



RESEARCH - ACTION - LEARNING NOTES

About Project Nirmal

The overall vision of Project Nirmal is the demonstration of appropriate, low-cost, decentralised, inclusive and sustainable sanitation service delivery solutions for two small towns (Angul and Dhenkanal) in Odisha leading to improved sanitation access for all households and integration of FSM in the sanitation value chain, through enabling institutional and financial arrangements and increased private sector participation.

The project is being implemented by Practical Action and Centre for Policy Research with support from Bill and Melinda Gates Foundation; Arghyam; Housing and Urban Development, Government of Odisha; and Municipalities of Angul and Dhenkanal.

The project aims to :

- Demonstrate State Government and ULB commitment towards sanitation service delivery in small towns;
- Capacity development of states and cities for effective sanitation service delivery;
- Increase in number of people in Angul and Dhenkanal with access to better sanitation services;
- Improve city-wide planning approaches for sanitation; and
- Demonstrate models for Faecal Sludge Management (FSM).

FAECAL SLUDGE TREATMENT FACILITIES – LAND AND ENVIRONMENTAL CLEARANCES



Background

The fact that 45 percent of urban households with Individual Household Toilets (IHHs) in the country are connected to On-Site Sanitation (OSS) systems¹ points to the need for faecal sludge treatment and disposal facilities in all urban centres. The need is most pressing in small and medium sized towns where 88 percent of households with IHHs are connected to OSS systems². However, till very recently, such treatment facilities were non-existent in almost all urban centres.

In order to create an enabling framework for implementation of Faecal Sludge and Septage Management (FSSM) initiatives, the Ministry of Housing and Urban Affairs (MoHUA), Government of India (GoI), launched the “*National Policy on Faecal Sludge and Septage Management*”³ in February 2017. Few states (including Odisha) subsequently drafted their respective state urban sanitation policies integrating specific provisions on FSSM. Some states (including Odisha) have also prepared guidelines/regulations for FSSM initiatives at the local (city/town) level in order to facilitate systematic and speedy implementation by Urban Local Bodies (ULBs). However, despite these advancements there exists a vacuum with respect to specific guidelines/rules for selection of sites for setting up of faecal sludge treatment facilities. In the absence of specific guidelines, the provisions of the Solid Waste Management Rules, 2016 – Schedule 1, which provide specifications for selection of site for Sanitary Landfill Sites (SLFs), are being applied for selection of sites for setting up Faecal Sludge Treatment Plants (FSTPs).

¹45.3 percent of urban households had toilets which were connected to On-Site Sanitation (OSS) systems; this figure included households with toilets based on septic tanks (38.2 percent) and pits (7.1 percent). Source: Census of India, 2011, “Houses, Household Amenities and Latrines - Availability and Type of Latrine Facility 2001-2011”, http://censusindia.gov.in/2011census/hlo/Data_sheet/India/Latrines.pdf

²As per Census 2011, around 88 percent of households in small and medium urban centres were connected to OSS systems. This figure includes septic tank (64.87 percent), other systems (3.10 percent), with slab improved ventilated pit (10.65 percent), without slab / open pit (1.46 percent), night soil disposed in open drain (1.55 percent), night soil removed by humans (0.71) and night soil removed by animals (0.29 percent). Source: CPR analysis based on data from Census 2011 (Census of India, 2011, “Houses, Household Amenities and Latrines - Availability and Type of Latrine Facility 2001-2011”, http://censusindia.gov.in/2011census/hlo/Data_sheet/India/Latrines.pdf)

³Available at https://smartnet.niua.org/sites/default/files/resources/FSSM%20Policy%20Report_23%20Feb_Artwork.pdf

Solid Waste Management Rules, 2016: Key provisions applicable for siting of FSTPs

Under Project Nirmal, for selection of site for setting up of FSTPs in Angul and Dhenkanal, the following provisions of the Solid Waste Management Rules, 2016 – Schedule 1 have been applied:

- The FSTP site should be at least 200 meters away from any water body. The site should not be liable to flooding and its elevation should permit discharge of effluent by gravity to the receiving streams or the level of the irrigation area to be commanded, in case of reuse for irrigation.
- In case the selected site is surrounded by residences, adequate measures need to be taken to control odour from the FSTP. If deodorization system is not provided an aerial / peripheral distance of 100 meters must be maintained between the odour-producing units and the habitation (CPHEEO, 2014). However, this distance can be reduced, only if it is acceptable to the residents of the surrounding habitations, which is to be ascertained through adequate public consultations. Planting of fragrant plants has also been suggested as a remedial measure for controlling odour nuisance around the FSTP.
- The site should be accessible to personal and delivery persons at all times. Access to fire and other emergency vehicles must also be available.
- Sites with special natural features should be avoided. Development of areas designated as wild, scenic, or recreational has been prohibited.
- The site should be able to accommodate present and anticipated future requirements. As growth occurs in the service area and treatment requirements increase, the plant is likely to require additional space. The potential for such demands should be considered when selecting a site.
- A site with a slight slope should be preferred to facilitate gravity flow of wastewater through treatment units and to minimize earthworks and associated construction costs.
- A site with a low water table has been suggested as preferable to minimize difficulties in



Figure 1: Meeting with petitioner

earthworks, prevent instability with in-ground structures and limit potential ground water impacts.

- Site with soils that have a high clay content has been suggested as preferable to provide clay material for the lining of any treatment units such as ponds or lagoons or for bio-solids management or re-claimed water storage.⁴

Model Faecal Sludge and Septage Management Regulations, 2018: Provisions for Treatment and Disposal

Project Nirmal, provided technical assistance to the Housing and Urban Development Department (H&UDD), Government of Odisha (GoO), to prepare the “*Model Faecal Sludge and Septage Management (FSSM) Regulations, 2018*”. Subsequently, all ULBs in the state have promulgated FSSM by-laws based on the Model FSSM Regulations.⁵

The Model FSSM Regulations contain specific rules

⁴Clay lining is commonly used to prevent leaching of any contaminants from ponds or lagoons to the ground water.

