

# **AROUND THE LANDFILL SITES: A groundtruthing of solid waste management law across landfill sites in coastal areas of Uttara Kannada district, Karnataka**



**Centre for Policy Research (CPR)-Namati Environmental Justice Program**

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Print	PRINTFORCE
Support	This work is carried out with the aid of a grant from the International Development Research Centre, Ottawa, Canada

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## LIST OF ACRONYMS

CIRTD	Centre for Integrated Rural and Tribal Development
CPCB	Central Pollution Control Board
EIA	Environment Impact Assessment
FCA	Forest (Conservation) Act
KSPCB	Karnataka State Pollution Control Board
MoEFCC	Ministry of Environment, Forest and Climate Change
MSW	Municipal Solid Wastes
NGT	National Green Tribunal
PCB	Pollution Control Board
SEIAA	State Environment Impact Assessment Authority
SPCB	State Pollution Control Board
SWM	Solid Waste Management

## EXECUTIVE SUMMARY

The Municipal Solid Wastes (Management and Handling) Rules (MSW Rules) came into force in 2000<sup>a</sup> and laid down the rules to be followed by municipal authorities while collecting, transporting, segregating, processing, storing and disposing municipal solid wastes. These rules have been enacted under the Environment (Protection) Act, 1986. As there were several reports (*see Annexure I*) of impacts in the Uttara Kannada district in Karnataka due to waste disposal, a groundtruthing study was conducted to examine compliance with the rules and gauge whether the impacts were due to non-compliance.

Between July 2016 and May 2017, the Centre for Policy Research (CPR)-Namati Environmental Justice Program, along with the affected people of Uttara Kannada, initiated this community-led groundtruthing process. This report describes the process of studying the law with affected people for the examination of compliance and seeking of remedies.

The first section describes the background of the region and the issue. The second section elaborates the methodology of the study. Detailed findings from the study are described in the third section, which also gives the compliance status with some major rules and the impacts of non-compliance. The fourth section describes particular instances where remedies were sought for the non-compliance. The similarities of the problems of solid waste disposal in Panchayat areas are mentioned in the fifth section. Lastly, the recommendations that are drawn from the findings of this study are given in the final section.

## 1. BACKGROUND OF THE REGION AND ISSUE

Government authorities and citizens engaging with the government system mostly give importance to taking waste off the streets and away from colonies in urban areas. There are very few who are concerned with understanding where all the waste collected in small towns and cities lands up. Every day, tons of municipal solid waste is collected and dumped at landfill sites located outside the municipal limits, very often in and around villages.

This report attempts to study the legal status of landfill sites and their environmental compliance across the coastal stretch of Uttara Kannada, Karnataka. Each municipal authority in a town or city is responsible for collection, transportation, processing and disposal of solid wastes in their jurisdiction. To do so, the authority needs to follow the Municipal Solid Wastes (MSW) (Management and Handling) Rules, 2000 [later revised as Solid Waste Management (SWM) Rules, 2016]. There are no reports or studies available with regard to the status of implementation of these rules. However, there are reports and news articles published on the problems created by waste disposal without necessary permissions and safeguards. Such disposal has aggrieved people living around these landfill facilities or dumps.

The groundtruthing study has looked at the status of compliance of the landfill sites with the rules under MSW Rules, 2000. These rules contain conditions for site selection, the facilities that needs to be there at these sites, the specifications for landfilling and steps that needs to be undertaken for pollution prevention. Even though the new SWM Rules, 2016 has been enacted, the study draws upon the provisions of MSW Rules, 2000 as all of the landfill sites in the study areas were established using this law.

### 1.1 About the region

Along the Uttara Kannada coast there are several on-going disputes between people living near municipal waste processing units/landfill sites and the government authorities. The people have protested, approached authorities and gone to court. The problems are primarily related to pollution near the villages, contamination of drinking water by landfill sites and stench and health concerns of affected people.

For instance, in Kumta block, villagers went to court and got a stay order against the authorities in 2011. In 2012 the issue was transferred to the National Green Tribunal (NGT)<sup>1</sup>. The NGT passed a judgment in February 2017 in favour of the appellant<sup>2</sup>. "Saying the Municipality cannot use the forest area near the Siddanabhavi village for landfilling since the environmental clearance obtained from SEIAA shall be set aside<sup>1</sup>. In Ankola and Bhatkal blocks, there are disputes between the municipal authority and local Panchayat where the waste processing unit/landfill sites are established. The local villagers and Panchayats have been complaining that water bodies in the vicinity have been polluted due to waste disposal and the landfill sites in their villages. Apart from such instances, similar issues related to solid waste disposal have also been reported from large villages and tourism centres such as Gokarna, Murudeshwar and Manaki.

<sup>a</sup>While the study was underway, the Ministry of Environment, Forest and Climate Change (MoEFCC) enacted the Solid Waste Management (SWM) Rules, 2016 which replaced the 2000 version.

## 2. METHODOLOGY

### 2.1 Time period

This work was carried out first for the duration of three months, from June to August 2016 (monsoon season), and then from December 2016 to March 2017 (post monsoon season). This was done to enable a comparison of situations. During the monsoon, the problems associated with the landfill sites are enhanced as rainwater mixes with the leachate. The leachate is the liquid that drains from solid waste in the landfill. As per the law, it is clearly mentioned that the leachate should not come out of the landfill site and mix with rainwater and other water bodies. In view of this, it was decided that the monsoon period would be an appropriate time to study the status of landfill sites in coastal Uttara Kannada.

### 2.2 Learning the law

In the beginning, newspaper articles related to solid waste problems in the district were collected. This helped in meeting with the affected people around the solid waste landfill sites. This was followed by the detailed study of the relevant law, the Municipal Solid Wastes (MSW) (Management and Handling) Rules, 2000. More attention was paid to understand Schedule III which deals with the specifications of landfill sites from site selection to disposal of wastes.

### 2.3 Identification of impacts

The study involved visiting all five coastal municipal landfill sites in Karwar, Ankola, Kumta, Honnavar and Bhatkal blocks. The landfill sites of Murudeshwar and Gokarna were also included in this survey. Even though these two landfill sites do not fall under any municipality's jurisdiction, the problem of solid waste was observed because of tourism activity in these areas. It is the village Panchayat that manages the wastes in these villages. A series of visits were conducted to the nearby villages to meet with the affected people to find out the relationship between legal violations, including non-compliance of safeguards, and the impacts being faced by them..

