

Socio-Economic Profile of Domestic Faecal Sludge Emptying Companies

Since the development of on-site sanitation solutions, faecal sludge management has become a major challenge in developing countries. Control over sludge collection and transport to the disposal site is seen as a success factor for a good faecal sludge management policy. Definition of the socio-economic profile of domestic faecal sludge emptying companies forms part of the objective of this study.

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Introduction

Developing countries are characterised by a rapid demographic growth mainly centred in urban areas where the economic activities are far more dynamic than in rural areas. This situation explains why the authorities find it difficult to satisfy the different basic service needs of their populations, particularly in the sanitation sector [1]. To offset this deficiency, the inhabitants have resorted to various survival strategies by developing several individual sanitation solutions (latrines, septic tanks, flush toilets etc.). These facilities are used by about one third of the world population or nearly 2.6 billion urban dwellers in developing countries [2].

However, on-site sanitation is characterised by a daily production of huge quantities of faecal sludge to be extracted from sanitation facilities and disposed of adequately to safeguard human health and the environment. In the city of Dakar alone, about 1500 m³ of sludge is collected daily from on-site sanitation systems [3] and sometimes discharged directly into the natural environment.

It must be emphasised that faecal sludge management in developing countries is conducted by private entities and small-sized companies working independent of the public sector. Where public services are not always provided, these manual or mechanical emptying operators play a key role in on-site sanitation systems [4]. An improved faecal sludge management presupposes a sound knowledge of stakeholders, especially of mechanical emptiers who improve both the quality of emptying services and contribute to the generation of employment (Photo 1).

Materials and methods

Framework of the study

This study was conducted in Dakar, the capital of Senegal, a country located at the western tip of Africa with a surface area of 196722 km² and a population of approxi-

mately 11 million inhabitants. Dakar and its suburbs, with over two million inhabitants, cover 0.3% of the national territory but numbers 22% of the total population.

With 30% of its population living below the poverty line (less than two USD/day), Senegal is one of the least developed countries in the world. It is therefore a typical example of a country facing important difficulties regarding access to water and sanitation.

Definition of the emptying operator's profile

The profile of the emptying company was defined on the basis of interviews and by a review of official documents on the emptying companies over a period of one month (from 28 December 2006 to 30 January 2007).

Free and/or semi-structured interviews were conducted with 23 heads of the 52 companies identified in Dakar. Of these 52 private emptying operators, 40 work

informally and only 12 are incorporated companies. Informal companies are entities not subject to the rules and regulations of private companies and without a legal status or declared revenue.

Results and discussion

Overview

Private stakeholders involved in mechanical emptying are divided into two categories: incorporated companies and individual operators.

As illustrated in Fig. 1, most companies (67.3%) only own one truck and are generally managed by private entities operating their own truck in an informal way. Starting the business with one truck is a common strategy to acquire experience in the sector and learn the rules of management survival. Successful operators subsequently invest in additional trucks. Large operators holding only 6% of the park or a fleet of 15 trucks are the best equipped service providers.



Photo 1: Faecal sludge discharge at Cambéréne treatment plant, Dakar, Senegal.



Photo 2: View of an emptying truck.

The incorporated emptying companies are either Limited Liability Companies (LLC) or Economic Interest Groups (GIE). They own at least one truck, a head office and employ staff they manage in a more or less formal way.

An LLC comprises at least two associates, which may be natural or legal persons, whereas a GIE is a cooperation of existing companies aiming at facilitating or developing the economic activity of its members.

Moreover, it is important to note the wide range of activities conducted by the emptying companies. They do not work only in emptying domestic faecal sludge but are active in the disposal of wastewater and stormwater, in industrial emptying as well as in maintenance of the sewerage network.

Human resources

The emptying companies have two categories of staff: permanent employees and day labourers. The number of employees in these companies varies according to the company's size, number of trucks and nature of their business. Furthermore, the emptying companies visited are composed of teams with at least one director, who coordinates all the activities, one marketing specialist, one secretary-accountant, one mechanic, who ensures truck maintenance, drivers, and labourers – a typical organisational structure in West Africa [5], [6]. The organisation of the company is generally structured around the truck. Each truck requires a team of three persons:

- One driver, who is responsible for the truck and in charge of managing all mechanical parts, i.e. the truck engine and suction pump. He has to ensure proper functioning of the equipment before, during and after emptying or provide any other services requiring use of the truck.
- Two labourers, who provide technical assistance during emptying operations

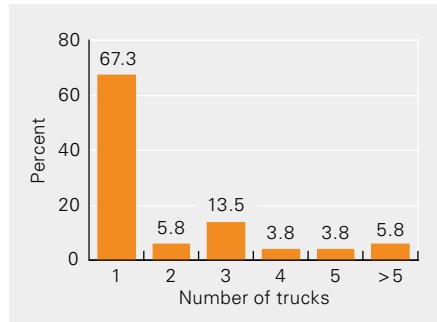


Figure 1: Number of emptying trucks per company.

(opening of pits, joining of pipes, closing and cleaning of pits).

Material resources

Mechanical emptying activities in the city of Dakar require an important vehicle fleet of about 130 trucks; most of which are rundown. None of the identified trucks are less than ten years old. The emptying company surveyed has a fleet of 10 tankers but only three were operational at the time of the study (Photo 2). With a downtime rate of about 50%, the number of tankers per household amounts to one truck for 2308 households. This explains the frequent demand for manual emptying – an extremely harmful activity to human health and the environment.

Currently, among the hundred trucks available in Dakar, only 3% are hydrocuring, the remaining vehicles are pumping trucks and slurry tankers. This creates a problem in mobilising the full sludge capacity at pit level. Thus, after emptying, an important part of the settled sludge remains in the pit and only the supernatant is disposed of at the faecal sludge treatment plant. Aside from technical problems caused by this situation at the treatment plants, social problems are created between emptying service provider and the population, who considers the service unsatisfactory due to the rapid filling of pits after emptying.

The survey results reveal that the trucks are mostly imported second-hand vehicles from Europe. Rapid renewal of this fleet is difficult, as the import prices for second-hand tankers remain very high. They currently vary between USD 25 000 and 45 000, depending on whether it is a pumping or hydrocuring vehicle. To remain in the emptying sector and secure survival, truck owners are forced to extend almost indefinitely the life of their vehicles.

The interviews reveal that the operators agree unanimously on the rundown condition of the vehicles, however, their

scarce resources limit renewal of the truck fleet. Donors and public entities should therefore impose regulations on types and service life of trucks operating in sludge emptying, create incentives for vehicle renewal and propose a blueprint for access to credits for this type of business.

Conclusion

The emptying companies have two categories of staff: permanent employees and day labourers. The number of employees in an emptying company varies according to its size, number of trucks and nature of its business.

The fleet of mechanical emptiers is outdated and leads to a high immobilisation rate of almost 50%. This results in an important imbalance between supply and demand with a consequent increase in prices.

Since the emptying trucks are second-hand vehicles, their renewal costs are beyond the means of emptiers.

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