⁵Section 388(8) read with sections 390 and 392 of the Odisha Municipalities Act, 1950 (OMA,1950) empowers Municipalities and Notified Area Committees (NACs), while sections 657, 658 and 659 of the Odisha Municipal Corporation Act, 2003 (OMCA, 2003) empowers Municipal Corporations, to make regulations

for treatment and disposal of faecal sludge. While ULBs have been given the discretion to approve and notify the manner in which septage is to be processed and treated, the selected treatment mechanism has to be in accordance with relevant laws, notifications, or as per the provisions of the Odisha Urban Septage Management Guidelines, 2016 (OUSMG, 2016) or any good engineering practices. Further, the Model FSSM Regulations provide that septage or sludge cannot be treated or disposed in any manner other than what has been specified and approved by the ULB. The operator of treatment facilities has been made responsible for ensuring that the disposal of treated septage is in compliance with standards laid down by the Odisha State Pollution Control Board (OSPCB). With respect to the site for disposal, the Model FSSM Regulations provide that the treated septage is to be disposed only at the location which has been authorized and notified by the ULB and the same has to be chosen in compliance with the Environment (Protection) Act, 1986 and the Water (Prevention and Control of Pollution) Act, 1974 and the rules framed thereunder. The process for finalising the location of the disposal site has to be consultative involving representatives of the ULB, OSPCB and the district administration.



Odisha Urban Septage Management Guidelines (OUSMG), 2016: Key provisions relating to treatment, disposal and siting of faecal sludge treatment facilities

As per the OUSMG, 2016 only ULB approved and designated treatment facilities are to be used for processing and treatment of septage. The guidelines provide that septage can either be co-treated with sewage at a Sewage Treatment Plant (STP) or in case STP is not available or the existing plant has insufficient capacity or its location is too far from the ULB, a treatment facility specially meant for septage treatment needs to be constructed. The location of the treatment facility is to be authorized and notified by the ULB and the same has to be in compliance with the provisions of the Environment (Protection) Act, 1986 and the Water (Prevention and Control of Pollution) Act, 1974. Further, the guidelines provide that the site for the treatment facility and for disposal of treated wastewater and sludge must be selected in consultation with the District Collector, OSPCB and general public.

Process of site selection for FSTPs: Experiences of Dhenkanal and Angul

The process of site selection for setting up of FSTPs in Dhenkanal and Angul has been protracted and complex. Further, in the absence of well-defined rules and lack of any precedent the process has been time consuming with inordinate delays. In **Dhenkanal**, the FSTP site selection process took around fourteen months (March 2016–May 2017). The process was initiated on 28th March, 2016 with Practical Action (the implementing agency) sending a request to the Chairperson, Dhenkanal Municipality for allocation of land for the FSTP and it ended on 23rd May, 2017 with the district administration issuing a letter in favour of the Dhenkanal Municipality with permission to establish the FSTP at *Mahisapat Mauza*. In **Angul**, the process took almost two years, starting on 28th March 2016 when Practical Action (the implementing agency) requested the Chairperson and Executive Officer of Angul Municipality to allocate land for the FSTP and ended on 27th December 2017 when the Odisha High Court made a ruling in favour of the Angul Municipality and gave them a go ahead for the construction of FSTP at *Panchmahala Mouza*.

As per the OUSMG, 2016 the selection of site for FSTPs must involve the District Collector, representatives of OSPCB and the general public. However, in Dhenkanal and Angul, the site selection process has seen the involvement of many more government officials including those of the respective ULBs (Executive Officers and Chairpersons of Angul and Dhenkanal Municipalities); district administration (including Revenue Divisional Commissioner, District Collector, Additional District Magistrate, Deputy Collector, Sub Collector, Tahsildar, Revenue Inspector, Divisional Forest Official, District Social Welfare Officer) (Refer Box 1 for details on the roles of these officers in land and revenue management); the Regional Office (RO) of the OSPCB; and forest department (Divisional Forest Official and Range Officer). The involvement of these officials was considered necessary to ensure that the site for setting up the FSTP did not cause any adverse impact on land, forests, water sources and the environment. In addition, officials from the Police Department were also involved to ensure safety and security during the land alienation/demarcation process.

The co-ordination mechanisms established under Project Nirmal at the state, district and town level, namely, the Project Steering Committee (PSC), the District Co-ordination Committee (DCC) and the City Sanitation Task Force (CSTF) were actively involved in overseeing the process of allocation of land for FSTPs in both Angul and Dhenkanal. A Site Selection Committee was constituted, as a sub-committee of the DCC, to oversee the process of allocation of land and had the Sub Collector, Tahsildar, Revenue Inspector, Executive Officer of Dhenkanal/Angul Municipality, Project Director (District Urban Development Authority) and PMU representative as its members.

The provisions of the following Acts and Rules were adhered to while selecting the site for FSTPs – Solid Waste Management Rules, 2016 – Schedule 1; Environment (Protection) Act, 1986; the Water (Prevention and Control of Pollution) Act, 1974; Forest (Conservation) Act, 1980 and subsequent guidelines as per F. NO 11-9/98 FC and MoEF; and the Schedule Tribes & other Traditional Forest Dwellers (Recognition of Forest Right) Act 2006. Further, the following land related documentation was prepared and submitted –



Box 1 Administrative Hierarchy at the sub State level – Land and revenue management

In India, each state is divided into districts and the district administration is headed by a District Collector and Magistrate, an officer from the Indian Administrative Services cadre. The districts are further subdivided into Revenue Sub-divisions with each subdivision being under the charge of a Sub-Divisional Magistrate (SDM.) or Sub-Collector who is an officer of the State Civil Services cadre. The Revenue Sub-divisions are further subdivided into Tehsils/Talukas. Each Tehsil is administered by a Tahsildar. A Tahsildar is responsible for keeping land records and collecting land revenue / taxes. The Tehsils/Talukas are further divided into groups of villages and each group comes under the charge of a Kanoongo (also known as a Revenue Inspector). At the village level there is a revenue employee known as a Lekhpal or Patwari.

land plan, land schedule, Record of Rights (RoR), report of the Revenue Inspector and requisition made by the respective Municipalities (Form 1 A - *Application for settlement of land by applicants other than individuals*).

