



WASTE WATER MANAGEMENT IN RURAL AREA OF SANGLI DISTRICT

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ABSTRACT:

The environment is the aggregate of the total condition and surrounding in which man lives and interacts which including his way of life. The environment comprises of the surrounding in which man lives, works and plays. It compasses the air he breaths the water likes drink, the food he consumes, and the shelter he takes for his protection. It also includes the pollutants other detrimental environmental factors which adversely affect the life and health of all human beings. The present study is essential because in rural areas the management of waste is not planed and also it is not discarded in good way. It is also clear that waste water management is not good. Thus, the present research work is useful to make the management of waste and waste water in rural areas and it is helpful to maintain the health and the people.

Keywords: Problem of waste management, Waste water management

INTRODUCTION:

Environment has importance not less than blood in the human body in particular, and bodies of all living things in general. It is therefore, protection, preservation of the environment and control of its pollution is of vital importance. The pollution of the environment takes forms such as air pollution, noise pollution, soil pollution, and waste generation as well. This demands to control environmental pollution of different types. Waste management has a special importance on various grounds. It enables to control environmental pollution on the one hand, and on the other, and more importantly that facilitates preservation, conversation of natural resources and their recycling as well. Waste can be solid waste in the form of garbage, and liquid waste in the form of domestic and business waste water. The management of the waste also contributes to the control of the environmental pollution as well as environmental balance. In this overall backdrop, it is very much essential to examine waste management, its nature, extent and efficiency as well. India as well as Maharashtra is dominated by the rural area. The same is the case of districts in the state of Maharashtra. Sangli is a famous district in the state of Maharashtra and Western Maharashtra on various grounds. It is against this

overall background, the present research study intends to study the waste management practices in the rural Sangli district of Maharashtra for the latest period from 2006-07 to 2012-13.

STATEMENT OF THE RESEARCH PROBLEM:

It is fact that rural area in the state like Maharashtra is not much acquainted with the knowledge of the environment in general and the problem like waste management in particular. It is clearly and adequately being observed in the rural areas of Sangli District in Maharashtra. The rural local bodies in the district are not spending much on the management of the waste; both the solid as well as liquid. The participation of the people is not much satisfactory. There is absence of adequate availability of urinal, latrine, drainage and gutter facilities in all the 10 villages of Sangli District. They are also not collecting all the solid waste being generated and disposing of as well. Hence, it is very much necessary to study the problem of waste water management in rural Sangli District of the state of Maharashtra.

OBJECTIVES:

1. To study the problem of waste management in rural areas of Sangli District
2. To assess the waste water management practices in rural areas of Sangli District
3. To give suggestion for solving the problems identified.

HYPOTHESIS:

The hypotheses of the present research study are as follows:

1. Rural area of Sangli District is not fully equipped with the drainage and gutter facility necessary for waste water management.

RESEARCH METHODOLOGY:

The study solely relies on the secondary data. Data is collected from discussions and interviews with the people and the necessary primary data is also collected. The secondary data is collected from budgets, reports and official records of the villages selected for the study. This data is further processed and analyzed by the statistical tools like Compound Growth Rate (CGR), Ratio analysis, Coefficient of Variation (CV).

Sample Design:

The selection of the villages is a purposive sample of one village each from all 10 tehsils comprising of in all 10 villages from Sangli District which represents rural Sangli district of the state of Maharashtra. Period of the study period is 2006-07 to 2012-13.

LIMITATIONS OF THE STUDY:

The limitations of the present research study are as follows:

1. The present study covers the period only from 2006-07 to 2012-13, and neglects all other.
2. The study heavily relies on the secondary data, and neglects the importance of primary data.

DATA ANALYSIS:**Waste Management in Rural Sangli District:**

Compared to urban area, it is difficult to make arrangement of waste management plans for waste management. It collects the waste and discarded it away from the city. In Rural area waste collected by grampanchayat it is not disposed well so it causes the pollution and it also affects the health of the people. Waste water is connected to gutter. But there is not recycling of waste water and it is used for other work. There are various problems regarding waste management in rural area. There is shortage of dustbins, sweepers, various tools concerns with waste. In rural area, the waste is not collected every day. It is planned that after four days or in a week waste collected. There is not a planning of waste management so it is harmful to environment and health also.

