

SUPER Truck Trump

Faecal Sludge Trucks



A card game with sludge trucks
from around the world

skat Swiss Resource Centre and
Consultancies for Development

eawag
aquatic research

Sanites
Water and Sanitation in
ODD Developing Countries

Background:

Onsite sanitation systems

In many low-income cities, especially in rapidly growing peri-urban areas, the possibility of households to connect to a sewer system is either limited or non-existent. The operation of onsite sanitation solutions comprising of pit latrines and septic tanks is therefore a common and suitable solution, provided that excreta is handled professionally and treatment and enduse is adequate to protect human and environmental health.

Treatment service chain

The most preferable means of emptying faecal sludge from pit latrines and septic tanks is motorised emptying vehicles such as vacuum trucks or other vehicles equipped with a motorised pump and a storage tank. The collected faecal sludge can then be transported to a treatment station for further processing and resource recovery or safe disposal.

Challenges

The emptying of septic tanks and pit latrines is a significant cost factor for households if they are to properly maintain their onsite sanitation system. Emptying fees vary a lot depending on access to the site, the tank/pit to be emptied, transport distances and traffic congestion. Vacuum trucks need to discharge their load at the shortest possible distance from the points of collection to save time and transport costs.

Options

Emptying of systems is only the beginning of the faecal sludge management service chain and institutional support is essential to overcome problems that occur from collection through to final enduse or disposal. It is therefore of great importance to raise awareness for the whole sector. The use of appropriate emptying vehicles, education for households about the correct maintenance of onsite sanitation systems and the engagement of governmental bodies and decision makers could mitigate the situation.

How to play:

All the cards are dealt equally to the players. The players hold their cards in a face up stack so that they can see their first card only and the other players cannot see their card. The starting player chooses one attribute. Everyone then reads out the value of that attribute on their first card and whoever has the best value wins all the first cards, collects them and places them at the bottom of their stack.

For most of the attributes, the highest value wins except for "Year" and "Width" (because old is beautiful and small vehicles can enter narrow neighbourhoods).

Whoever won the cards then chooses any attribute to read from their next card. This continues until a player eventually manages to collect all the cards and thus wins the game.

With some categories it is possible to have a tie for best value of an attribute. If this happens, all players place their top card in the middle of the table and the turn remains with the same player who chose that attribute. The next player who wins cards also collects the pile of cards from the middle of the table.

A player who has three or fewer cards left can look at them all and choose in which order to play them.

About:

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A1

City fleet

Iveco Euro Cargo 150 E18

Seen in Vietnam



A well-established truck in the streets of Hải Phòng, Vietnam.

Year	1992	Volume	7,750 litres
Length	7,100 mm	Empty weight	6,460 kg
Width	2,500 mm	Hose length	38 m

Picture by: Florian Klingel

A2

City fleet

Dongfeng 4x2 Sewage Truck

Seen in Ghana



This robust Chinese truck empties numerous septic tanks in Ghana.

Year	1989	Volume	12,000 litres
Length	7,890 mm	Empty weight	8,715 kg
Width	2,495 mm	Hose length	35 m

Picture by: Linda Strande

A3

City fleet

Renault G280

Seen in Senegal



One of many trucks operated by VICAS, a major player in Dakar's sludge emptying business.

Year	1982	Volume	6,300 litres
Length	7,350 mm	Empty weight	9,620 kg
Width	2,620 mm	Hose length	28 m

Picture by: Stefan Diener

A4

City fleet

Yuchai Dongte DTA 5110 GXW

Seen in Senegal



Painted in this particular colour, the DTA 5110 enlightens the never ending traffic jam in Dakar.

Year	1998	Volume	6,000 litres
Length	7,980 mm	Empty weight	7,300 kg
Width	2,470 mm	Hose length	32 m

Picture by: Linda Strande

B1

Well-tried

IFA W50 L/F Fäkalienfahrzeug

Seen in Vietnam



The IFA W50 fleet in Hanoi's streets keeps up the East German culture of reliability and its knack for great design.

Year	1979	Volume	4,800 litres
Length	6,750 mm	Empty weight	5,000 kg
Width	2,500 mm	Hose length	26 m

Picture by: Dennis Schulz

B2

Well-tried

Teyun DTA 5200 GXW

Seen in Burkina Faso



The easily accessible discharge unit makes sampling for sludge characterization a pure pleasure.