In both Angul and Dhenkanal, multiple sites were identified and parallelly processed for site selection alienation and demarcation. In Dhenkanal, three different sites were identified while in Angul four sites were identified at different locations.

Selection of site for FSTP in Dhenkanal:

Recording the chronological sequence of events

On 28th March, 2016 Practical Action (the implementing agency) sent a request to the Chairperson, Dhenkanal Municipality for allocation of land for siting of the FSTP. The Executive Officer (EO), Dhenkanal Municipality requested the Tahsildar, Sadar, Dhenkanal for identification of 3 acres of land suitable for setting up of the FSTP within the area under the jurisdiction of the Municipality. The Tahsildar accordingly forwarded the request to the concerned Revenue Inspector (RI) for identification of a suitable land for the above purpose. After undertaking the survey, the RI identified a required patch of land nearest to the existing solid waste dumping yard in *Mahisapat Mouza* and prepared the land plan and land schedule and submitted the same to the Tahsildar. On the basis of the details provided by the RI, the EO, Dhenkanal Municipality submitted Form 1 A (*Application for settlement of land by applicants other than individuals*) to the Tahsildar for alienation of the identified

land. The Tahsildar reviewed the report submitted by the RI and asked for some additional clarifications⁶ which were subsequently responded to by the latter. On 25th July, 2016, the Tahsildar submitted the land details to the Sub-Collector who is the head of the land selection committee at the sub-divisional level and requested him to convene the Site Selection Committee and select the land for the purpose. On 3rd August 2016, the Commissioner-cum-Secretary, H&UDD, during the Project Steering Committee (PSC) meeting held at Dhenkanal, rejected the proposal as the parcel of land under consideration was located within 200 meters of a water body which was a violation of the Solid Waste Management Rules, 2016 – Schedule 1. The District Collector was advised to identify a patch of land 200 meters away from the water body.

Subsequently, as per the direction of the District Collector, a new patch of land was identified in the same location (*Mahisapat Mauza*). After following the same process as outlined above, on 26th August, 2016, the Tahsildar submitted the land file comprising the Land Plan, Land Schedule, Record of Rights (RoR), RI's report and copy of the requisition received from the Dhenkanal Municipality,

⁶Nine additional clarifications were sought by the Tehsildar whether the land was free from encroachments, whether the land is suitable for siting of FSTP, what is the character of land, whether any forest stands over the land, whether the land is covered under Sairat sources, whether road connection is available to the plot, whether the plot is alienable, whether the plot is coming under reserve category, if so then initiate the de-reservation proposal, and whether the land is leasable as per the master plan of Dhenkanal urban area.



Figure 2: Meeting with Sarpanch

along with a request to the Sub Collector, to convene the Site Selection Committee meeting for selection of such land for the purpose. The Site Selection Committee meeting was organised on 17th September, 2016 and it was decided that the opinion of the Divisional Forest Officer (DFO) must be sought as the identified land was a forest (*jungle*) as per the RoR and also to identify another alternate site to avoid any further delays. To comply with the provisions of the Forest (Conservation) Act, 1980 the Tahsildar resubmitted a proposal to the Sub Collector after limiting the land size to 2.46 acre (0.99 hectare) instead of 3 acres.

On 7th October, 2016 six months after the initial request was submitted by Practical Action, the Site Selection Committee unanimously selected the site at *Mahisapat Mauza*, measuring 2.46 acres, as the site for construction of the FSTP. The Site Selection Committee also recommended that since the land was a forest (*jungle*) as per the RoR, due procedure must be followed for diversion of land use as per the Forest (Conservation) Act, 1980 and subsequent guidelines as per F. NO 11-9/98 FC and Ministry of Environment and Forests. The decision of the Site Selection Committee was communicated to the District Collector, through the Sub Collector, and a final approval from the District Collector was received on 23rd November 2016. Copies of the approval were shared with all concerned officials, namely, Tahsildar, EO (Dhenkanal Municipality), DFO and District Social Welfare Officer and they were advised to initiate the

process for diversion of land use. The DFO sent a letter to the Deputy Collector - Revenue, Dhenkanal to take immediate steps for submission of proposal under section 3(2) of the Schedule Tribes & Other Traditional Forest Dwellers (Recognition of Forest Right) Act, 2006 in the prescribed form along with the required documents to the Range Officer, Dhenkanal Range for taking further action at his end. The Deputy Collector forwarded this request to the EO, Dhenkanal Municipality asking him to prepare the documents in consultation with the District Social Welfare Officer. While the demarcation of proposed land was fixed for 7th December 2016, it was postponed due to the engagement of RI with eviction activities being carried out by the district administration as per an order of the Supreme Court of India.

For the diversion of forest land, a resolution by the Ward Sabha with 50 percent quorum of the voters giving their consent for the location of the FSTP was required. One Ward Sabha meeting was organised on 11th December 2016 and given the concerns among local residents around the site for setting up the FSTP, it was decided that prior to the land demarcation process an exposure visit of selected members of the local community would be organized to Decentralised Wastewater Treatment Systems (DEWATs) or related facilities in Bhubaneswar to enable them to better understand the functioning of wastewater treatment facilities and their likely impact on the local environment. In the meanwhile, few local individ-

uals of the Ward started objecting and protesting against the proposed FSTP. The EO, Dhenkanal Municipality submitted a letter to the Sub-Collector, Dhenkanal requesting to convene a meeting of the representatives of Ward-8 to resolve the issue. On 23rd December 2016, a meeting was organised involving Chairperson and EO, Dhenkanal Municipality, Tahsildar, Councillor of Ward No-8, representatives of Practical Action, Village President and other local representatives to address and resolve the concerns with respect to the site selected for the FSTP at *Mahisapat Mauza*. On 28th December 2016, an exposure visit was organized for a team of local representatives of Ward-8, Vice Chairperson and the Municipality Engineer to similar projects constructed at Central Reserve Police Force (CRPF) office and the Institute of Material and Mineral Technology (IMMT) Bhubaneswar. On 30th January 2017, a petition was filed against the proposed site for the FSTP at *Mahisapat Mauza* by *Anchalik Shanti Surakshya Samaj*, Ward No-8 to the Sub-Collector, Dhenkanal. The Sub-Collector sought the views of the EO, Dhenkanal Municipality and the Regional Officer, OSPCB Angul. The EO, Dhenkanal Municipality submitted his views on 2nd March 2017.

