SFD Lite Report

Thatta
Pakistan

This SFD Lite Report was prepared by WaterAid Pakistan
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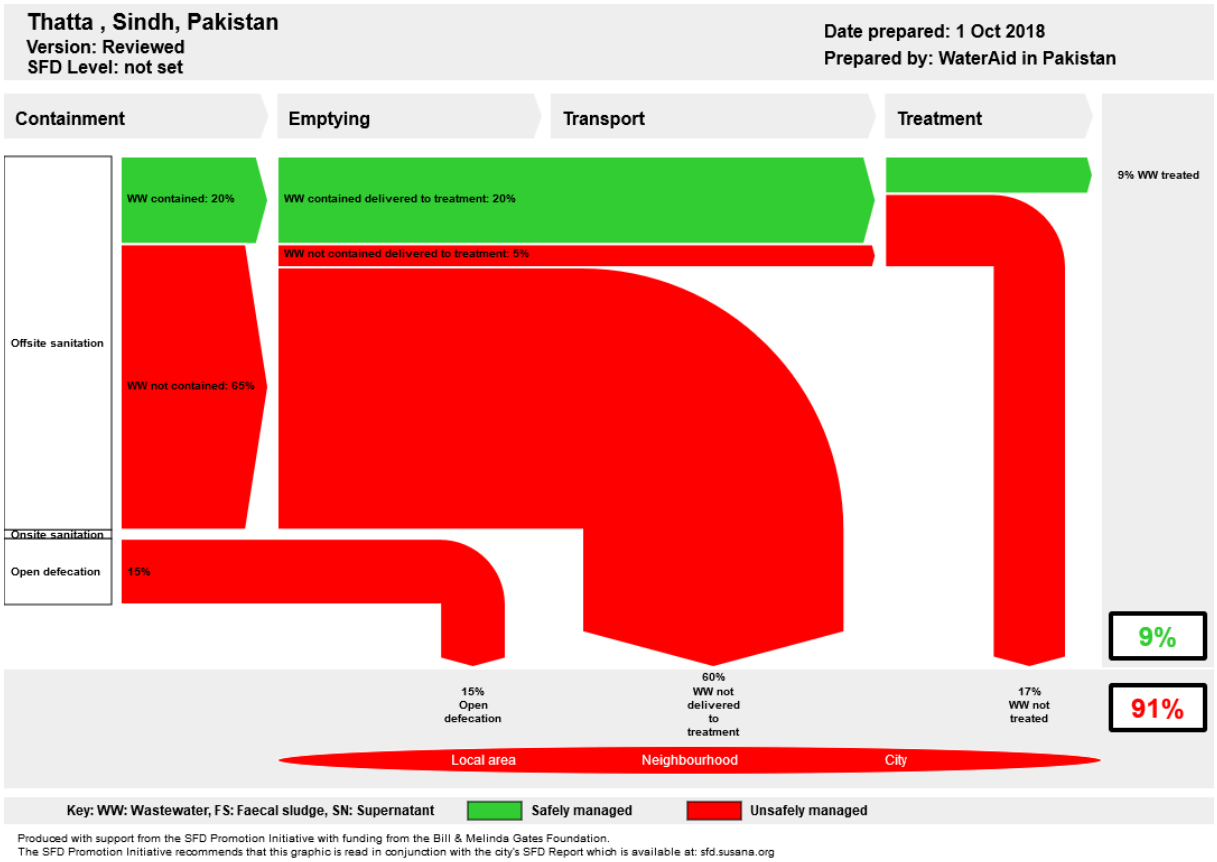
Date of production/ last update: 01/10/2018

1 The SFD Graphic



Produced with support from the SFD Promotion Initiative with funding from the Bill & Melinda Gates Foundation.
The SFD Promotion Initiative recommends that this graphic is read in conjunction with the city's SFD Report which is available at: sfd.susana.org

2 SFD Lite information

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3 General city information

This SFD was developed largely from literature reviews of secondary data, observations, key informant interviews, focus group discussions and a field visit.