### 2.4 Trainings for the community

Brochures were prepared in Kannada describing the major precautions that should be taken and regulations to be followed in the landfilling process according to the MSW Rules, 2000. This was used to conduct legal trainings for the affected people living near the landfill sites.

After the data collection process, community meetings and legal trainings were carried out at Bugaribail, Ankola and Muttalli, Bhatkal. This was done to interact with affected people and to collect information about their efforts towards fighting the problems they faced.

### 2.5 Data collection

Land ownership documents of the landfill sites and forest land lease agreements were collected from corresponding municipal authorities. Environmental Clearances (central or state level as the case may be) and Consents to Establish were collected from the Karnataka State Pollution Control Board (KSPCB) through a series of visits and Right to Information (RTI) applications.

At the municipal landfill sites, the status of the site and process or methods of landfilling were compared with law. Additionally, photographic evidence was collected to ascertain the status of compliance. Information regarding the method of landfilling, post landfilling operations, facilities provided at the landfill unit and health, security and safety protocols was also collected. Further, the local Panchayats were visited to collect clearance documents and enquire about complaints- if they had received or filed any.

All the information gathered was used for simple analysis to develop this groundtruthing report.

### 2.6 Filing complaints and seeking remedies

Using the evidence collected of the various kinds of non-compliance, complaints were filed with the concerned authorities to seek remedies. These complaints were filed so as to redress the problems that were arising out of the impacts that came about due to non-compliance with the MSW Rules, 2000.

## 3. FINDINGS OF THE GROUNDTRUTHING STUDY

### 3.1 About the law

Among the many environmental laws under the Environment (Protection) Act, 1986, the Municipal Solid Wastes (MSW) (Management and Handling) Rules, 2000 is extremely important as it deals with both urban sanitation as well as environmental protection of rural areas located near cities. The rules were meant to be implemented by December 2003, but that time limit ran out. Over 15 years post the notification of the MSW Rules, 2000, in year 2016, the law was revised as the Solid Waste Management (SWM) Rules, 2016. The NGT, in its judgment in 2016 in the case of Almitra H. Patel and another vs Union of India and others, directed every state and Union Territory to enforce and implement the SWM Rules, 2016 in all respects and without further delay. It further directed that all the state governments, their departments and local authorities, must operate in complete coordination and cooperation with each other and ensure that the solid waste generated in the state is managed, processed and disposed strictly in accordance with the Rules of 2016<sup>3</sup>.

The MSW Rules, 2000 lays out clear mechanisms related to collection, segregation, recycling, disposal and proper landfilling methods. Schedule III of the Rules gives the specifications for landfill sites, which among other conditions lists those for site selection, facilities to be present, landfilling itself and pollution prevention.

The SWM Rules, 2016 has slightly modified and updated the section on duties of different government authorities, including the MoEFCC, Ministry of Urban Development, Ministry of Rural Development, State Government bodies, Central and State Pollution Control Boards (CPCB and SPCBs), District Collector and Panchayat. The new law is also extended and applicable to rural areas and this responsibility lies with the Ministry of Rural Development and Panchayats.

### 3.2 Ground reality

All the municipal authorities in coastal Uttara Kannada have established integrated solid waste processing units and landfill sites, except in Kumta where the matter is under dispute in the NGT, Chennai. With regard to the other four landfill sites, people have filed complaints, protested and approached the media, but the units are currently active and functional and in some cases without necessary approvals.

#### I. KUMTA

The Muroor hill, located 3 km from Kumta town, is one of the highest places in the Kumta taluka (block). The area is used for cattle grazing by many villages such as Manaki, Siddanabhavi, Harkade, Kagal Maneer, etc. The semi deciduous forest is home to animals and birds such as peacocks. There are several villages located downhill from the waste dumping area.

The conflict between farmers and the Municipality regarding the landfill site started in 2009, when the Kumta municipal authority purchased 2.4 acres of land on Muroor hill to construct a waste processing unit according to the MSW Rules, 2000 in survey number 108/A of Manaki village. The Municipality got the Environmental Clearance on February 17, 2011 from the State Environment Impact Assessment Authority (SEIAA) to establish the unit. The State Pollution

Control Board (SPCB) conducted a site visit and granted the Consent to Establish on March 26, 2011 subject to compliance with 25 specific conditions and nine general conditions.

However, communities from local villages protested against this and requested that the landfill site and waste processing unit should be located away from the area of human habitation. Local farmers who could afford to hire lawyers went to the High Court of Karnataka and procured a stay order in 2010. The case was later transferred to the NGT in 2012<sup>1</sup>.

While the case was going on before the Southern Bench of the NGT, the Kumta municipal authority began using some other forest land as a dumping site (landfill site) without following the MSW Rules, 2000 and without taking approval of the SPCB and Forest Department<sup>4</sup>.

From April 2010 to February 2017, the Kumta Municipality claimed this forest area as its landfill site and continued dumping garbage there. The current site was 2 km away from the earlier landfill site which was purchased by the Municipality and approved by the KSPCB. There are three villages within a 1 km radius of this current dumping site-Siddanabhavi, Kagal Maneer and Harkade. Altogether, there are more than 900 people in these villages. Since the site is on top of the hill and the Municipality is dumping waste in an open area without any fencing or cover, most of the time light wastes are carried away by winds and end up reaching these villages. However, Schedule III, Rule 11 of the MSW Rules, 2000 states that landfill sites shall be fenced or hedged. Around 200 people from Siddanabhavi are directly affected every day because they are located very near to the landfill site. The most affected are daily wage labourers who are also unable to afford lawyers and incur the expenditures with filing court cases. Many of them cannot write and read and so will never be able to write to officials about their problem. Maybe that is why their problems have not come to the attention of the authorities. These people use community wells for their drinking water and domestic purposes. In the monsoon,



Cattle grazing on garbage- a daily sight at Muroor hill, March 2015

along with rainwater, the leachate flows downhill and reaches the water sources which they depend upon. In June 2015, some private hotel and lodge owners also dumped their waste just beside the landfill site. While meeting with the affected community that month, villagers shared that wastes from public toilets that wastes from the bus stand, public toilets, meat shops and market were being dumped in the pond near the landfill site and the stench spread all over Siddanabhavi village for weeks. These wastes when mixed with rainwater, further contributed to the contamination of their water sources.

