

## **Construction of water-supply pipes and sewers**

### **A. Construction of rainfall drainage system development**

By the end of 2010, 4,469.2 kilometers of the target length of 6,818.7 in the project of rainfall drainage system construction project in the urban development has completed. In which 3,563.6 kilometers in Taiwan Province, in addition to 552 kilometers in Taipei city and 383.7 kilometers in Kaohsiung city were completed. If the implementation rate is calculated with the ratio of actual implemented length occupied in the target length, the implementation rate for the rainfall drainage system construction in Taiwan reached 65.5% in 2011. In which, the highest rate is 96.9% in Kaohsiung city, followed by 96.7% in Taipei city, 91.4% in Penghu county and 81.5% in Yunlin County. The ratio in all other counties and cities is less than 80%, needed to be improved in construction.

### **B. Sewage sewer construction**

Sewage sewers are sewers for family and industrial sewage. The whole sewage treatment rate includes public sewage sewer available rate, special sewage sewer available rate and the implementation rate of building sewage systems. Sewage sewer construction is regarded as an important index for the urban modernization. In World Competitiveness Yearbook reported by International Institute for Management Development , Lausanne (IMD) public sewage sewer available rate was listed in life quality as one of the evaluation items. The government also treats it as the performance index of sewage sewer construction.

#### **1. Sewage treatment rate**

By the end of 2010, the number of sewage treatment units of the country was 3,069,931 and the sewage treatment rate was 53.02% which increases 4.36% in comparison with 48.66% in 2009. The unit number of public sewage sewer was 1,487,973 (25.70% available rate) which increases 3.11% in comparison with 22.59% in 2009; 827,230 units (14.29% available rate) of special sewage sewer (in the scale of 100 units / 500 people or more in the communities and industrial districts) which increases 0.44% in comparison with 13.85% in 2009 and units with the implementation of building sewage systems are 754,728 (13.03% implementation rate) which increases 0.80% in comparison with 12.23% in 2009. In terms of the sewage treatment rate, Taipei City is the highest

(100.0%), followed by Kaohsiung City (92.7%), Taipei County (91.1%), Lienchiang County (82.8%), other counties and cities are not over 60%. As to the usage fee, some counties and cities have not finished the self-governance articles in charges of sewage usage. In considering the low piping coverage of sewage, only Taipei City charges to the users. Taoyuan County, Taichung County, Pingtung County, Keelung City and Kaohsiung City charge to the users in Industry Park, only. Other counties and cities do not charge for it. The usage fee in 2010 was 1,002,888,000 dollars which decreased 2.62% compared with that in 2009 and the CMY was 1,050,080,000 tons, which increased 9.99% compared with that in 2009. In which, the CMY in Taipei County (323,940,000 tones) is the highest, followed by Taipei City (320,450,000 tones) and Kaohsiung City (292,050,000 tones).

## 2. Expense of sewage sewer construction

The sewage sewer is urban public construction. The construction period is long and the investment is large. Therefore, the government must invest more than 10 billions in it every year. The construction expense comes from the government and the folk. As for the part of the government, the expense will be processed from the public budget planned by central government and local government. In which, Taipei City has the sufficient financial resources. However, other local governments cannot raise the money easily. As a result, the construction expense almost depends on the subsidy from the central government and the construction progress is slow consequently.

The total expense of sewage sewer construction was 16,037,417,000 dollars in 2010, indicating an decrease ratio of 0.18% and budget decrement of 29,577,000 dollars over the previous year (2009); the highest construction fee was 14,319,078,000 dollars (89.3%), followed by 965,514,000 dollars (6.0%) of land fee and 405,710,000 dollars (2.5%) of planning fee. In terms of geological location, the expense of Taipei City was 2,817,174,000 dollars, 2,684,318,000 dollars for Taipei County, 1,318,212,000 dollars for Kaohsiung City.

## 3. Sewage sewer system management fee

The sewage sewer system management fee in 2010 was 2,490,307,000

dollars which increases 12.38% (274,311,000 dollars) in comparison with 2,215,996,000 dollars in previous year (2009). The management fee was composed by 768,277,000 dollars (30.85%) for electricity, followed by 641,990,000 dollars (25.78%) for personnel, and 290,983,000 dollars of maintenance (11.68%). When compared with that of previous year (2009), the maintenance has the biggest increase ratio of 66.98%, followed by 58.67% of medicine and 55.31% of reimbursement fund, and an increase ratio ranging between 5.77% and 29.39% for electricity personnel, and equipment and facilities.

#### 4. Sewage sewer pipes and facilities

The planned length of sewage sewer pipe diameter 600mm or above was 1,235,633 meters till the end of 2010 and 788,320 meters had been constructed. The planned length of pipe diameter 300mm – 600mm was 3,143,579 meters and 1,789,924 meters had been constructed. The planned length of sewage sewer pipe diameter 300mm or below was 4,025,873 meters and 3,376,098 meters had been constructed. In terms of sewage treatment facilities, the planned wastewater treatment plants was 220 till the end of 2010 and 52 had been constructed. The planned pumping stations were 248 and 144 had been constructed. The planned interceptor station were 119 and 89 stations had been constructed.