

STATUS AND PROSPECT OF TOILET RECONSTRUCTION IN RURAL PARTS OF WUHAN CITY

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INTRODUCTION

A survey of the status of sanitation in rural parts of Wuhan City showed that there are five types of toilets in use: pour-flush (61%), separated septic tank (33%), double-vault dehydrating (now being tested); biogas (0.45%) and vacuuming collecting toilet (also under test).

The population in rural Wuhan in year 2000 was 3,864,000 divided between 118 towns and 2050 administrative villages. There were 821,900 households of which 274,210 (33%) have renovated their toilets. There are eight administrative rural districts in the city. Huang Pi is the biggest with a population of 1,103,235. Xing Zou is the second largest and followed by Cai Dian, Jiang Xia, Hong San, Dong Xi Hu, Han Nan, Cuan Kou. The results of a survey of the toilet situation of Wuhan City is presented below.

RESULTS

Toilet status in rural Wuhan

Table 1 shows the number of toilet types per district: “three separate style” 10,500 units (7.21%), biogas toilet 1,790 units (0.63%), “double funnel” type 6,260 units (2.2%), pour-flush toilet 17,240 units (60.63%). Faeces in these toilets are not efficiently treated.

Table 1 Status of toilet reconstruction in rural areas of Wuhan City (in ten thousand units)

Suburb district	“Three separate”	Biogas	“Double funnel”	“Pour-flush	Other	Total
Guangpi	0.013	0	0.415	3.94	1.77	6.138
Xingzou	0.04	0.06	0.05	5.72	1.18	7.050
Jiangxia	0.051	0	0	1.3	1.55	2.901
Caidian	0.114	0.009	0.005	1.09	1.667	2.885
Dongxihu	0.04	0.11	0.01	1.74	0.64	2.540
Hannan	0.242	0	0.009	0.15	0.229	0.63
Hongsan	0.17	0	0.137	3	1.24	4.547
Zuankou	0.38	0	0	0.3	0.05	0.73
Total	1.05	0.179	0.626	17.24	8.326	28.431
%	7.21	0.63	2.20	60.63	29.28	100

Increased and Improved In 2000

In 2000, 34,430 toilets were renovated in eight suburban districts, of which 2,200 were “three separate style”, 30 biogas toilets; 4,400 pour-flush toilets; 22 vacuuming pump toilets and 27,770 of other types.

Types of Toilet Reconstruction

Table 2 Summary of Toilet Reconstruction in 2000 (in ten thousand units)

Type	“Three separate”	Biogas	“Double funnel”	Pour-flush	Vacuum Pump	
Total	6,652	2,200	30	0	4,400	22
%	33.07	0.45	0	61.14	0.33	

DISCUSSION

Sanitizing of Faeces

Similar to the situation in the rest of the country, the efficiency of sanitization of human excreta in rural Wuhan is rather low. Sanitary toilets are only 10% of the total. In 1995, the most efficient record of sanitary toilets was Jia Dind County, with a percentage of 11.72% ⁽¹⁾. If we compare year 2000 with 1999, the situation in Wuhan improved though with low quality and insufficient sanitization. The main problem in toilet reconstruction now is that 80% of rural householders still have no sanitary facilities⁽²⁾ The “three separate” toilet and the biogas toilet are not yet popular in the countryside (only 10%). It is therefore important to draw peasants’ attention to sanitation and change old concept so that enforcement of toilet reconstruction can be carried out and sanitizing of faeces can be improved.

Implementation on Toilet Reconstruction.

Peasants in Wuhan are realistic and want only those technologies that can sanitize human excreta while increasing the efficiency of organic manure. In 2000 there were no “double funnel” toilets in Wuhan, probably because they easily broke and are inconvenient to use. Nowadays under the market economy, development of non-contaminated vegetable production is gaining in importance. This naturally requires scientific treatment on human faeces and organic manure, resulting in higher fertilizing effects and meeting the demands of the market for non-polluted products. This brings us to ecological sanitation.

Prospect on Advanced Technology

In the past promotion of the “three separate” toilet and the biogas toilet was decentralized. The annual investment in toilet reconstruction in Wuhan is more than RMB 5.5 million. Return on investment can be improved if advanced technology can be applied. In 2000 in Wuhan, 0.33 % was the usage rate for centralized vacuuming faeces collecting system which is developed by the Environmental Hygienic Engineering Department of University of Science and Technology of Middle China. The system provides a broad future for human excreta sanitization in rural areas. It is expected that the centralized vacuuming collecting system will be marketable although it is still in a trial period. How to treat the collected faeces in sanitary ways needs further study.

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REFERENCES

- CIA Hong-Dao, Modern Environmental Hygiene, the People Hygienic Publishing House, 1995: 1042~1064.
 Wu Jig -qiang problem on status and countermeasure for countryside correcting toilet in Wuhan city , environmental hygiene, 2001 (2): 35~38.