People from nearby villages used this new landfill site as grazing land for cattle and it was not uncommon to see the cattle eating plastic. An animal husbandry official said that there were many instances of cattle dying due to plastic consumption.

In February 2017, the NGT gave its judgment on this issue<sup>2</sup>. The defendants had claimed that the new landfill site- survey number 108/A1A1A1A1A1 was 2 km away from the disputed land. However, judgment rejected their claims saying that no record of survey number 108/A1A1A1A1A1 was found and the applicants claim that this land is no different from the earlier land which was used for landfilling before court case. It also highlighted discrepancies in the Environmental Clearance process with regard to the public hearing, such as the Assistant Commissioner stating that the public hearing was convened on November 30, 2009.

The judgment also discussed requirement of a prior approval under the Forest (Conservation) Act (FCA), 1980 when an alternate site was chosen from a larger extent of 800 acres in survey number 108/A. Though prior approval had been taken for the original site, the applicants' contention was that the alternate site, being a new one, would require a fresh prior approval under the provisions of the FCA, 1980. The NGT, while applying the law to the factual matrix at hand, came to the conclusion that the Forest Clearance granted to the project proponent for survey number 108/A could not be applied for another portion of the forest land situated in a different area viz., survey number 108/A1A1A1A1A1. A fresh Forest Clearance was required for the alternate site, i.e. 108/A1A1A1A1A1. Consequentially, the Environmental Clearance granted by the SEIAA and the authorisation granted by the KSPCB was declared to be null and void by the NGT. The Municipality was refrained from proceeding with this project, but the NGT did give it leave to make a fresh proposal and follow it as per the proper procedure laid down in the law. In light of the judgment, the Kumta Municipality is looking for a new site for the establishment of the landfill and is considering a site near Mirjan village, which is 8 km from Kumta town.

## II. KARWAR

The Karwar Municipality has a waste processing unit at Shirvad village, 8 km away from the city. It has an integrated landfill site which contains waste segregation unit along with leachate collection tank within the waste processing unit. As compared to other sites, the waste processing unit in Karwar is well established.

Non-compliance observed: Out of 24 clauses examined in Schedule III, MSW Rules, 2000, a total of 14 rules were complied with. However, 10 rules were not followed during the landfilling process. This led to several recorded conflicts between local people and the municipal authorities. When the site was visited, it was noted that facilities mentioned the MSW Rules, 2000 had been provided, such as a leachate collection tank, waste compactor, segregation unit and composting tank for wet waste. However, Nagaraj Naik who looked after the landfill site



Landfill site, Karwar Municipality

mentioned that there was shortage of human power to work there and therefore all these facilities had not been properly used. He urged that this matter be brought to the notice of the municipal authorities in Karwar.

Impact of non-compliance: When the nearest villages were visited, the villagers said they had not faced any problems due to landfilling as the site was located slightly away from the housing clusters. However, plywood and paint industries located nearby mentioned the problem of stench during segregation and storage. People working there shared that they had filed complaints with the Municipality. When the Karwar Municipality was visited though, authorities said that the problems created by the landfill were not very significant. They claimed that because of Municipality politics, non-elected members were provoking people against those elected.

## III. ANKOLA- the case of water contamination

Ankola has a town Panchayat and the landfill site is in Bugaribail village, 9 km away from the town. The waste processing unit is under construction, but the landfill is active and functional. Among five waste processing units only Ankola has bio-medical waste processing and recycling plant within the waste processing unit. The landfill is located within Bugaribail and there are habitat clusters very near to the site, around 20 m away.

Villagers were facing problems because of the location of the landfill site and the leachate that contaminated the drinking water sources of the village. There were a series of protests carried out and complaints filed with various authorities regarding this<sup>3</sup>, but so far no action had been taken to solve the problems of the villagers.

Bugaribail and Baleguliare the two villages affected by the landfill site. The landfill is located at a slightly higher altitude and a stream and rainwater from the hills flows through the landfill site during the monsoon.





Landfill site, Ankola Municipality

Impact of non-compliance: Villagers shared that nine wells had been contaminated by the leachate and as a result had not been used since the last four years. The primary school in the village was located just 100 m away from the site and unpleasant smells from the site reached the school all day. Villagers estimated that more than 100 families were affected by the landfill. Recently, the Karnataka Electricity Board also complained, saying that the landfill was next to the electricity grid and the burning of garbage there increased the danger of possible fires<sup>6</sup>.

#### IV. HONNAVAR- Violations, but with fewer human impacts

The Honnavar municipal landfill site is located 8 km away from the town in Hosakuli village. It comprises 4.5 acres of land and the waste processing unit is under construction.

In this site, only landfilling of solid waste was going on and no facilities for the workers or safety equipment was provided.

Non-compliance observed: Out of the 24 clauses of Schedule III of MSW Rules, 2000 scrutinised, only nine were complied with. However, since there were no habitations near the site, problems had not been felt, nor had any complaints been filed. Also, the site was well protected by fencing and located 1 km away from the main road. Due to these reasons as well, it was said that people were not affected by this landfill site.

During the field visit, it was noticed that the landfill was not covered with a layer of soil as mandated by the MSW Rules, 2000 and solid waste was dumped in open places. It was also observed that segregation between dry and wet waste was not taking place and as a result no recycling of the same was noticed.



Landfill site, Honnavar Municipality

#### V. BHATKAL

Bhatkal Municipality has its landfill site in Belalkanda village which comes under the Muttalli Panchayat, around 9 km away from the town.

At the time of the groundtruthing the waste processing unit was under construction and segregation and sorting were not being done when the site was visited. During an interaction with Municipality workers, they complained that proper facilities such as transportation vehicles, drinking water, fire safety measures and a workers' shed had not been provided. They shared that the absence of these hindered their management of the wastes.

Bhatkal is one of the largest towns along the Uttara Kannada coast and it produces a huge amount of waste. The landfill site here too is located on top of a hill. There are several farmers who have land just downhill from the site.

Non-compliance observed: While visiting the landfill site, it was observed that solid wastes were dumped openly and without any soil cover. This led to the wastes being dispersed to the nearby forest and farmlands. Another thing noticed was that the leachate was collected in a large pond and was released out of the unit by means of a pipeline. This leachate ended up being mixed with water from a stream beside the hill.