On 14th March, 2017 the Range Officer, Dhenkanal Range submitted his field report along with the proposal for diversion to the DFO for consideration and approval. During March and April 2017 various follow-up meetings were held involving the District Collector, Additional District Magistrate, Sub-Collector, Chairperson of Dhenkanal Municipality, DFO, DWO and representatives of Project Nirmal to resolve the land issue. On 31st March 2017, at one such meeting, the DFO, referring to the Forest (Conservation) Act, 1980 and subsequent guidelines as per F. NO 11-9/98 FC and Ministry of Environment and Forests, shared that the proposal for FSTP wasn't meeting the criteria as per the specified categories described under section 3(2) of Scheduled Tribes and Other Traditional Forest Dwellers "Recognition of Forest Rights" Act, 2006 and suggested forwarding the proposal for diversion of forest land under the Forest Conservation Act, 1980.

Given the delays in getting approval on the proposed land at *Mahisapat Mauza* for the construction of the FSTP, Practical Action requested the Chair-

person, Dhenkanal Municipality that a plot of 1.5 acres of land may be allotted from the solid waste dumping yard for the proposed FSTP. Accordingly, on 2nd April 2017, a five-member team visited the site and identified a portion of the above plot that could be used for siting of the FSTP. On 12th April 2017, the Dhenkanal Municipal Council passed a resolution allotting an area of 1.5-acre from the dumping yard for construction of the FSTP and a week later on 18th April the Dhenkanal Municipality issued a permission letter along with land plan for initiating the construction of the FSTP. Since the district administration had already issued a permissive possession to the Dhenkanal Municipality for use of the land for solid waste dumping yard, the EO, Dhenkanal Municipality submitted a letter to the Collector and District Magistrate, Dhenkanal requesting him for authorising the Dhenkanal Municipality to establish the FSTP in the municipal solid waste dumping yard premises. During the fourth Project Steering Committee (PSC) meeting held under the chairmanship of Commissioner-cum-Secretary to Government, H&UDD, Government of Odisha, the District Collector, Dhenkanal was advised to accord approval to the proposal of the Dhenkanal Municipality to use 1.5 acre of land from the municipal dumping yard for the construction of FSTP within a period of seven days. Meanwhile, the EO, Dhenkanal Municipality wrote to the Regional Officer of the OSPCB on 11th May 2017, for necessary clearance for use of the land for setting up FSTP.

Simultaneously, as a back-up, an alternative land proposal was also submitted to the Sub-Collector and accordingly 2.52 acres of land at *Mahisapat Mauza* was selected by Site Selection Committee for the construction of the FSTP. However, on 23rd May 2017, a permission letter was issued by the district administration in favour of Dhenkanal Municipality for construction of FSTP.

Selection of site for FSTP in Angul: Recording the chronological sequence of events

The process began on 28th March 2016 when Practical Action (the implementing agency) requested the Chairperson and Executive Officer (EO) of Angul Municipality to allocate land for the FSTP. Accordingly, the EO (Angul Municipality) requested the Tahsildar (Angul) for alienation of suitable



land for the FSTP⁷. On 4th April 2016, the Additional District Magistrate instructed the Tahsildar, Angul to identify a suitable piece of land for the FSTP. On 22nd April 2016, the first meeting of the District Co-ordination Committee (DCC) was held to discuss the allocation of land for the FSTP. On 29th April 2016, the Tahsildar (Angul) submitted the details of the land identified at *Nua Mouza* for the FSTP to the District Collector. In early May 2016, various meetings were held involving the Tahsildar (Angul), EO (Angul Municipality) and Additional District Magistrate on the land allotment process. At this stage, the Additional District Magistrate also involved the Regional Office (RO) of the OSPCB seeking their views on the land identified at *Nua Mouza (Ghasa farm)*. Early June 2016, saw protests by local residents against the identified site for the FSTP at *Nua Mouza*. In view of the protests by local residents, the District Collector called for a meeting with all concerned district level officials on 11th June 2016 and asked them to identify an alternative parcel of land. Shortly, a multi-agency team of officials, including District Collector, Superintendent of Police (Angul), Sub Divisional Police Officer, Additional District Magistrate, Sub Collector, Tahsildar (Banarpal), Revenue Inspector (Fulapada), EO (Angul Municipality), officials of OSPCB, visited *Talamulasasan* on 11th and 16th June 2016. Following the site visit, the EO (Angul Municipality) submitted a proposal to Tahsildar (Banarpal) in the prescribed Form 1 A along with land schedule, maps for land alienation and a forwarding letter. On 20th June 2016, the Tahsildar (Banarpal) served a general notice to the public inviting objections (if any) against the site identified at *Talamulasasan* for setting up the FSTP. In response to the general notice, the Sarpanch of *Talamulasasan* raised objections on 10th August and later on 28th August the *Talamulasasan* panchayat along with the villagers submitted their grievance to the Tahsildar (Banarpal). After the expiration of the one-month time period from the date of the issue of the general notice seeking objections, the Sub Collector finalized the selection of land for setting up the Solid Waste Management (SWM) treatment facility and the FSTP and initiated the process for

⁷ A copy of the letter was marked to the Sub-Collector, District Collector and Secretary, H&UD Department, Government of Odisha

allotment of land to Angul Municipality. On 21st September 2016, the ADM (Angul) submitted a request to the Revenue Divisional Commissioner (RDC) for alienation of non-forest government land in *Talamulasasan Mouza* under Banarpal Tehsil in favour of H&UDD, GoO for construction of the SWM treatment facility and the FSTP. On 3rd October 2016, the RDC issued an order sanctioning the same.