Thatta is the main city of Thatta district, in the province of Sindh, Pakistan. Thatta is situated at 24.75°N 67.92°E, at an elevation of eight metres above sea level. The total population of Thatta city is 101,833 (Census, 2017) individuals in 17,998 households. Women make up 52 percent of the total population, and gender disparity is evident in the social and public sectors. Thatta city is spread over an area of 3823 km² (urban/Rural) and has a population density of 109 people per km² (urban/Rural). Thatta's moderate climate is typical of a coastal city in Pakistan, with average 18 km/hour south-westerly winds and 54 percent humidity. The average annual rainfall is 210mm and the temperature ranges between 25ºC and 40ºC.

Sindh provincial government recently passed the 2017 Water Policy, which recognises drinking water as basic human right and makes it the responsibility of government to provide clean drinking water to citizens (SDWP, 2017) The Thatta Municipal Committee supplies surface water to the citizens of Thatta city through a water supply network. In Thatta city, canal water is stored in three separate locations: Jam-wah, Wadi-wala khai and Nadi-wala khai. The storage facilities at these three locations capture 70,000 to 100,000 gallons of water a day. At two locations, the water is pumped, while gravitational force is used to channel water from the reservoirs located in Wadi-wala khai branch.

Several tests have been conducted of the water quality in Thatta (Supply Water). Unfortunately, these test results show that the water provided by the government is not suitable for drinking, due to microbiological and chemical contamination and the water's physical properties, as shown in Table 2.

4 Service outcomes

Thatta, Sindh , Pakistan, 20 Aug 2018. SFD Level: not set
Population: 101833
Proportion of tanks: septic tanks: 0%, fully lined tanks: 0%, lined, open bottom tanks: 0%

System label	Pop	W4a	W5a	W4c	W5c
System description	Proportion of population using this type of system	Proportion of wastewater in sewer system, which is delivered to centralised treatment plants	Proportion of wastewater delivered to centralised treatment plants, which is treated	Proportion of wastewater in open sewer or storm drain system, which is delivered to treatment plants	Proportion of wastewater delivered to treatment plants, which is treated
T1A1C1 Toilet discharges directly to a centralised combined sewer	20.0	100.0	40.0		
T1A1C6 Toilet discharges directly to open drain or storm sewer	35.0			15.0	10.0
T1A1C8 Toilet discharges directly to open ground	30.0				
T1B11 C7 TO C9 Open defecation	15.0				

Table 1 SFD Matrix

4.1 Containment: Most of the residents of the city use pour-flush latrines, which are built inside their houses. The latrines are connected to open drains in the streets and these are connected to the external drainage system. Construction of septic tanks is not common in the city. These conclusions about the sanitation technologies used in Thatta are based on observations made during the field visit.

4.2 Emptying service: There are no pit latrines in the city and there is almost no use of septic tanks. There are no emptying services in Thatta because most of the city uses offsite sanitation systems that do not have septic tanks. Local sanitary workers unblock toilet chambers using iron rods and clean out blocked channels by hand. Often ill-equipped and not well trained, most do not adopt safe practices in their day-to-day work. These workers are exposed to life-threatening conditions owing to the discriminatory attitudes of the administration and absence of safety equipment.

4.3 Transport by sewers: Thatta city has an extensive open drain sanitation system that is clogged due to poor solid waste management practices. This sanitation network is operated using the seven diesel pumps that are in good repair, and pumping uses up 35 percent of Thatta Municipal Committee's total budget. Most wastewater from houses is disposed of into open drains. This wastewater then opens out into larger drains that feed into farmland without any appropriate wastewater treatment. The ten percent or so of people who have no sanitation facilities at home use these open drains to defecate, which multiplies the personal health and hygiene and environmental hazards. Thatta Municipal Committee uses equipment such as tractor trolleys, shovels and rickshaw trolleys to collect solid waste from the designated solid waste collection points, but only 15-20 percent of the solid waste reaches these collection points.

4.4 Treatment: The city has no faecal sludge treatment facility. Recently, the city administration constructed a sewage water treatment plant, which receives 20 percent of the city's sewage water (KII 1, 2018; KII 2, 2018; KII 3, 2018). However, due to frequent load shedding, the plant treats only nine percent of the sewage water it receives. The treated water is then disposed of into the irrigation system and is used on local farmland.