Impact of non-compliance: When the local Panchayat and villages were visited, the people shared that they had filed complaints with the Municipality several times regarding problems created by the leachate. Villagers explained that the leachate from the landfill unit contaminated their agricultural land and irrigation sources. Due to this, their livelihood had been affected. They approached Vinod Patgar, an enviro-legal coordinator with the CPR-Namati



Landfill site, Bhatkal Municipality

Environmental Justice Program with the problem. Subsequently, a meeting was conducted at Muttalli Panchayat to discuss further details. The enviro-legal coordinator and the affected people together collected details regarding the Environmental Clearance and consent letters from the SPCB. They also put together evidence regarding the impacts such as photographs and copies of previous complaints filed. With these details, a complaint letter was filed with the Bhatkal Municipality on October 14, 2016, highlighting all the violations and problems faced due to them. The Bhatkal Municipality responded to the complaint saying that it would comply with the MSW Rules, 2000. When the landfill site was visited in August 2017, measures to mitigate the impacts were observed, with the Municipality having diverted the leachate and construction of a leachate collection pit underway.

### 3.3 Compliance status of major rules of Schedule III, MSW Rules, 2000

#### i. Necessary permissions not taken

##### **Rule 2**

*Selection of landfill sites shall be based on examination of environmental issues. The Department of Urban Development of the State or the Union territory shall co-ordinate with the concerned organizations for obtaining the necessary approvals and clearances.*

Of all the landfill sites, only those in Kumta and Karwar had taken clearance from the SEIAA. Other municipalities had not taken clearance from the SEIAA, but had sought the Consent to Establish from the Regional Office of the SPCB. In the September 24, 2016 reply to an RTI application filed with the Bhatkal Municipality, it was stated that though clearance from



Bhatkal waste processing unit under construction

the SEIAA had not been taken, the Municipality was operating the landfill site and the waste processing unit was under construction.

#### ii. Disposal of bio-medical wastes not in accordance with rules

##### **Rule 6**

*Biomedical wastes shall be disposed off in accordance with the Bio-medical Wastes (Management and Handling) Rules, 1998 and hazardous wastes shall be managed in accordance with the Hazardous Wastes (Management and Handling) Rules, 1989, as amended from time to time.*

Except for the Ankola landfill site none of the other municipalities are following Bio-Medical Waste (Management and Handling) Rules, 1998 and the requirement that hazardous wastes should be managed in accordance with the Hazardous Wastes (Management and Handling) Rules, 1989. It was learnt from all the other municipal authorities that they sent their bio-medical wastes to the Ankola landfill site. However documentation regarding the same was not found during the study.

#### iii. Unsuitable site locations causing negative impacts

##### **Rule 8**

*The landfill site shall be away from habitation clusters, forest areas, water bodies monuments, National Parks, Wetlands and places of important cultural, historical or religious interest.*

Through the groundtruthing study it was found that the landfill site in Ankola was located near habitation clusters. There were several families living within 20 m of the landfill site.

The landfill was also located near the water stream of the village and it contaminated the drinking water sources during the monsoon.

Villagers in Alageri, an affected village, had formed a protection group to fight against the improper waste disposal in their village. They had been trying to solve the problems since the last three years. As the landfill site was located within the village and the leachate was entering the river, villagers were asking to relocate the site away from the village.



Leachate storage at the Bhatkal landfill site

Villagers had filed complaints with the local Panchayat<sup>b</sup>, SPCB<sup>c</sup>, and District Commissioner<sup>d</sup> regarding the same, but no action had been taken so far.

The Bhatkal landfill site was located slightly away from a habitation cluster, but near forest area and water sources of the village. In the absence of proper fencing around the site, both wild animals and cattle entered the area. There were farmlands beside the landfill site and the leachate collected from the site was directly released into the stream without any treatment. When this water was used for irrigation, it caused damage to farmers' agricultural lands. In view of this, the farmers approached the Bhatkal Municipality



Waste processing unit under construction at the Bhatkal landfill site



Leachate released directly into the stream at the Bhatkal landfill site

<sup>a</sup>February 12, 2013 <sup>b</sup>February 17, 2013 <sup>c</sup>February 17, 2013

for a resolution but had not got any positive response. In the year 2014, due to heavy rainfall, the leachate collected in the landfill site had even led to the contamination of ponds and wells used by schools and the Panchayat.

#### iv. No buffer zones developed

##### **Rule 9**

*A buffer zone of no-development shall be maintained around landfill site and shall be incorporated in the Town Planning Departments land-use plans.*

This is an important rule to avoid developmental activities near the waste disposal site. However, none of the municipalities have complied with this condition. For example, in Karwar, near the landfill site there are several industries located which caused disputes between the Municipality and the public. People who worked and lived near the landfill site protested against the Municipality, saying that the landfilling was done at an elevation higher than their drinking water sources, leading to leachate from the landfill flowing down into these sources. Only Karwar Municipality constructed a leachate collection tank to treat the leachate as per the law.



Leachate storage tank at the Karwar landfill site

#### v. Waste compactors not being used in all the sites

##### **Rule 18**

*Wastes subjected to land filling shall be compacted in thin layers using landfill compactors to achieve high density of the wastes. In high rainfall areas where heavy compactors cannot be used alternative measures shall be adopted.*

This rule is a major one with respect to reduction in the volume of the wastes. While the Karwar Municipality had installed a functional landfill compactor, all the other municipalities had not followed this regulation.

#### vi. Uncovered wastes polluting water sources and farms

##### **Rule 19**

*Wastes shall be covered immediately or at the end of each working day with minimum 10 cm of soil, inert*



Waste compactor installed at the Karwar landfill site

debris or construction material till such time waste processing facilities for composting or recycling or energy recovery are set up as per Schedule I.

In terms of prevention of waste dispersal to the nearby areas, this is one of the most significant rules. However, none of the municipalities had complied with it. It was due to this that most of the problems and disputes occurred.