Table 1: Waste Water Management

Year	Rampur Village (Jath Taluka)				Kadepur Village (Kadegaon Taluka)			
	No. of sanitation pits (%)	No. of families who uses waste water for gardening (%)	No. of families whose waste water attached to gutters (%)	Total no of families (%)	No. of sanitation pits (%)	No. of families who uses waste water for gardening (%)	No. of families whose waste water attached to gutters (%)	Total No. of Families (%)
2006-07	20 (4.0)	10 (1.98)	280 (55.5)	504 (100)	43 (10.49)	45 (10.97)	315 (76.83)	410 (100)
2007-08	20 (4.0)	20 (4.0)	280 (55.5)	504 (100)	70 (14.77)	75 (15.82)	315 (66.45)	474 (100)
2008-09	38 (7.5)	27 (5.3)	280 (55.5)	504 (100)	100 (18.90)	105(19.85)	334 (63.14)	529 (100)
2009-10	79 (15.7)	75 (14.9)	350 (69.44)	504 (100)	109 (17.87)	80 (13.11)	434 (71.15)	610 (100)
2010-11	83 (15.2)	80 (14.68)	351 (64.40)	545 (100)	109 (12.27)	80 (9.00)	687 (77.36)	88 (100)
2011-12	108(12.16)	82 (9.23)	587 (66.10)	888 (100)	109 (12.27)	80 (9.00)	687 (77.36)	88 (100)
C.G.R.	46.78	56.61	14.05	9.16	18.92	16.02	20.40	18.33
C.V.	58.24	61.06	46.70	24.50	23.90	6.64	33.34	30.02
Mean	58.33	49	354.67	574.83	90	77.5	462	633.17

Source: - Sant Gadgebaba Gramsvachhata Abhiyan Report 2006-07 to 2011-12.

The table shows that the Rampur village of C.G.R of sanitation pits is 46.78 and C.V. is 58.24, C.G.R of families use waste water for gardening is 56.6 and C.V. is 61.06 and C.G.R of families uses waste water attached to gutter is 14.04 and C.V. is 30.61. Kadepur village of C.G.R of sanitation pits is 18.92 and C.V. is 23.90, C.G.R of families uses waste water for gardening is 16.02 and C.V. is 6.64 and C.G.R of families uses waste water attached to gutter is 20.40 and C.V. is 33.34.

Table 2: Waste Water Management

Year	Yedenipani Village (Walwa Taluka)				Ghatnandre Village (K. Mahankal Taluka)			
	No. of sanitation pits (%)	No. of families who uses waste water for gardening (%)	No. of families whose waste water attached to gutters (%)	Total no of families (%)	No. of sanitation pits (%)	No. of families who uses waste water for gardening (%)	No. of families whose waste water attached to gutters (%)	Total No. of Families (%)
2006-07	45 (4.01)	20 (1.78)	675 (60.11)	1123 (100)	69 (15.57)	12 (2.71)	245 (55.30)	443 (100)
2007-08	45 (3.33)	20 (1.78)	675 (49.93)	1352 (100)	74 (16.70)	14 (3.16)	260 (58.69)	443 (100)
2008-09	45 (3.33)	20 (1.48)	679 (30.22)	1352 (100)	74 (16.70)	14 (3.16)	260 (58.69)	445 (100)
2009-10	45 (3.32)	20 (1.47)	679 (50.04)	1357 (100)	76 (17.08)	20 (4.49)	286 (64.27)	445 (100)
2010-11	45 (3.32)	20 (1.47)	679 (50.03)	1357 (100)	78 (17.53)	20 (4.49)	345 (64.27)	445 (100)
2011-12	45 (3.20)	20 (1.42)	679 (48.32)	1407 (100)	78 (17.5)	22 (4.94)	345 (77.53)	445 (100)
C.G.R.	-	-	0.13	3.30	2.30	13.58	7.88	0.10
C.V.	-	-	0.28	6.94	8.25	22.27	13.99	1.20
Mean	45	20	677.67	1324.67	74.83	17	290.17	444.33

Source: - Sant Gadgebaba Gramsvachhata Abhiyan Report 2006-07 to 2011-12.

The table 2 presents that Yedenipani Village C.G.R of sanitation pits is 0 and C.V. is 0, C.G.R of families uses waste water for gardening is 0 and C.V. is 0 and C.G.R of families uses waste water attached to gutter is 0.13 and C.V. is 0.28. Ghatnandre Village shows C.G.R. is 13.58% but very less C.G.R. is 2.30% for use of sanitation pits for waste water management.