Year	1995	Volume	8,500 litres
Length	8,025 mm	Empty weight	6,300 kg
Width	2,510 mm	Hose length	22 m

Picture by: Hanspeter Zöllig

B3

Well-tried

SINOTRUCK HOWO

Seen in Ghana



With its huge chassis clearance, the SINOTRUCK is well adapted to sludge disposal near landfills.

Year	1999	Volume	7,000 litres
Length	6,890 mm	Empty weight	7,705 kg
Width	2,490 mm	Hose length	32 m

Picture by: Linda Strande

B4

Well-trying

Dongfeng EQ 1108 KJ Toilet Truck

Seen in Cameroon



An eye-catcher in Cameroon's green wilderness.

Year	2001	Volume	7,000 litres
Length	7,280 mm	Empty weight	6,105 kg
Width	2,495 mm	Hose length	56 m

Picture by: Linda Strande

C1

Oldies but Goldies

Berliet GCK 10

Seen in Burkina Faso



The Berliet vacuum truck stands out with its characteristic rear end closing wheel.

Year	1974	Volume	3,500 litres
Length	7,540 mm	Empty weight	6,350 kg
Width	2,350 mm	Hose length	35 m

Picture by: Hanspeter Zöllig

Berliet GLR 160

Seen in Senegal



A classy retrofit. Always a pleasure seeing this road cruiser passing by.

Year	1977	Volume	8,300 litres
Length	8,400 mm	Empty weight	7,500 kg
Width	2,500 mm	Hose length	12 m

Picture by: Linda Strande

Renault GLR 200

Seen in Senegal



With proper maintenance, the Renault GLR, will not let you down.

Year	1977	Volume	8,200 litres
Length	6,530 mm	Empty weight	5,320 kg
Width	2,450 mm	Hose length	42 m

Picture by: Linda Strande

C4

Oldies but Goldies

Berliet C-160

Seen in Senegal



A truck, nearly as old as the faecal sludge business, but ever running.

Year	1964	Volume	5,400 litres
Length	6,530 mm	Empty weight	4,640 kg
Width	2,450 mm	Hose length	24 m

Picture by: Stefan Diener

D1

Junge Wilde

Hino Ranger FM 500

Seen in Vietnam



Many emptiers in Vũng Tàu can rely on this Japanese brand.

Year	2007	Volume	6,800 litres
Length	8,950 mm	Empty weight	8,885 kg
Width	2,475 mm	Hose length	58 m

Picture by: Linda Strande

Renault Tanker Truck 300

Seen in Jordan



The powerful engine in combination with the agile chassis makes the Truck 300 a very efficient sludge manager in Jordan cities.

Year	2001	Volume	6,500 litres
Length	6,700 mm	Empty weight	7,360 kg
Width	2,400 mm	Hose length	48 m

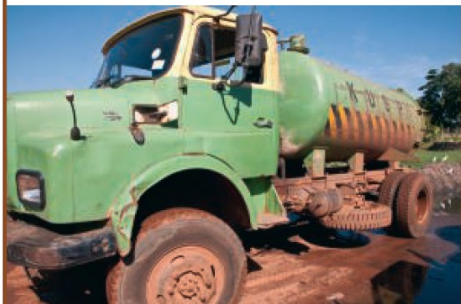
Picture by: Silke Rothenberger

D3

Junge Wilde

Tata SE 1613

Seen in Uganda



With its classy design, the Tata SE 1613 looks like an oldtimer but bears the technology of the 21st century.

Year	2002	Volume	5,000 litres
Length	6,970 mm	Empty weight	6,050 kg
Width	2,434 mm	Hose length	18 m

Picture by: Linda Strande

D4

Junge Wilde

DTA 5060 GXW Vacuum truck

Seen in Uganda



The vacuum pump can lift the sludge from tanks as deep as 6 m.

Year	2005	Volume	3,380 litres
Length	5,662 mm	Empty weight	3,950 kg
Width	2,060 mm	Hose length	42 m

Picture by: Stefan Diener

E1

Monster trucks

Yuchai Dongte Special DTA 5110

Seen in Kenya



This orange beast serves the surroundings of Nairobi.

Year	2002	Volume	9,970 litres
Length	8,100 mm	Empty weight	6,305 kg
Width	2,490 mm	Hose length	65 m

Picture by: Linda Strande

E2

Monster trucks

Renault G340

Seen in Senegal



This trucks is a real breather when it empties its load at Niayes Faecal Sludge Treatment Plant!

Year	1996	Volume	14,000 litres
Length	9,000 mm	Empty weight	12,120 kg
Width	2,500 mm	Hose length	65 m

Picture by: Stefan Diener

Isuzu Giga CYZ Series

Seen in Uganda



This 6x2 truck particularly strikes with its capacity and the well-chosen graphic elements.