The CPR-Namati Program started working in Kumta in 2014. The landfill site here had been in under dispute for many years and because of violations of the law by the Municipality, villagers in the surrounding areas were suffering. One of the main problems for the Siddanabhavi villagers nearby was the dispersal of light waste into their village. The waste was not covered as per the law after the landfilling. These wastes entered their water sources and farmland which caused damaged to their daily life. Further,



Open dumping at the Kumta municipal landfill site

in the monsoon, these uncovered wastes mixed with rainwater and contaminated drinking water sources. In view of this, a training programme for the Siddanabhavi villagers about the MSW Rules, 2000 was conducted, along with a meeting with affected people and government officials. As result of this meeting, the Forest Department cleared the waste dumped by the private party on Muroor hill. It also placed a notice board at the site, stating that the area was forest land and dumping of unauthorised wastes was prohibited, and if found out was punishable. It even started patrolling the area to prevent the dumping.

At the Ankola landfill too, wastes were not covered after the landfilling. In this regard, villagers had filed complaints with the Municipality several times. Unlike the Kumta landfill site though, the Ankola site was located very close to human habitations and uncovered wastes entered the houses and drinking water well of the villagers. Villagers had also witnessed the death of several cattle who consumed plastic wastes while grazing on the forest land.



Open landfilling at the Ankola site

Wastes were not covered after their disposal at the Bhatkal landfill as well.

These wastes were available to cattle for grazing and birds for feeding. Due to this open dumping of garbage, street dogs frequented the villages looking for meat and other wastes. Also, the villages of Kasalagadde and Belalkanda, including the school in the latter, had to bear unpleasant odour throughout the year."



Birds feeding on uncovered wastes at the Bhatkal landfill site

As both Honnavar and Karwar have landfills located slightly away from human habitations, no complaints had been registered so far even though wastes here were not covered after each day of landfilling.

#### vii. Unchecked runoff during monsoon causing various kinds of contamination

##### Rule 20

*Prior to the commencement of monsoon season, an intermediate cover of 40-65 cm thickness of soil shall be placed on the landfill with proper compaction and grading to prevent infiltration during monsoon. Proper drainage berms shall be constructed to divert run-off away from the active cell of the landfill.*

Violations of this rule in the landfill sites had contaminated the drinking water sources and agricultural lands on several occasions. During the



Open landfilling at the Honnavar site



Landfilling site, Karwar

monsoon, drainage from the landfill sites mixed with rainwater and reached villages, agricultural lands and various water bodies such as streams, ponds and wells. In the villages of Kasalagadde and Belalkanda near the Bhatkal landfill site, the leachate during the monsoon contaminated the agricultural land and farmers' irrigation sources.

Similarly, at the Ankola landfill site, the leachate and rainwater mixed during the monsoon and accumulated in the ponds situated beside the landfill. During heavy rain, the water from these ponds also contaminated the nearby drinking water sources. Villagers had filed complaints against this with several authorities.

#### viii. Specifications for final cover of the landfill not met

##### **Rule 21**

*After completion of landfill, a final cover shall be designed to minimize infiltration and erosion. The final cover shall meet the following specifications, namely:-*

- a. *The final cover shall have a barrier soil layer comprising of 60 cm of clay or amended soil with permeability coefficient less than  $1 \times 10^{-7}$  cm/sec.*
- b. *On top of the barrier soil layer there shall be a drainage layer of 15 cm.*
- c. *On top of the drainage layer there shall be a vegetative layer of 45 cm to support natural plant growth and to minimize erosion.*

The study revealed that none of the landfill sites among the five were following this rule in the process of landfilling. However, since habitation near the landfill sites in Honnavar and Karwar was less, there were not too many disputes with regard to the violation of the said rule.

Due to the violation of this rule at the other three landfill sites, nearby villagers have experienced problems related to health and livelihood. At Bhatkal it was observed that landfill waste was never subjected to a final cover or any other protection measures. As a result of this, stray animals were affected. Also, the openly dumped garbage dispersed to nearby agricultural fields during strong winds. So far, villagers had not filed any complaints regarding these problems, but for more serious ones such as the intrusion of leachate into agricultural fields.



Landfill with no proper compaction and grading to prevent infiltration during monsoon in Bhatkal



Monsoon rainwater and landfill leachate accumulated at the Ankola landfill site

Similarly, in Kumta, the Municipality was dumping garbage in open places without any fencing or protection. Coupled with the absence of a final cover, animals and birds freely entered the landfill. People from nearby villages used this land as grazing land for their cattle and many times the cattle was seen eating plastic at the dumping site. An animal husbandry official shared that on several occasions the consumption of plastic had led to the death of cattle.

In Ankola too violation of this rule was noticed, but according to the villagers having the landfill site in between villages was the only violation of law. The violation of this rule did not matter to them and all they wanted was for the entire unit to be relocated away from the villages.

## 4. A LEGAL EMPOWERMENT APPROACH TO ADDRESS THE PROBLEMS

The CPR-Namati Program first started to work on problems faced due to non-compliance by landfills with Siddanabhavi and Harkade villagers, when they faced problems with Kumta Municipality's landfill site.

At the outset, Program members tried to understand the problem especially keeping in mind the views of the affected villagers. They conducted site visits quite often to understand the facts and collect data on impacts. The Municipal Solid Wastes (MSW) (Management and Handling) Rules, 2000 was studied, and using this law, related institutions such as the Municipality, PCB, and Forest Department started being approached. The first time when municipal authorities were approached with the problem, they did not seem to believe or care about what was shared with them.

Attempts were made to make the institutions understand the different clauses and their status of compliance. Documents regarding clearance letters, forest land lease agreements, land ownership records and compliance reports by the Regional PCB were collected. Using the information collected from the Forest Department and Regional PCB, the affected people from Siddanabhavi village were met. Along with the villagers, complaint letters to both the authorities on the violation of the FCA, 1980 and MSW Rules, 2000 were written.



Bhatkal landfill site without final cover

The Regional PCB sent a show cause notice to the Kumta Municipality and did not renew the landfill site's approval for the year 2014. The Forest Department also sent a notice, claiming that the land belonged to them and the Municipality should not dump garbage on forest land. After regular follow-up and pressure from the villagers, the Kumta Municipality is now following landfilling procedures in accordance with the provisions of the SWM Rules, 2016.



Legal training with Bugaribail villagers, Ankola

Similarly, the CPR-Namati Environmental Justice Program also worked with villagers from Bugaribail who were affected by the Ankola Municipality's landfill site. During the study, they were helped to understand violations that had taken place during the clearance procedure and were guided to approach the relevant authorities. It was found that the Ankola Municipality had not taken clearance from the SEIAA under the Environment Impact Assessment (EIA) Notification, 2006 to establish the landfill site. Further, it was observed that the landfill was violating Rules 8, 19, 20 and 21 of the MSW Rules, 2000. Listing all these violations, the affected community approached the Ankola municipal authority and Regional PCB, asking for remedies under the MSW Rules, 2000. Regarding the clearance procedure, the SEIAA was approached for asking remedies under the EIA Notification, 2006.