Due to protests by local people and as the distance of the identified land at *Talamulasasan Mouza* was quite far from the Angul Municipality, discussions were held between Practical Action and the Chairperson and EO of Angul Municipality in early October 2016 and it was decided to seek allotment of around 2-3 acres of land from the patch of land which had already been allocated for the SWM facility at *Kusasingha*. This decision of the Angul Municipality was conveyed to the District Collector and he asked the Sub Collector to examine the suitability of the land as per the FSTP selection criteria which had been developed under Project Nirmal. Following the discussions held between the Sub Collector and Project Director (PD) of District Urban Development Agency (DUDA), a joint inspection team was constituted comprising PD (DUDA), Sub Collector, EO, Angul Municipality and team members of Practical Action. The joint inspection team inspected the land at *Kusasingha* to assess its suitability for setting up an FSTP. The views of the RO of the OSPCB were also taken on board. The joint inspection team found the land to be suitable and thus the PD, DUDA asked the Tahsildar (Banarpal) and EO (Angul Municipality) to jointly demarcate a patch of 3 acres of land for the setting up the FSTP.

Aimed at speeding up the process for alienation of land for the FSTP, the process for allocation of land at *Talamulasasan Mouza* was also being worked on simultaneously, even though there were uncertainties given the protests by the local people. On 7th October 2016, the Tahsildar (Banarpal) handed over the possession letter of the land at *Talamulasasan Mouza* to the EO (Angul Municipality).

With respect to the land identified at *Kusasingha*, given no response / follow up from the Tahsildar (Banarpal) on the demarcation of a patch of 3



Figure 3: Land excavation work in progress at Dhenkanal

acres for the siting of the FSTP, the EO (Angul Municipality) wrote him a reminder on 20th October 2016. On 25th October 2016, the Angul Municipality passed a council resolution sanctioning the handing over of land at *Kusasingha* for the construction of the FSTP. The same was shared with the District Collector for his approval. On 15th November 2016, the District Collector granted the approval for use of land at *Kusasingha* for the construction of the FSTP and this decision was communicated to the Project Manager, Practical Action a week later on 24th November 2016. However, as the land had not yet been demarcated a reminder was sent to the Tahsildar (Banarpal) and a letter was sent to the RO, OSPCB seeking a No Objection Certificate.

In view of local protests, the Superintendent of Police (SP), Angul requested the District Collector to conduct demarcation of land at *Talamulasasan* on 13th December 2016. Additional District Magistrate (Angul) suggested deployment of police personnel during demarcation of land at *Talamulasasan* and the EO (Angul Municipality) requested the Inspector-in-charge for the same. The process for demarcation of land at *Kusasingha* was proceeding parallelly and on 8th December 2016 the Tahsildar, Banarpal issued a letter to the Revenue Inspector and Assistant Revenue Inspector for demarcation of land at *Kusasingha* and the same took place on 15th December 2016. During the demarcation process, the land was found to be unsuitable for setting up of the FSTP, as it did not meet the environmental standards set by the OSPCB. On

20th December 2016, a meeting was held with the District Collector and he directed the Additional District Magistrate to find an alternative piece of land for setting up the FSTP. Thus, a new site was identified by the Tahsildar, Angul the very next day. The land was located in *Panchmahala* close to Adarsh Engineering College and a site visit was conducted by officials including Additional District Magistrate, Tahsildar (Angul), Revenue Inspector (Panchmahala) and Revenue Inspector (*Saradapur*). The Sub Collector and Additional District Magistrate instructed the Revenue Inspector (*Panchmahala*) to prepare a map of the land and submit the same. The Revenue Inspector (*Panchmahala*) submitted the land map with details on 22nd December 2016.

In the meanwhile, on 24th December 2016 the land demarcation took place at *Talamulasasan* in the presence of the Collector, Sub Collector, Additional District Magistrate, Revenue Inspector (*Panchmahala*), EO (Angul Municipality) and SP (Angul) and a parcel of land with an area of 8 acres was demarcated for the FSTP and SWM facility. On 12th January 2017, the second meeting of the DCC took place and decided to demarcate a patch of 3 acres from the site at *Talamulasasan* for the FSTP. While the demarcation was planned for 19th January 2017, a day prior, a meeting was called by the State Election Observer with the Sub Collector, PD (DUDA), Superintendent of Police (SP), Angul and the State Election Observer advised that the land demarcation process be postponed to a date after the Panchayat elections.



Figure 4: Initial stages of commencement of construction of the FSTP at Dhenkanal

In the meanwhile, the land allocation process at *Panchmahala* picked up some speed. On 20th January 2017, the District Collector, Additional District Magistrate and Sub-Collector met regarding the land located close to Adarsha Engineering College and the District Collector asked the Additional District Magistrate to initiate the process of alienation and demarcation of land. The details of the land (including plot number, *khata* number and *kisam*⁸ of land and map) along with a map of the proposed National Highway (NH) 55 by-pass was collected from the Revenue Inspector – Panchmahala. Series of meetings were held involving the following officials – District Collector, Additional District Magistrate, Sub Collector, Revenue Inspector (Panchmahala), PD (DUDA) and EO (Angul Municipality). A severe setback to this progress was a writ petition filed by the Talamul Panchayat on 28th February 2017 with the Odisha High Court to stop all work related to siting of the FSTP and SWM waste processing plant at *Talamulasasan*. On 3rd March 2017 a meeting was held between the District Collector and PD (DUDA) and the former committed to have a discussion with the owner of Adarsh College in order to ensure space for an approach road to the site.