Figure 1: Treatment of wastewater in Thatta City

Figure 2: Wastewater treatment plant area

4.5 End use/Disposal: There is one disposal site (open ground) in the city. Interviews with key informants indicated that 20 percent of all solid waste produced in the city is collected by the municipal committee and the rest is disposed of outside neighbouring houses (KII 1, 2018; KII 2, 2018; KII 3, 2018). The disposal site has no proper protection or boundary wall to stop children from playing near the area, and in the evenings, children were observed playing near the disposal area.

Although there is one treatment facility in the city, that too only treats nine percent of the total waste. (As seen in the SFD graphic). Currently there is no plan to build treatment plants or enhance the current treatment plant to standardise end-use and disposal.

Scheme-wise Water Quality Results of Tehsil Thatta (District Thatta)

Sr. No.	Water supply Scheme	Sample Code	EC	Color	Taste	Odor	pH	Turbidity	TDS	Alkalinity	HCO_3	CO_3	Cl	SO_4	Ca	Mg	Hardness	Na	K	NO_3 (N)	PO_4	F	Fe	As	Microbiology
Unit (s)			µS/cm	-	-	-	-	NTU	mg/l	mmol/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	Mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	(ppb)	-
1	Thatta Phase I	S/Thatta/Thatta/ Phase I /S1	435	T	U	U	7	22	278	2	100	Nil	60	30	32	12	130	43	8	0.5	-	0.2	0.1	Nil	+ve
		S/Thatta/Thatta/ Phase I /C1	491	T	U	U	7	22	314	2.2	110	Nil	78	32	34	13	140	45	10	0.4	-	0.1	0.1	Nil	+ve
		S/Thatta/Thatta/ Phase I /C2	430	T	U	U	7	29	275	2.6	130	Nil	60	28	32	9	130	41	7	0.5	-	Nil	0.1	Nil	+ve
2	Thatta Phase II	S/Thatta/Thatta/ Phase II /S1	426	T	U	U	7	15	272	2	100	Nil	60	26	30	11	120	41	7	0.4	-	Nil	0.3	Nil	+ve
		S/Thatta/Thatta/ Phase II /C1	445	CL	U	U	7	Nil	284	2	100	Nil	60	34	32	12	130	42	8	0.4	-	Nil	0.2	Nil	-ve
		S/Thatta/Thatta/ Phase II /C2	396	CL	U	U	8	Nil	253	1.8	90	Nil	57	25	26	11	110	38	7	0.3	-	Nil	0.3	Nil	-ve
3	Thatta Phase III	S/Thatta/Thatta/ Phase III /S1	371	T	U	U	7	152	237	1.8	90	Nil	53	19	24	10	100	36	7	0.3	-	Nil	0.2	Nil	+ve
4	Thatta Phase IV	S/Thatta/Thatta/ Phase IV/S1	297	T	U	U	8	90	190	1.4	70	Nil	39	20	20	7	80	32	6	0.2	-	0.2	0.1	Nil	+ve

Table 2: Thatta water quality test results (TASRWSS 2010)

Figure 3: Sewage leaked on to open ground

Waste in open areas:

Dumping of liquid waste on open ground is practiced by a small segment of the population of Thatta. Most of these are households that have connected their sewage pipes to the city's combined sewage pipes. When there is a blockage, residents make holes to release the blocked waste, and the waste gets into open areas. Although the Sindh Environment Protection Act & Pakistan Environment Protection Agency (PEPA) has stipulated penalties for those who release effluent into the environment but, due to poor capacity and lack of monitoring by the government agencies responsible for the sanitation/sewage system, this policy is not enforced. This is despite the SEPA 2014 has explicitly stipulated that action will be taken against government bodies that do not comply with the rules and regulations set by the environmental agency (SEPA, 2014).

Post SFD:

After the SFD research, sharing the report with the municipal committee (local body), other stakeholders, private organisations and the provincial government of Sindh as an advocacy tool is being considered. Achieving 100 percent ODF and providing the entire population with sanitation services is the vision and goal of the provincial government of Sindh (SSP, 2014). Thus, this report will be a useful tool for them to move forward with their goals and vision.