In response, the Regional PCB issued a notice to the Ankola Municipality<sup>7</sup>. The Municipality started implementing the MSW Rules, 2000 in light of the complaints from the villagers. The complaint to the SEIAA regarding the clearance of landfill site was acknowledged by the authorities and a site inspection was carried out. After the site inspection, the SEIAA gave instructions to the District Commissioner, Karwar to take suitable action. However, no clear action has been taken at the time this study was going to print.

Likewise, in Bhatkal, the Program worked with Kasalagadde and Belalkanda villagers of Muttalli Panchayat towards better implementation of landfill site rules to prevent the pollution of agricultural land and irrigation sources. Villagers approached the Municipality, highlighting the specific violations and related impacts. They also asked for specific remedies such as constructing a leachate pond at the landfill site, covering of the solid waste after every landfilling activity and diverting of storm water away from the creek during the monsoon. These steps would result in proper implementation of the law and rectify the problems of the villagers.

## 5. SOLID WASTE OF PANCHAYAT AREAS:

### Outside the jurisdiction of the SWM law, but similar problems persist

The MSW Rules, 2000 applies only to cities and towns and keep Panchayats out of its jurisdiction. In some villages due to various aspects such as tourism, high population, industries, highways and transportation and fishing industries, waste generation is high but there is no regulation. Even though Panchayats have a few schemes for rural health and sanitation such as Gram Nirmal Yojana and Swachh Bharat Abhiyan, they are only restricted to features such as providing physical infrastructure, aid and support for toilets and water tanks, etc. In view of this a few villages in Uttara Kannada were studied which were facing problems of solid waste disposal in the absence of a law or authority to manage it.

#### Gokarna

Gokarna is one of the famous religious and tourist places of Uttara Kannada. Every day, thousands of tourists visit Gokarna for its world-renowned beaches and temple. Due to this, the place generates a huge amount of waste that ends up being dumped in creeks and open places.

In Gokarna, several creeks have been blocked due to waste dumping by the hotels, resorts, tourists and temple. The drinking water well located near the creek was polluted due to internal drainage of creek water. The area has become a paradise for mosquitoes and vector borne diseases. The village Health Officer shared that every year several cases of malaria and viral fever are reported. The CPR-Namati Environmental Justice Program worked with Gokarna villagers to attempt to solve these problems.

Venkatesh Achari, a villager whose house was beside the polluted creek, said that he had to get water from other places for drinking and domestic purposes, since the well in his house got polluted after every monsoon. Along with other affected people, he approached the village Panchayat. The Panchayat Officer said the Panchayat too was interested in solving these problems, but it did not have resources or a law to make people abide.

Recently, with help of the Centre For Ecological Sciences, Indian Institute of Science, the creek and Kotitheertha lake have been restored and the situation has improved slightly.

Problems similar to those in Gokarna have also been noticed in other tourist villages such as Murudeshwar, Apsarkonda and Amdalli. Fortunately, with the introduction of the SWM Rules, 2016, some of these issues have been addressed in the law. For example, Section 13 (1) of the SWM Rules, 2016 state that the secretary in charge of village Panchayats or the Rural Development Department in the states and Union Territories shall have the same duties as the secretary in charge of Urban Development in the states and Union Territories for the areas which are covered under these rules and are under their jurisdictions.

Implementation of the SWM Rules, 2016 may bring improvements in waste management in both rural and urban areas.

## 6. RECOMMENDATIONS

Based on this study and its components such as community meetings at eight villages, case studies of the coastal landfill sites, the new Solid Waste Management (SWM) Rules, 2016 and the NGT judgment in the case of Almitra H. Patel and another vs Union of India and others<sup>3</sup>, a few recommendations have been derived.

The present study suggests that the following steps can be taken to make the law and practice of waste management in Uttara Kannada more effective. These recommendations do not include methods to reduce waste generation as that is an essential feature which goes without saying for any waste management practice to succeed. Some of these steps could also be relevant to other parts of the country where communities are seeking to address similar issues as those detailed in this study.

### 6.1 Specific recommendations regarding Uttara Kannada

- i) Addressing the violations at existing landfill sites:** Existing landfill sites in Ankola and Bhatkal which are in violation of the EIA Notification, 2006 and the MSW Rules, 2000 should be shut down. Fresh clearance procedures can be started to establish new landfill sites.
- ii) Remedies for operational sites:** All the operational landfill sites should construct leachate pits and should divert storm water from the landfill away from other water bodies, especially during the monsoon.
- iii) Solid waste management in rural areas:** Village Panchayats should initiate the process of management of solid waste and selecting and setting up landfill sites in villages such as Manaki, Gokarna, Amdalli, Murudeshwar, Haldipur and Avarsa.
- iv) Regular submission and display of compliance and monitoring reports:** It is recommended that the SPCB strictly monitor the submission of annual compliance reports and make these reports available to the public via its website. As per clauses 2 and 3 of Rule 24 of the SWM Rules, 2016, the local body shall submit an annual report to the SPCB, which in turn shall submit a consolidated report to the CPCB. However, responses from the SPCB to RTI applications filed as part of the study suggest that none of the municipalities in Uttara Kannada have submitted annual reports to the SPCB.

### 6.2 Recommendations for the law

- i) Clarity on clearance procedures for landfill sites and guidelines for setting them up:** In the SWM Rules, 2016, Rules 11 and 13 speak only about the setting up of landfill and waste processing sites in urban and rural areas. However, the guidelines for the setting up of landfill sites in both rural and urban areas are not mentioned and clearance procedures are also not described. With regard to this, the SWM Rules, 2016 itself should mention the procedures and identify authorities responsible for granting clearances for the establishment of landfill sites and solid waste processing units.
- ii) Role of SEIAA in the clearance and monitoring process:** Landfill sites (Common Municipal Solid Waste Facilities) in urban areas require an Environmental Clearance

under the EIA Notification, 2006. In the EIA Notification, 2006, Common MSW Management Facilities are categorised under Category B and hence clearance is to be taken from the SEIAA. In the SWM Rules, 2016, the responsibility of the SEIAA is not mentioned. In view of this, in the SWM Rules 2016, the role of the SEIAA in implementation of the said law and its duties in the clearance procedure for landfill sites should be clearly mentioned.