In the meanwhile, on 4th March 2017 Additional District Magistrate (Angul) instructed the EO

⁸ Type of land

(Angul Municipality) to initiate construction work for the SWM and FSTP at *Talamulasasan*. On 16th March 2017 the third City Sanitation Task Force (CSTF) meeting was held under the Chairmanship of the Chairperson, Angul Municipality and it was decided that a request would be made to the District Collector to speed up the process of allotting land near Adarsh Engineering College at *Panchmahala* for the construction of the FSTP. Subsequently, meetings were held regarding the same with the District Collector, PD (DUDA) and Sub Collector. The PD (DUDA) was asked to alienate the land in consultation with the Additional District Magistrate. On 20th March 2017 the EO (Angul Municipality) asked the Executive Engineer to submit the application for the alienation of the land for FSTP at *Panchmahala* Mauza to the Tahsildar (Angul) and the application (on Form 1 A) was submitted to the Tehsil Office on 22nd March 2017. On review of the application, the Collector and ADM, asked the Site Inspection Committee⁹ to conduct an inspection and submit their report. On 7th April 2017, the Site Inspection Committee conducted a site visit to assess the suitability of the land for construction of FSTP as per the government laws and provisions and they submitted a joint inspection report to the District Collector on

⁹ Which has the following officials as its members – Sub Collector, Tahsildar (Angul), RI (Panchmahala), RO (OSPCB) and EO (Angul Municipality)

13th April 2017 for his approval. On 22nd April 2017 a meeting was convened with the District Collector, Additional District Magistrate, PD (DUDA), Sub Collector and the owner of the Adarsh College in order to ensure space for an approach road to the site. On 22nd April 2017 the District Collector asked the Sub Collector to select a suitable land for the establishment of the FSTP under Project Nirmal. The Chairperson, Angul Municipality requested the District Collector for issuance of advance possession for the proposed land. On 28th April the Tahsildar (Angul) submitted his report on the proposal to alienate land at *Panchmahala*.

On 6th May 2017, the Sub Collector convened a meeting of the Site Selection Committee which unanimously selected the land at *Panchmahala* Mauza for the setting up of the FSTP and recommended the same for the approval of District Collector. On 9th May the fourth Project Steering Committee meeting was held under the chairmanship of Commissioner-cum-Secretary, H&UDD, GoO and he advised the District Collector to issue advance possession of the land to the Angul Municipality. Following this, the District Collector asked the Tahsildar (Angul) to prepare a case record for issuance of advance possession. On 15th May 2017, the report of the Site Selection Committee (based on a site visit undertaken on 7th May 2017) was submitted by the Sub Collector to the Collector for his approval, the latter granted approval on 31st May 2017 and on the same day the District administration submitted an advance possession case record to the Revenue Divisional Commissioner (RDC), Sambalpur for obtaining approval from the state government. In response to the request for advance possession, the RDC, *Sambalpur* asked the District administration to follow the regular land alienation process rather than granting an advance possession.

On 2nd June 2017, almost a year after the land alienation process was abandoned at *Talamul-sasan* due to the protests by local residents, the Tahsildar (Angul) issued a general notice to Sarpanch (*Nua Mouza*), Secretary (Talcher-Angul Meramandali Development Authority – TAM-DA), EO (Angul Municipality) and RI, Panchmahala for information and necessary action related to land alienation. On 19th June 2017, an objection was filed by the Sarpanch, *Nua Mouza* and the vil-

lagers against the alienation case. The Additional District Magistrate asked the Tahsildar (Angul) to enquire from the Sarpanch, *Nua Mouza* about the objections related to the land alienation case. The Tahsildar (Angul) issued a notice to Sarpanch, *Nua Mouza* and EO (Angul Municipality) regarding hearing on the objections raised by the Sarpanch. On 6th July, 2017 a hearing was conducted at the Court of the Tahsildar (Angul) which was attended by Sarpanch and villagers of *Nua Mouza*, and EO (Angul Municipality) and members from the Project Nirmal Team. A video regarding the working of an FSTP was shown to all present to clarify any misconceptions of the local community. As per the request of the Sarpanch, *Nua Mouza*, it was decided that the same video would be shown to the villagers of *Panchmahala*. A meeting was convened at *Mangalakothe* village under *Panchmahala* Mouza and the video regarding the working of an FSTP was shown. The following officials were present at the meeting – Tahsildar (Angul), RI (Panchmahala), EO (Angul Municipality), Sarpanch and villagers of *Nua Mouza* and Project Nirmal team members.

On 11th July 2017, a meeting was held with District Collector, Additional District Magistrate and Sub Collector (Angul) and an assurance was given regarding handing over of the land in two weeks' time. As per the requirements of the land alienation process, a land utilization plan was submitted by the EO (Angul Municipality) to the Tahsil office. The Tahsildar (Angul) submitted the land utilization plan and case record file to the Sub Collector (Angul) for seeking the approval of the District Collector. The approval from the District Collector was received on 27th July 2017 and accordingly an order was issued by the District administration on the alienation case record. The Angul Municipality deposited fee for demarcation and *patta* fee. On 31st July 2017, the Tahsildar (Angul) issued a *patta* in favour of the H&UDD, GoO for the establishment of the FSTP. The H&UDD, GoO in turn authorized the Angul Municipality to initiate work towards the construction of FSTP. Following this order, Angul Municipality requested the Tahsildar (Angul) for demarcation of the land, who in turn instructed the RI, Panchmahala to undertake demarcation of land. On 2nd August 2017 the demarcation of land at *Panchmahala*