Stakeholders' Engagement: With the help of its partners (National Rural Support Programme - NRSP, Municipal Committee, Water and Sanitation Agency - WASA) in Thatta, WaterAid is working on several projects such as a city-wide approach for improved WASH services in Thatta and has also built public toilets for the city's residents (see Figure 5). WaterAid also plans to work in other areas such as behavioural change to improve the quality of life of the people in Thatta.

Figure 4: Public toilets built by WaterAid in Thatta city

Figure 5: Image of drinking water supplied by the government.

SFD Selection Grid:

List A: Where does the toilet discharge to? (i.e. what type of containment technology, if any?)	List B: What is the containment technology connected to? (i.e. where does the outlet or overflow discharge to, if anything?)									
	to centralised combined sewer	to centralised foul/separate sewer	to decentralised combined sewer	to decentralised foul/separate sewer	to soakpit	to open drain or storm sewer	to water body	to open ground	to 'don't know where'	no outlet or overflow
No onsite container. Toilet discharges directly to destination given in List B	T1A1C1				Significant risk of GW pollution / Low risk of GW pollution	T1A1C6		T1A1C8		Not Applicable
Septic tank					Significant risk of GW pollution / Low risk of GW pollution					
Fully lined tank (sealed)					Significant risk of GW pollution / Low risk of GW pollution					
Lined tank with impermeable walls and open bottom	Significant risk of GW pollution / Low risk of GW pollution	Significant risk of GW pollution / Low risk of GW pollution	Significant risk of GW pollution / Low risk of GW pollution	Significant risk of GW pollution / Low risk of GW pollution	Significant risk of GW pollution / Low risk of GW pollution					Significant risk of GW pollution / Low risk of GW pollution
Lined pit with semi-permeable walls and open bottom	Not Applicable									Significant risk of GW pollution / Low risk of GW pollution
Unlined pit										Significant risk of GW pollution / Low risk of GW pollution
Pit (all types), never emptied but abandoned when full and covered with soil										Significant risk of GW pollution / Low risk of GW pollution
Pit (all types), never emptied, abandoned when full but NOT adequately covered with soil										
Toilet failed, damaged, collapsed or flooded										
Containment (septic tank or tank or pit latrine) failed, damaged, collapsed or flooded										
No toilet. Open defecation	Not Applicable								T1B11 C7 TO C9	Not Applicable

5 Data and assumptions

There were diverse sources of data available, mainly official government surveysand reports. Estimates were also made on the basis on a visit to Thatta in September 2018. During the visit, observations, interviews with key informants and focus group discussions were carried out in several places, such as the main market in the city and houses adjacent to farmland on the outskirts of the city. Secondary data available was obtained from research done by several government agencies like NRSP, Municipal committee of Thatta etc. Information about the sanitation situation was found not be regularly updated in official documents.

It was assumed during observations and KII's with the municipal committee sanitation in charge of 3 wards that 15 percent of the population on the outskirts of the city has no access to toilets. It was also informed that most people in these outskirts area defecates in the open near their homes (50-100 meters away). In other areas, some segments of the population defecate on farmland that is more than 100 meters away from their homes. This also depends on who is practicing defecation, as women typically defecate in closer proximity to their homes. During the interviews, it became apparent that due to social norms, women only defecate before sunrise (4am) and after sunset (7pm).

6 List of data sources

SSP 2014, Sindh sanitation policy 2014.

SDWP 2017, Sindh Drinking Water Policy 2017.

Visit to Thatta city September 2018 (Images)

Census report, 2017., Pakistan Bureau of Statistics.

TASRWSS 2010, Technical Assessment Survey Report of Water Supply Schemes 2010, Sindh

SEPA 2014, Sindh Environment Protection Agency 2014.

KII 1 with Sumar Gandro, Thatta MC Sanitation Head Ward 2, 2018

KII 2 with Muharram Raaz, Thatta MC Sanitation Head Ward 3, 2018

KII 3 with Shebar Massi, Thatta MC Sanitation Head Ward 4, 2018