**iii) Action plan by Rural Development Department to be urgently prepared:** The SWM Rules, 2016 directs the village Panchayat also to implement the law and the Rural Development Department to oversee the implementation. The findings of the present study reveal that neither have the Panchayats initiated implementation of the rules, nor has the Rural Development Department taken any measures to oversee the same. Therefore, an action plan should be prepared for implementation of the SWM Rules, 2016 by the Rural Development Department and village level training in the Panchayats should be done to create awareness regarding the law.

**iv) Public participation in site selection:** The findings of the current study reveal that people living near landfill sites are not consulted at any time in the process of their establishment. Therefore, before the selection of landfill sites, public consultation and resource mapping should be carried out by the municipal authority and the SEIAA in urban areas, and by the village Panchayat and the SEIAA in rural areas. Further, drinking water sources, water flow direction, agricultural land, forest land and grazing land should be carefully studied before identifying landfill sites.

**Table 1: Comparison between the law and ground reality: Findings of a groundtruthing study on landfills in Uttara Kannada as of September 15, 2017**

S. No.	Specifications for Landfill Sites as per Schedule III, MSW Rules, 2000	Karwar	Ankola	Kumta	Honnavar	Bhatkal
I.	<p><b>Site Selection</b></p> <p>1. In areas falling under the jurisdiction of 'Development Authorities' it shall be the responsibility of such Development Authorities to identify the landfill sites and hand over the sites to the concerned municipal authority for development, operation and maintenance. Elsewhere, this responsibility shall lie with the concerned municipal authority.</p> <p>2. Selection of landfill sites shall be based on examination of environmental issues. The Department of Urban Development of the State or the Union territory shall co-ordinate with the concerned organizations for obtaining the necessary approvals and clearances.</p> <p>3. The landfill site shall be planned and designed with proper documentation of a phased construction plan as well as a closure plan.</p>	Complied. Established in 2006. (records yet to be collected)	Complied. Obtained Forest Clearance in 2005 and Environmental Clearance in 2008.	Not complied. Clearance was taken in 2010 but the land is under dispute.	Complied. Obtained permission in 2008 and established in 2009.	Complied. Obtained permission and established in 2008.
		No information available	No information available	No information available	No information available	No information available
		Complied	Not complied. There is no documentation of a phased construction plan.	Not complied. Not yet prepared, since facilities have not been established.	Complied.	No information available



S. No.	Specifications for Landfill Sites as per Schedule III, MSW Rules, 2000	Karwar	Ankola	Kumta	Honnavar	Bhatkal
	4. The landfill sites shall be selected to make use of nearby wastes processing facility. Otherwise, wastes processing facility shall be planned as an integral part of the landfill site.	Partly complied. Waste processing unit is established and the construction of the extension is in process.	Partly complied. Waste processing unit is established but not operational.	Not complied. Not established.	Partly complied. Waste processing unit is there but not used for segregation and processing.	Partly complied. Waste processing unit is under construction and landfilling is without segregation.
	5. The existing landfill sites which continue to be used for more than five years, shall be improved in accordance of the specifications given in this Schedule.	Complied	Not complied. There are no plans or space available.	Not complied	Partly complied. Space available.	Partly complied. Space available.
	6. Biomedical wastes shall be disposed off in accordance with the Bio-medical Wastes (Management and Handling) Rules, 1998 and hazardous wastes shall be managed in accordance with the Hazardous Wastes (Management and Handling) Rules, 1989, as amended from time to time.	Not complied	Complied	Not complied	Not complied	Not complied
	7. The landfill site shall be large enough to last for 20-25 years.	Complied	Not complied	Not complied	Complied	Complied

S. No.	Specifications for Landfill Sites as per Schedule III, MSW Rules, 2000	Karwar	Ankola	Kumta	Honnavar	Bhatkal
	8. The landfill site shall be away from habitation clusters, forest areas, water bodies monuments, National Parks, Wetlands and places of important cultural, historical or religious interest.	Complied	Not complied. Landfill site established is near habitation clusters, forest area and water bodies.	Not complied. Landfill site established is near forest area and a water body.	Complied	Partly complied. Landfill site established is near a water body and farmland.
	9. A buffer zone of no-development shall be maintained around landfill site and shall be incorporated in the Town Planning Department's land-use plans.	Not complied	Not complied	Not complied	Not complied	Not complied
	10. Landfill site shall be away from airport including airbase. Necessary approval of airport or airbase authorities prior to the setting up of the landfill site shall be obtained in cases where the site is to be located within 20 km of an airport or airbase.	Complied	Complied	Complied	Complied	Complied
<b>II.</b>	<b>Facilities at the Site</b>	Complied	Complied	Not complied	Complied	Complied
	11. Landfill site shall be fenced or hedged and provided with proper gate to monitor incoming vehicles or other modes of transportation.	Complied	Complied	Not complied	Complied	Complied
	12. The landfill site shall be well protected to prevent entry of unauthorised persons and stray animals.	Complied	Complied	Not complied	Complied	Complied

S. No.	Specifications for Landfill Sites as per Schedule III, MSW Rules, 2000	Karwar	Ankola	Kumta	Honnavar	Bhatkal
	13. Approach and other internal roads for free movement of vehicles and other machinery shall exist at the landfill site.	Complied	Complied	Not complied	Complied	Complied
	14. The landfill site shall have wastes inspection facility to monitor wastes brought in for landfill, office facility for record keeping and shelter for keeping equipment and machinery including pollution monitoring equipments.	Partly complied. Pollution monitoring device not installed.	Not complied	Not complied	Not complied	Not complied
	15. Provisions like weigh bridge to measure quantity of waste brought at landfill site, fire protection equipments and other facilities as may be required shall be provided	Partly complied	Not complied	Not complied	Not complied	Not complied
	16. Utilities such as drinking water (preferably bathing facilities for workers) and lighting arrangements for easy landfill operations when carried out in night hours shall be provided.	Not complied	Not complied	Not complied	Not complied	Not complied
	17. Safety provisions including health inspections of workers at landfill site shall be periodically made.	Complied	Not complied	Not complied	Not complied	Complied