Table 3: Waste Water Management

Year	Radewadi Village (Palus Taluka)				Belanki Village (Miraj Taluka)			
	No. of sanitation pits (%)	No. of families who uses waste water for gardening (%)	No. of families whose waste water attached to gutters (%)	Total no of families (%)	No. of sanitation pits (%)	No. of families who uses waste water for gardening (%)	No. of families whose waste water attached to gutters (%)	Total No. of Families (%)
2006-07	10 (9.09)	25 (22.72)	79 (71.81)	110 (100)	15 (1.71)	38 (4.32)	385 (43.80)	879 (100)
2007-08	12 (10.52)	25 (21.92)	79 (69.29)	114 (100)	35 (3.91)	40 (4.47)	389 (43.46)	895 (100)
2008-09	12 (9.23)	30 (23.07)	84 (64.61)	130 (100)	35 (3.87)	42 (4.64)	389 (42.90)	905 (100)
2009-10	14 (10.76)	30 (23.07)	84 (64.61)	130 (100)	40 (4.25)	43 (4.57)	392 (41.70)	94 (100)
2010-11	18 (13.79)	34 (26.15)	89 (68.46)	130 (100)	45 (4.78)	45 (4.78)	395 (41.70)	942 (100)
2011-12	25 (19.23)	34 (26.15)	89 (68.46)	130 (100)	45 (4.78)	45 (4.78)	395 (41.93)	942 (100)
C.G.R.	18.53	7.28	2.76	3.57	20.00	3.55	0.52	1.55
C.V.	33.27	29.67	4.86	6.91	29.39	6.03	0.91	2.76
Mean	15.16	29.66	84	124	35.33	42.16	390.83	917.5

Source: Sant Gadgebaba Gramsvachhata Abhiyan Report 2006-07 to 2011-12.

The table 3 explains the Radewadi Village of C.G.R of sanitation pits is 18.53 and C.V. is 33.27, C.G.R of families uses waste water for gardening is 7.28 and C.V. is 29.67 and C.G.R of families uses waste water attached to gutter is 2.76 and C.V. is 4.86. In Belanki Village C.G.R of sanitation pits is 20.00 and C.V. is 29.39, C.G.R of families' uses waste water for gardening is 3.55 and C.V. is 6.03 and C.G.R of families' uses waste water attached to gutter is 0.52 and C.V. is 0.52.

Table 4: Waste Water Management

Year	Nelkaraji Village (Atapadi Taluka)				Jarandi Village (Tasgaon Taluka)			
	No. of sanitation pits (%)	No. of families who uses waste water for gardening (%)	No. of families whose waste water attached to gutters (%)	Total no of families (%)	No. of sanitation pits (%)	No. of families who uses waste water for gardening (%)	No. of families whose waste water attached to gutters (%)	Total No. of Families (%)
2006-07	15 (2.75)	9 1.65	150 (27.52)	545 (100)	14 (2.87)	15 (3.08)	121 (24.84)	487 (100)
2007-08	15 (2.75)	9 (1.65)	150 (27.52)	545 (100)	14(2.87)	15 (3.08)	154 (31.62)	487 (100)
2008-09	25 (4.59)	20 (3.67)	320 (58.71)	545 (100)	19 (3.90)	19 (3.90)	224 (45.99)	87 (100)
2009-10	25(4.59)	20 (3.67)	338 (62.02)	545 (100)	23 (4.08)	21 (3.72)	247 (43.79)	564 (100)
2010-11	30 (4.10)	25 (3.41)	345 (47.13)	732 (100)	27 (4.78)	21 (3.12)	264 (46.81)	564 (100)
2011-12	30 (4.10)	30 (4.10)	357 (48.77)	732 (100)	32 (5.37)	23 (4.08)	269 (47.69)	564 (100)
C.G.R.	17.17	29.64	21.75	6.97	19.70	9.72	17.71	3.85
C.V.	26.73	39.96	35.38	14.51	52.47	16.08	26.58	7.33
Mean	23.33	18.83	276.67	607.33	21.5	15.5	213.17	812.61

Source: - Sant Gadgebaba Gramsvachhata Abhiyan Report 2006-07 to 2011-12.

The table 4 shows that the Nelkaranji Village C.G.R of sanitation pits is 17.17 and its C.V. is 26.73, C.G.R of families' uses waste water for gardening is 29.63 and its C.V. is 39.96 and C.G.R of families' uses waste water attached to gutter is 21.75 and its C.V. is 35.38. in Jarandi Village C.G.R of sanitation pits is 19.7 C.V. is 52.47, C.G.R of families' use waste water for gardening is 9.72% and C.V.% is 16.08 and C.G.R of families' use waste water attached to gutter is 17.17 and C.V. is 26.58.

