The objective of this study was to examine the pathogenic content of infections are considered a burden in Vietnam (Trang et al. 2007). Septage desludge. The removeable access covers were not installed on the surveyed septage tanks. Thus the workers had to damage the floor to access the tank placed in the basement of the houses.

### Methods

Samples were taken from 20 septage tanks when they were being emptied by a vacuum truck. Two samples were taken from each tank: one at a depth of 10 cm (untreated septage), the other from the centre (septage sludge) as the tanker had extracted half the contents.

Samples were measured for pH, dry matter (DM) and concentration of microorganisms in untreated septages. Results are shown in Table 1.

### Results

#### Untreated septage

Dry matter was low (average DM = 0.24%). The pH values ranged from 7.3 to 7.5. All samples were positive for the analyzed bacteria with the exception of *Salmonella* spp., which was detected in 70% of the samples (Table 1). SC and MSB were detected in 80% of samples while helminth ova were present in 95% of studied samples.

#### Septage sludge

The average dry matter was 5.4%, pH varied from 6.7 to 7.4. *E. coli*, *Enterococcus* spp., and helminth eggs were detected in all samples (Table 2). SC and MSB were detected in 80% of samples, *Salmonella* spp. in 60% of samples. Helminth ova showed high concentrations (Table 2).

### Conclusions

- Untreated septage contains high concentrations of indicator and pathogenic microorganisms.
- Septic tanks should be emptied regularly to avoid untreated septage just flowing through the tank polluting the environment.
- Septage sludge poses a high hygienical risk.
- A large variety of helminth ova species can be found in high concentrations in septage. Hence proper protection measures should be deployed to minimize health risks.
- To decrease the risk of disease transmission the sludge emptied from the septic tank needs to be sanitized before it is disposed or reused in agriculture.

### Reference

