, the following drinking-water source protection programs shall be launched: restoration of the water quality of lakes and drinking water sources, selection and construction of emergency water supply, and the integrative rectification of the fluvial-environment.

# Counter measures and suggestions

## (2) Domestic pollution control of the countryside

### concentrated areas

- Planning for the integrative rectification of the village environment
- Garbage collection and treatment in rural areas
- Integrated treatment of domestic sewage in the countryside
- Promotion of clean energies in rural areas
- Formulate rules and regulations for rural environment protection, and strengthen supervision and administration.

### *Key areas:*

- ◆ Efforts shall be made to strengthen the collection and treatment of domestic sewage and domestic wastes in rural areas along the south-north water transfer route and around Huaihe River, Liaohe River, Huaihe River, Songhua River, Taihu Lake, Dianchi Lake and Chaohu Lake.
- ◆ Recently, the construction of domestic pollution control facilities shall be strengthened in areas with great output of domestic wastes and sewage, especially in the upper reaches of drinking water sources.

# Counter measures and suggestions

## (3) Prevention and control of non-point pollution in rural areas

- — Inventory survey of non-point pollution in rural areas
- — Strengthening of the environmental safety administration on agrochemical products
- — Pilot implementation of non-point pollution control in typical areas

### *Key areas:*

- ◆ The rural non-point pollution inventory survey and pollution control shall be carried out in 13 key grain producing areas (including Hebei, Henan, Heilongjiang, Jilin, Liaoning, Hubei, Hunan, Jiangsu, Jiangxi, Inner Mongolia, Shandong, Sichuan, Anhwei and etc) and key valleys for water pollution control (including Taihu Lake, Dianchi Lake, Chaohu Lake, Sanxia reservoir area and its upper reaches, Songhua River, Huaihe River, Liaohe River, Haihe River and etc).
- ◆ Recently, non-point pollution prevention & control demonstration projects shall be carried out in such drinking-water source areas as Taihu Lake, Chaohu Lake, Huaihe River, Haihe River and etc.

# Counter measures and suggestions

## (4) Livestock breeding pollution control

- Identify the livestock breeding areas
- Strengthen the comprehensive utilization of livestock breeding wastes
- Strengthen the ecological environment protection of the culture fishery
- Strengthen the environmental supervisory and control of the livestock breeding industry and culture fishery

### *Key areas:*

- ◆ Efforts shall be made to strengthen the classification and pollution control of scaled-up livestock breeding areas in Guangdong, Beijing, Zhejiang, Shanghai, Fujian, Shandong, Henan, Hebei, Hunan, Gangxi and etc.
- ◆ Recently, comprehensive waste utilization and pollution control facilities shall be constructed for large- and medium-sized livestock breeding farms in areas with concentrated population and developed water system.

# Counter measures and suggestions

## (5) Prevention and control of soil pollution

- — Inventory survey on soil pollution
- — Pilot implementation of soil pollution control in typical areas
- — Construction of safe agricultural product production bases

### *Key areas:*

- ◆ The soil pollution inventory survey shall be carried out in YRD, PRD, Circum-Bohai-Sea Region, old industrial bases of Northeast China, Chengyu Plain, Weihe Plain and key mineral resource producing cities.
- ◆ The demonstration project of soil pollution control and restoration shall be carried out in key cities and valleys, fundamental farmland protection areas, "non-staple food supply project" bases and the production bases of other agricultural products, national key wastewater irrigation areas, typical abandoned lands of industrial and mining enterprises, oil fields and etc. Recently, efforts shall be made to construct a number of safe agricultural product production bases in China's key grain producing areas and mid-west areas with preferable natural conditions.



# Counter measures and suggestions

## (6) Industrial and mining pollution control in rural areas

- — Optimize the development arrangement and industrial structure of the village industries
- — Strengthen environmental supervision and control and avoid the transfer of pollutions to the rural areas
- — Strengthen the pollution control and ecological restoration of industrial and mining enterprises

### *Key areas:*

- ◆ The prevention and control of industrial pollution in rural areas shall be strengthened in Middle East areas with centralized village industries, especially in such provinces as Shandong, Zhejiang, Jiangsu, Guangdong and Hunan, which are characterized by higher concentration rate and growth rate.
- ◆ The pollution control and ecological restoration of rural mining industries shall be strengthened in provinces with greater scale of mineral resource exploitation, including Guizhou, Sichuan, Gansu and Shansi.

# Priority Action 1

## **(1) Carry out fundamental investigations on the rural environment**

- — The nationwide general investigation on agricultural pollution sources
- — Nationwide soil pollution investigation
- — Investigation on the environmental status of the rural drinking water sources

## **(2) Formulate related laws, rules, policies and norms**

- — Formulate sound rural environment protection laws and rules. "Regulations on the prevention and control of soil pollution", "Regulations on rural environment protection", "Regulations on the control of livestock breeding pollution", "Measures for the administration on the invasion of the undesirable foreign species" and a number of local rural environment protection rules and regulations. All levels of rural environment protection plans shall be drafted.
- — Improve the related standard systems. "Technical specifications for the integrative rectification of the village environment", "Technical specifications for the use of agrochemical products around the protected drinking-water source areas" and etc. Different standards for the discharge of pollutants in rural areas shall be formulated for areas with different climates and economic development levels.
- — Formulate related supportive policies. Related policies for the comprehensive utilization of agricultural wastes, organic foodstuff development, promotion & use of organic fertilizers and financing of rural pollution control shall be formulated.

# Priority Action 3

## **(3) Promotion and implementation of practical techniques for rural pollution control**

- — Develop different rural pollution control technologies. Rural pollution control technologies catering to the unique features of different areas shall be developed and promoted by considering the difference between southern and northern areas in natural conditions, the different level of economic development, the different existing environment status, and the scattered and relatively concentrated features of rural areas.
- — Strengthen the promotion of practical technologies. By means of field study, subject training and pilot implementation, rural pollution control technologies and experiences catering to the unique features of different areas shall be widely promoted and implemented, including: 1) methane projects for the treatment of animal and human excreta and domestic sewage; 2) technologies for the comprehensive utilization of crop straws; 3) technologies for the production of organic fertilizers through the composting of livestock excreta; 4) technologies for the centralized and decentralized treatment of domestic sewage.

# Priority Action 4

## **(4) Deepening of the eco-town construction**

- — Construct villages & towns with an excellent environment
- — Strengthen the guidance on eco-town construction

## **(5) Capacity enhancement for the supervision and control of rural environment**

- — Set up and improve the rural environment monitoring system
- — Strengthen the effort on the environment supervision & law enforcement
- — Speed up the capacity building for rural environment protection

# Priority Action 6

## **(6) Promotion of the demonstration project for rural pollution control**

- — The demonstration projects for the pollution control of scaled-up livestock breeding farms
- — The demonstration projects for the pollution control of rural drinking water sources
- — The demonstration projects for the construction of the village domestic wastes and sewage treatment facilities
- — The demonstration projects for the prevention and control of soil pollution
- — The demonstration projects for the construction of organic foodstuff production bases

***The end!***  
***Thanks for your concern on China's  
rural environment protection!***

***ErDOS, China***

***August 28, 2007***