Mouza was undertaken by RI, Panchmahala in presence of officials of Angul Municipality, police personnel and Project Nirmal team members. After the demarcation process was completed, the RI Panchmahala submitted the land demarcation report to the Tahsildar (Angul). On 5th August 2017 the land was formally handed over to the Angul Municipality and the latter gave permission to Practical Action to initiate work related to setting up of the FSTP. Subsequently, topographical survey and soil testing was conducted. The EO (Angul Municipality) instructed Practical Action to pay fees for the issuance of No Objection Certificate (NOC) from OSPCB. On 21st September 2017, the Angul Municipality issued a NoC for the construction of the FSTP at *Panchmahala Mouza*. On 26th September 2017, the Angul Municipality submitted an online application to Regional Office (RO) of the OSPCB for the issuance of Consent to Establish STP at Angul. Subsequently, hard copies of the application were submitted to the RO, OSPCB. Some additional information was sought by the OSPCB which was adequately responded to by the EO (Angul Municipality). In addition, the OSPCB also asked for a NoC from the local Sarpanch. In the midst of all this, a miscellaneous case was filed by Aditya Mohanty of RAWA Academy of Adruta Children Home in the Odisha High Court opposing the construction of the FSTP on grounds that the siting of the FSTP would result in release of greenhouse gases and the release of Nitrogen Oxide, ammonia, sulfides and carbon dioxide would result in deterioration of the air quality of the surrounding areas, mosquito breeding and contamination of ground water. The High Court directed the District Collector and District Magistrate to hear both the parties. In addition, the EO (Angul Municipality) was asked to submit para wise comments to the case which was submitted on 21st November 2017. The EO (Angul Municipality) requested the OSPCB for some more time to comply with the requirement of getting a NoC from the Sarpanch. On 29th November 2017, the *Nua Mouza* Gram Panchayat passed a resolution to issue a NoC for the establishment of the FSTP at *Panchmahala* which was forwarded by the EO (Angul Municipality) to the RO, OSPCB. On 7th Dec 2017, the office of the Collector and District Magistrate served a notice to the EO (Angul Municipality) and Aditya Mohanty of RAWA Academy of

Adruta Children Home for hearing of their case on 13th December 2017. The hearing was postponed to end December based on a plea from the lawyer representing Aditya Mohanty. A fresh notice was served to both parties for hearing of their case on 27th December 2017. On 14th December 2017, the OSPCB granted the Consent to Establish a FSTP at plot No 1133/3515 under Khata No. 194/1285. On 27th December 2017, a written representation by the petitioner, Aditya Mohanty, was submitted by his lawyer at the Court of the District Collector. The EO (Angul Municipality) responded with a written response stating that an FSTP was an absolute necessity for managing the liquid waste being generated and that while identifying the land the district administration had taken all care to ensure compliance with the existing environmental laws and SWM Rules, 2016. The letter also stated that the proposed site for the FSTP is about 300 meters from the RAWA Academy of Adruta Children Home and thus should not cause any problems. The letter also clarified that the OSPCB had been guiding the process of site selection and project development and that there was no scope of air pollution as all chambers are virtually closed and have vent pipes at 15 feet height. Further the faecal sludge would be transported through sealed trucks and there was no scope of ground water contamination and/or air pollution. The Court of the District Collector, Angul, on 27th December made a ruling in favour of the Angul Municipality and gave them a go ahead for the construction of the FSTP at *Panchmahala Mouza*. On 10th January 2018 an order to the same effect was issued.

Seeking Environmental Clearances for Establishing and Operating FSTPs

For establishing and operating FSTPs prior consent/approval is required from the Regional Office of the OSPCB. The Consent to Establish and the Consent to Operate are granted under Section 25/26 of the Water (Prevention and Control of Pollution) Act, 1974 and Section 21 of the Air (Prevention and Control of) Pollution Act, 1981.

The Angul Municipality made an online application for obtaining Consent to Establish to the Regional Office of the OSPCB, Department of Forests and Environment, Government of Odisha and a consent was granted to establish an FSTP

with a capacity of 18 kL/day at *Panchamahala Mouza* on 14th December, 2017 under the provision of Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 and Section 21 of the Air (Prevention and Control of) Pollution Act, 1981. However, following a court case (WP(C) No 2164 of 2018, *Supriti Mohanty Vs. State of Odisha*) this Consent to Establish became void. After a judgment was passed by the court in the above-mentioned case and on the recommendations of the Expert Committee, the OSPCB revised the conditions imposed in the Consent to Establish granted to the Angul Municipality dated 14th December 2017 with a fresh Consent to Establish dated 4th September 2018.

In the case of Dhenkanal Municipality, the Regional Office of the OSPCB, Department of Forests and Environment, Government of Odisha gave the Consent to Operate an FSTP of 27 KL/day capacity and a DG set of 7.5 KVA at Plot No. 877/1, Khata No. 304, Mauza – Mahisapat, District Dhenkanal on 12th July 2018 under Section 21 of the Air (Prevention and Control of) Pollution

Act, 1981 and under Section 25/26 of the Water (Prevention and Control of) Pollution Act, 1974. The Consent to Operate was valid till 31.03.2019 and was to be subsequently renewed.

The Consent to Establish and Operate outline a set of general and special conditions (related to air and water pollution) which the operator has to agree to comply with. Table 1 presents the details of the general and special conditions that need to be adhered to by the operator. Further, the operator has to regularly send various compliance reports to the Regional Office of the OSPCB. In case of the Consent to Establish, the operator is required to submit a compliance report within three months. In the case of the Consent to Operate a compliance report of the special conditions is to be submitted at the specified time and every year latest by December 31st for onward consideration of renewal of Consent to Operate. Further, the ambient air quality is to be monitored regularly, at least once in a fortnight, and the results are to be shared with the OSPCB once in three months.