Year	2008	Volume	14,700 litres
Length	9,200 mm	Empty weight	7,295 kg
Width	2,500 mm	Hose length	43 m

Picture by: Linda Strande

E4

Monster trucks

Mercedes Benz 3635 6x4 Actros

Seen in Jordan



This large suction truck is well chosen when septic tanks are easily accessible from the road.

Year	2000	Volume	12,000 litres
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Length	9,600 mm	Empty weight	14,000 kg
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Width	2,500 mm	Hose length	66 m
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Picture by: Silke Rothenberger

Isuzu Elf Super 4th Generation

Seen in Vietnam



A common sportster in Vietnam, easy to navigate through narrow allies.

Year	1988	Volume	1,800 litres
Length	4,680 mm	Empty weight	1,900 kg
Width	1,690 mm	Hose length	56 m

Picture by: Florian Klingel

F2

Runabouts

DFAC EQ 1141

Seen in Uganda



The EQ 1141 serves the difficult to access settlements of urban Uganda.

Year	1992	Volume	3,400 litres
Length	5,930 mm	Empty weight	4,950 kg
Width	1,900 mm	Hose length	26 m

Picture by: Linda Strande

Isuzu Elf 4th Generation

Seen in Uganda



The practical extra structure on the top makes storage of the hose during transfers blindingly easy.

Year	1999	Volume	1,800 litres
Length	4,680 mm	Empty weight	1,900 kg
Width	1,690 mm	Hose length	52 m

Picture by: Linda Strande

Isuzu Eagle NKR

Seen in Uganda



The Isuzu Eagle serves as a flying emptier in Kampala.

Year	2002	Volume	1,800 litres
Length	4,680 mm	Empty weight	1,900 kg
Width	1,690 mm	Hose length	58 m

Picture by: Linda Strande

G1

Back alley services

Isuzu Elf 3rd generation, retrofit

Seen in Vietnam



This custom-made construction works in combination with a temporary storage tank deposited in the neighbourhood.

Year	1986	Volume	500 litres
Length	4,540 mm	Empty weight	1,650 kg
Width	1,690 mm	Hose length	36 m

Picture by: Florian Klingel

Hải Phòng Vacuum Tug

Seen in Vietnam



The vacuum tug used in Hải Phòng transfers the sludge from households that are difficult to access to a container in the streets.

Year	2001	Volume	450 litres
Length	1,200 mm	Empty weight	250 kg
Width	800 mm	Hose length	18 m

Picture by: Florian Klingel

CREPA hand cart

Seen in Burkina Faso



This hand cart transports sludge from latrines to the transfer station.

Year	1984	Volume	480 litres
Length	1,800 mm	Empty weight	120 kg
Width	1,200 mm	Hose length	0 m

Picture by: Linda Strande

Oil barrel cart

Seen in Kenya



This small vehicle brings sanitation services into the far corners of Kibera.

Year	1998	Volume	205 litres
Length	2,010 mm	Empty weight	53 kg
Width	1,100 mm	Hose length	0 m

Picture by: Linda Strande

Uniaxial urine transporter

Seen in Moldova



Matured urine from urine diverting dry toilets (UDDT) in rural Moldova is being applied directly on the field.

Year	1974	Volume	4,560 litres
Length	2,300 mm	Empty weight	295 kg
Width	1,850 mm	Hose length	3.5 m

Picture by: Skat Moldova

H2

Tanks on wheels

Man M2000 Skip loader, retrofit

Seen in Ghana



It doesn't always have to be a round tank to be efficient.

Year	1998	Volume	7,800 litres
Length	7,050 mm	Empty weight	6,250 kg
Width	2,500 mm	Hose length	6 m

Picture by: Linda Strande

H3

Tanks on wheels

Uniaxial slurry transporter

Seen in Senegal



This type of tank is available from agricultural machinery suppliers.

Year	2001	Volume	5,000 litres
Length	4,300 mm	Empty weight	760 kg
Width	1,850 mm	Hose length	46 m

Picture by: Linda Strande

H4

Tanks on wheels

Einachs VE 11700

Seen in Senegal



The Einachs is affordable for small businesses and impresses with its manoeuvrability.

Year	2005	Volume	6,000 litres
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Length	4,200 mm	Empty weight	1,340 kg
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Width	1,850 mm	Hose length	28 m
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Picture by: Linda Strande