

### 1. Effluent pollution in HCMC

According to the HCMC Service of Natural Resources and Environment, 343 out of 1,503 investigated concerns violated the environment regulations in 1997. These concerns were fined VND169.5 million. These figures in 2002 were 228 out of 1,462 with the total fine of VND251.7 million. Thus, the number of violations reduced but they were more serious.

Industrial parks and export processing zones in HCMC dump some 46 tons of BOD; 107 tons of

change very slowly in the near future. In a long and medium term, these SMEs will be the main source of pollutants.

In HCMC, many areas are polluted by industrial effluent. Suối Cát, Xuân Trường and Suối Nhum are typically polluted areas in the Thủ Đức District where some 20 concerns are polluting sources of water in Linh Trung, Linh Xuân, Tân Phú and Linh Thạnh Mỹ communes. The Phước Long Industrial Estate in the District 9 is polluting both the air and water. In the District 11, some 4,200 concerns

failure to deal with the industrial effluent. Of the 28 complaints about the effluent in 2004, 24 (85.7%) were about the industrial one; three about the effluent from service concerns and one about the effluent from construction.

Bùi Nguyễn Nữ Trang, in her master thesis in August 2002, mentioned the willing to pay (WTP) of residents along the Tham Lương Canal to make this canal cleaner. The sum these residents were ready to pay to make this canal suitable for fish was VND63 billion; and they were ready to pay VND92.4 billion to make canals a swimming pool. These figures could hardly be considered as a quantitative representation of damage to their living but they show that the damage is very great.

Table 1: Complaints about the pollution sent to HCMC authorities

Year	Complaints	Ones about the effluent	%
1994	418	47	11.2
1996	273	29	10.6
1998	299	20	6.7
2000	260	34	13.1
2002	225	37	16.4
2004	132	28	21.2

# Pollution by industrial effluent in HCMC

by NGUYỄN KHÁNH DUY

COD and 75 tons of TSS a day. Industrial effluent per day varies from 650,000 to one million cubic meters; some 10% of it is from industrial parks and 90% from concerns outside these parks.

A survey of 55 concerns in Linh Trung and Tân Thuận EPZs in 2000 shows that there was 23% of concerns in Tân Thuận EPZ treated the effluent. Up to 2003, effluent treatment plants have been built only in Lê Minh Xuân, Tân Thuận and Linh Trung EPZs.

Over 90% of concerns in HCMC are of small and medium sizes and pollutants from these concerns are usually of greater volume in comparison with bigger ones. Small and medium enterprises usually lack money and expertise needed for dealing with environmental problems. In HCMC today, there are some 25,000 small and medium concerns and 800 bigger ones and this proportion will

producing paper, dying products, processed food, coated goods, leather and engineering spare parts are polluting Wards Cầu Ván, 4, 8, and 14. In the Tân Bình District, the most polluted areas are found in Wards 19 and 20 and many of its canals, such as Tham Lương, Tân Hương and Tân Hóa.

### 2. Some effects from the industrial effluent

HCMC has some five million people with a population density of 2,523 people per a square kilometer (2003). According to the annual report by the HCMC Service of Natural Resources and Environment, the number of complaints about the pollution tends to decrease but the proportion of complaints about the industrial effluent is on the increase. This reflects great efforts made by both authorities and business circle to protect the environment and the

The effluent could cause a lot of diseases to local residents. A survey by Ngô Tiến Phương from the

HCMC Service of Natural Resources and Environment of the relation between pollution and the public health of residents along the Tân Hóa-Lò Gốm Canal into which some 8,413 cubic meters of industrial effluent (equaling 15.8% of the total waste water are poured every day). Of 408 interviewed persons, 365 understood that many diseases had something to do with the pollution. Of surveyed persons infected with diseases caused by the pollution, 44.3% are children, 17.7% are teenagers, 22% are adults and the rest pass their sixty.

**Table 2: Residents along the Tân Hóa – Lò Gốm Canal infected with diseases caused by the pollution**

Disease	The infected	%
Diarrhea	37	10.14
Skin diseases	25	6.85
Respiration problems	135	36.99
Scabies	12	3.29
Headache	38	10.41
Pink eye	41	11.23
Hemorrhagic fever	27	7.40
Dysentery	22	6.03
Others	28	7.67
Total	365	100.00

All interviewed persons said they had to suffer bad smell from the canal and a lot of insects in their houses, especially mice and mosquitoes.

### **3. Problems demanding support from the Government and international institutions**

At present, an environmental fee is applied to all concerns but, according to experts in this area in HCMC, "the task of collecting this fee for industrial effluent is carried out very slowly." This means that various measures are needed for carrying out successfully this policy.

I have conducted a survey among HCMC-based 40 concerns that poured untreated effluent and come to the following conclusions:

- If the concern pays the fee without reducing its pollutant, its annual cost will increase by 5.53%. According to a survey by the HCMC Institute of Economics in 2001, the output of some products, such as instant noodle, frozen shrimp and canned fruit, will reduce by 6.88%; 7.6% and 3.75% respectively when the cost rises by 1%. This means that its annual output will reduce by 33.62% (that is,  $6.08*5.53$ ) because my surveyed concerns are also the food processing industry.

- Some 75% of surveyed concerns agree to reduce their

volume of pollutant in order to avoid paying too much in the environmental fee.

- Thirty-five percent of concerns that pay the fee without reducing the pollutant have to suffer a 7.25% rise in their annual cost. This means that their output reduce by 44.08% ( $6.08*7.25$ ). We could see that these concerns couldn't survive the competition when their sale reduced by some 50%.

Facing this difficulty, concerns need a lot of help from the Government and international institutions. As for this aspect, they need technical support and training in the environment protection; appraisal and publicity about their success in protecting the environment, and low-interest credits.

Moreover, they demand a just and fair application of the environment policy; and proper punishment for violations: 45% of surveyed concerns require severe

punishment; 30% suggest warning and 25% want to have business license revoked. In cases of harmful violations, 95% of these concerns suggest forcing violating parties to move their factories from the city. It's worth noting that many concerns express some doubt about the use of this fee. The HCMC authorities, therefore, must use this fund for the purpose of environment protection only, and ensure financial disclosure for this fund if need be (85% of surveyed concerns suggest this measure.)

In recent years, many foreign-financed projects have been carried out to deal with the pollution and proved to be effective. These projects, however, are coming to their end. That is why the HCMC should prepare more projects for the coming years in order to ensure a better environment for local residents ■