Table 1: General and Special Conditions to be met under the Consent to Establish and Consent to Operate from OSPCB

Conditions	Consent to Establish	Consent to Operate
General Conditions		
Validity	The Consent to Establish is valid for the period required for the construction of project works plus for a period of 5 years from the date of the issue of the Consent to Establish. If no substantial progress is made within the stipulated time period renewal of the Consent to Establish would have to be sought.	The Consent to Operate is valid for a period of one year. It needs to be renewed thereafter. In Dhenkanal the Consent to operate was granted on 12.07.2018 and was valid up to 31.03.2019.
Acts and Sections	Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 and Section 21 of the Air (Prevention and Control of) Pollution Act, 1981. The Consent to Establish is subject to statutory and other clearances from the Government of Odisha and Government of India, as and when applicable.	Section 25/26 of the Water (Prevention and Control of Pollution) Act, 1974 and Section 21 of the Air (Prevention and Control of) Pollution Act, 1981. The proponent has to apply for Consent to Operate at least three months prior to the commissioning of the Plant.
Special conditions (Air Pollution)	A metal (black topped or concrete) road is to be constructed with proper drainage facility with wetting and cleaning arrangement within the premises to minimize fugitive dust emissions.	
	The ambient air quality inside the premises has to conform to the National Ambient Air Quality Standards. The ambient air quality is to be monitored regularly, at least once in a fortnight, and the results are to be shared with the OSPCB once in three months	
	A thick green belt is to be developed around the premises	
	Domestic effluent to be discharged through soak pit through septic tank constructed as per the BIS specifications	
	The unit shall abide by the Environment (Protection) Act, 1986 and Rules framed thereof	
Special conditions (Water Pollution)	The faecal sludge to be transported through a cesspool / closed tanker to ensure that there is no slippage and public nuisance	
	The FSTP shall have adequate capacity to treat the entire faecal sludge generated and at any given time there shall be no discharge of any effluent bypassing the FSTP or of untreated wastewater to outside the plant premises	
	There shall be no mixing of effluent with storm water	
	Prepare a Detailed Project Report on the runoff management during rainy season and submit the same to the Regional office of the OSPCB	
	The wastewater generated from the faecal sludge shall be adequately treated at the FSTP so that the treated water meets the following standards: PH 6.5-9.0, BOD 30 mg/l, TSS less than 100 mg/L and faecal Coliform less than 1000 MPN / 100 ml.	
	Treated wastewater, after meeting the prescribed standards, will be used for gardening and plantation purposes inside the plant	
	A holding tank of adequate capacity to be provided inside the premises to store the treated wastewater that remains unutilized during monsoons and shall be used for irrigation at a later period	

	During loading and unloading of faecal sludge care shall be taken to avoid slippage	
	Preventions should be taken to control foul odour, breeding of vectors (such as mosquitoes and flies) and to maintain overall aesthetics in the premises	
	Sludge shall be dried in sludge drying beds and shall be used for pasteurization process	
	The unit shall abide by the Environment (Protection) Act, 1986 and Rules framed thereof.	
	BOD, COD, PH and TSS analysers are to be installed in each module of the different phases of the treatment process	
	The treatment plant should have a boundary wall of adequate height with a lock and key facility	
Compliance Reporting	A compliance report submitted within three months	A compliance report of the special conditions is to be submitted duly after the time specified and every year latest by December 31 st for onward consideration of renewal of Consent to Operate.
		The ambient air quality is to be monitored regularly, at least once in a fortnight, and the results to be shared with the Board once in three months;
Other Special Conditions	If any information furnished is found to be incorrect or suppressed and detected at a later stage, the Consent to Establish and Consent to Operate, shall be revoked and appropriate legal action will be initiated as per the provisions of the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of) Pollution Act, 1974, as amended thereof and rules framed thereunder.	
	The OSPCB may impose further conditions or modify the conditions that are stipulated in this order during the installation and / at the time of obtaining consent to operate and they may revoke this order in case the stipulated conditions aren't implemented or if the supplied information is found to have been suppressed or incorrectly furnished in the application form	

Lessons Learnt

- In the absence of specific guidelines for selection of sites for setting up of FSTPs, the provisions of the Solid Waste Management Rules, 2016 – Schedule 1, which provide specifications for selection of site for the Sanitary Landfill Sites (SLFs), are being applied for selection of site for setting up Faecal Sludge Treatment Plants (FSTPs). There is, however, an urgent need for specific guidelines / rules for selection of sites for setting up FSTPs in order to adequately address the differences in treatment and disposal facilities for faecal waste and solid waste.
- The land allocation process for FSTPs, in both Angul and Dhenkanal, has been a protracted and complex. While the OUSMG 2016 provides that the site for treatment facility and for disposal of treated wastewater and sludge must be selected in consultation with the District Collector, OSPCB and general public, in reality, the site selection process has required the involvement of many more state, district and local government officials including officials of the respective ULBs (EOs and Chairpersons); state and district administration (including Revenue Divisional Commissioner, District Collector, Ad-



ditional District Magistrate, Deputy Collector, Sub Collector, Tahsildar, Revenue Inspector and District Social Welfare Officer); Regional Office of the OSPCB; forest department (including Divisional Forest Official and Range Officer) and the police department. The involvement of so many officials has meant that the process has been long drawn out with numerous administrative procedures to be followed resulting in inordinate delays. In Dhenkanal, the FSTP site selection process took around fourteen months (March 2016–May 2017) while in Angul it took more than two years (March 2016 – October 2018). There is a need to streamline the approval process for site allocation for creation of treatment and disposal facilities for faecal sludge.

- The co-ordination mechanisms established under Project Nirmal at the state, district and town level, namely, the Project Steering Committee (PSC), the District Co-ordination Committee (DCC) and the City Sanitation Task Force (CSTF) played an active role in overseeing the

process of land allocation for the FSTPs in both Angul and Dhenkanal. The Site Selection Committee which exists at the sub-divisional level had all key officials as its members and played an oversight role in the land allocation process. This Committee ensured that there was regular follow up with the concerned officials.

- In both Angul and Dhenkanal, there were protests by local residents regarding the sites being considered for setting up of the FSTP. Most of these were due to a lack of awareness regarding functioning of an FSTP and misconceptions regarding the same. The approach taken by Project Nirmal, which was aimed at building awareness among local communities through site visits to functioning wastewater treatment facilities and showing videos documenting the functioning of wastewater treatment facilities, helped address many of the prevailing myths and misconceptions and paved the way for communities to become open about setting up a treatment facility in their neighborhood.

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