S. No.	Specifications for Landfill Sites as per Schedule III, MSW Rules, 2000	Karwar	Ankola	Kumta	Honnavar	Bhatkal
<b>III.</b>	<b>Specifications for land filling</b> 18. Wastes subjected to landfilling shall be compacted in thin layers using landfill compactors to achieve high density of the wastes. In high rainfall areas where heavy compactors cannot be used alternative measures shall be adopted.	Not complied	Not complied	Not complied	Not complied	Not complied
	19. Wastes shall be covered immediately or at the end of each working day with minimum 10 cm of soil, inert debris or construction material till such time waste processing facilities for composting or recycling or energy recovery are set up as per Schedule I.	Not complied	Not complied	Not complied	Not complied	Not complied
	20. Prior to the commencement of monsoon season, an intermediate cover of 40-65 cm thickness of soil shall be placed on the landfill with proper compaction and grading to prevent infiltration during monsoon. Proper drainage berms shall be constructed to divert run-off away from the active cell of the landfill.	Not complied	Not complied	Not complied	Not complied	Not complied

S. No.	Specifications for Landfill Sites as per Schedule III, MSW Rules, 2000	Karwar	Ankola	Kumta	Honnavar	Bhatkal
	<p>21. After completion of landfill, a final cover shall be designed to minimize infiltration and erosion. The final cover shall meet the following specifications, namely:</p> <p>d. The final cover shall have a barrier soil layer comprising of 60 cm of clay or amended soil with permeability coefficient less than 1 x 10<sup>-7</sup> cm/sec.</p> <p>e. On top of the barrier soil layer there shall be a drainage layer of 15 cm.</p> <p>f. On top of the drainage layer there shall be a vegetative layer of 45 cm to support natural plant growth and to minimize erosion.</p>	Not complied	Not complied	Not complied	Not complied	Not complied
<b>IV.</b>	<p><b>Pollution prevention</b></p> <p>22. In order to prevent pollution problems from landfill operations, the following provisions shall be made, namely:</p> <p>a. Diversion of storm water drains to minimize leachate generation and prevent pollution of surface water and also for avoiding flooding and creation of marshy conditions;</p>	Partly complied	Not complied	Not complied	Not complied	Not complied

S. No.	Specifications for Landfill Sites as per Schedule III, MSW Rules, 2000	Karwar	Ankola	Kumta	Honnavar	Bhatkal
	<p>b. Construction of a non-permeable lining system at the base and walls of waste disposal area. For landfill receiving residues of waste processing facilities or mixed waste or waste having contamination of hazardous materials (such as aerosols, bleaches, polishes, batteries, waste oils, paint products and pesticides) minimum liner specifications shall be a composite barrier having 1.5 mm high density polyethylene (HDPE) geomembrane, or equivalent, overlying 90 cm of soil (clay or amended soil) having permeability coefficient not greater than 1 x 10<sup>-7</sup> cm/sec. The highest level of water table shall be at least two meter below the base of clay or amended soil barrier layer;</p> <p>c. Provisions for management of leachates collection and treatment shall be made. The treated leachates shall meet the standards specified in Schedule-IV;</p> <p>d. Prevention of run-off from landfill area entering any stream, river, lake or pond.</p>	Partly complied	Not complied	Not complied	Not complied	Not complied

S. No.	Specifications for Landfill Sites as per Schedule III, MSW Rules, 2000	Karwar	Ankola	Kumta	Honnavar	Bhatkal
V.	<p><b>Water Quality Monitoring</b></p> <p>23. Before establishing any landfill site, baseline data of ground water quality in the area shall be collected and kept in record for future reference. The ground water quality within 50 m of the periphery of landfill site shall be periodically monitored to ensure that the ground water is not contaminated beyond acceptable limit as decided by the Ground Water Board or the State Board or the Committee. Such monitoring shall be carried out to cover different seasons in a year that is, summer, monsoon and post-monsoon period.</p> <p>24. Usage of groundwater in and around landfill sites for any purpose (including drinking and irrigation) is to be considered after ensuring its quality.</p>	Not complied	Not complied	Not complied	Not complied	Not complied

## REFERENCES

1. Sri Narayana Manjunatha Hegde and others vs. Union of India and others, Application number 1 of 2012 (SZ) [WP 36467 of 2011(High Court of Karnataka)].
2. NGT Judgment dated February 8, 2017 in Sri Narayana Manjunatha Hegde and others vs. Union of India and others, Application number 1 of 2012 (SZ) [WP 36467 of 2011 (High Court of Karnataka)].
3. NGT Judgment dated December 22, 2016 in Almitra H. Patel and another vs. Union of India and others, Original Application number 199 of 2014.
4. Show cause notice dated February 11, 2015 sent by the Regional SPCB to the Kumta municipal authority in KSPCB/FN(Karwar)/Show cause/2014-2015/2162.
5. E.g., complaint dated December 17, 2013 filed by villagers from Bugaribail and Ankola with the District Commissioner, Karwar.
6. Site inspection report dated May 21, 2017 submitted to the SEIAA by the Regional Director, Department of Environment and Ecology, Karwar.
7. Show cause notice dated July 16, 2017 sent by the Regional SPCB, Karwar to the Ankola Municipality.

# Annexure I

## Newspaper reports on problems regarding solid waste management

(In *Karavali Munjavu*, a Kannada daily newspaper, on June 13, 2016)



(In *Vijayavani*, a Kannada daily newspaper, on January 15, 2016)





## **AROUND THE LANDFILL SITES: A groundtruthing of solid waste management law across landfill sites in coastal areas of Uttara Kannada district, Karnataka**

*Around the landfill sites: A groundtruthing of solid waste management law across landfill sites in coastal areas of Uttara Kannada district, Karnataka, highlights a community-led groundtruthing exercise in relation to the operation of municipal solid waste processing units and landfills along coastal Uttara Kannada in Karnataka. Through the process of groundtruthing, discussions about the impacts faced by the people living near the waste processing units and landfills were carried out. The status of implementation of the Municipal Solid Wastes (Management and Handling) Rules, 2000 and compliance with clearance and consent conditions were studied during this exercise. Issues were identified based on impacts arising out of non-compliance with the law and conditions. Evidence was collected in this regard and presented to the relevant regulatory authorities for action. This document explains the process of groundtruthing, nature of violations, impacts on people and the remedies sought.*