Table 5: Waste Water Management

Year	Hivare Village (Khanapur Taluka)				Bilashi Village (B. Shirala Taluka)			
	No. of sanitation pits (%)	No. of families who uses waste water for gardening (%)	No. of families whose waste water attached to gutters (%)	Total no of families (%)	No. of sanitation pits (%)	No. of families who uses waste water for gardening (%)	No. of families whose waste water attached to gutters (%)	Total No. of Families (%)
2006-07	25 (7.10)	15 (4.26)	54 (15.34)	352 (100)	25 (3.65)	7 (1.02)	337 (49.27)	684 (100)
2007-08	30 (8.40)	15 (4.20)	60 (16.81)	352 (100)	30 (4.38)	7 (1.02)	384 (56.14)	684 (100)
2008-09	30 (8.36)	17 (4.73)	60 (16.71)	359 (100)	35 (5.06)	8 (1.16)	535 (77.31)	692 (100)
2009-10	37 (10.22)	19 (5.25)	89 (24.58)	362 (100)	37 (5.31)	8 (1.15)	630 (90.39)	697 (100)
2010-11	37 (10.05)	21 (5.25)	160 (43.8)	362 (100)	42 (5.97)	8 (1.14)	655 (93.17)	703 (100)
2011-12	39 (10.60)	21 (5.71)	160(43.48)	368 (100)	42 (5.97)	8 (1.14)	683 (97.15)	703 (100)
C.G.R.	9.14	8.33	28.47	0.92	11.02	3.10	16.34	0.65
C.V.	15.15	14.52	47.14	1.60	17.48	6.16	24.89	1.13
Mean	33	18	97.67	361	42.17	7.67	537.33	693.83

Source: - Sant Gadgebaba Gramsvachhata Abhiyan Report 2006-07 to 2011-12.

The table 5 explains the Hivare Village C.G.R of sanitation pits is 9.14% C.V. is 15.15%, C.G.R of families' use waste water for gardening is 8.33% and C.V. is 14.52% and C.G.R of families' use waste water attached to gutter is 28.47% and C.V. is 47.14%. In Bilashi Village C.G.R of sanitation pits is 11.02 C.V. is 17.48, C.G.R of families' use waste water for gardening is 3.09 and C.V. is 6.16 and C.G.R of families' whose waste water attached to gutter is 16.34 and C.V. is 24.89.

TESTING OF HYPOTHESIS:

The present study has not used the statistical methods for testing its hypotheses. But it is attempted to incorporate the analysis relating to the hypotheses. The data results analysis adequately proves that the total generated solid waste in the study area is not being collected and disposed of properly. It is because the setup of solid waste management is inadequate, and that local government is also not active to the extent required. Likewise, the waste water management in the study area is also not taking place properly because of inadequate gutter and drainage facility in these villages.

FINDINGS:

1. It is revealed that a majority of families in Rampur Village have attached their waste water to the gutter is a thing of appreciate. Its a good waste water management practice. The number of sanitations pits is increasing

in this village, initially it is good, but later on this picture should be changed. The number of families using waste water for gardening is increasing day by day is good thing, but it should increase rapidly and significantly because it facilitates recycling of waste water, which is very much demanded. Recently also the no of families whose waste water is attached to gutter is increased, is a thing of concerns.

2. It is revealed that the number of families whose waste water attached to gutter is higher, and it is increasing, is a good thing in Kadepur. The families using pits is growing day by day, and it is in considerate number. The households using waste water for gardening shows fluctuations, but it has a declining trend. It is also a noteworthy thing that, the families who do not use either gutter or sanitation pits is also a considerate, that cannot be negligible, availing for them is very much necessary on various grounds.
3. It is observed that the number of households using sanitations pits is considerable one, but increasing at the marginal rate during the period under study in Yedenipani. The households using waste water for gardening purpose is meagre. It is good that the families whose waste water attached are higher and increasing also. But it is inadequate, because still the families which do not have access to pits as well as gutter is in significant number. It is not an indicator of the proper management of the waste water in the village panchayat under a study.
4. It is observed that the number of sanitation pits is increasing in Belanki village. Likewise, the number of families using waste water for gardening is good and increasing also. At the same time, the number of families whose waste water is attached to gutters is higher, and increasing considerably during the period under study. But the fact is that, the total number of households in this village is significantly higher than the availability of the total facility of waste water management in the village. This reveals that, there is an urgent need to provide for the waste water management in this village.
5. It is observed that the number of sanitation pits in Nelkaranji village is lesser, but it is increasing, likewise, the families using waste water for gardening purpose is also lower, but it is increasing, is a thing of satisfaction. The families who have attached their waste water to gutter are higher and also increasing at significant rate, also is a thing of appreciation. But all these activities of the waste water management are inadequate in comparison with the total families in the village. This is not a proper management of the waste water
6. The number of households having sanitation pits is lesser in Jarandi village. The same is the case of the families who use waste water for gardening purpose. Even though, the number of families whose waste

water is attached to the gutter is higher and showing a rising trend, but it is inadequate. This clearly shows incorrect and unsatisfactory management of the waste water in this village. This urgently demands to provide for the adequate facilities of waste water under management in the village.

7. It is observed from the above data analysis that, there are sanitation pits, but the number is meagre even it is increasing in Hivare village. There are some cases of families that use waste water for gardening purpose. The families whose waste water is attached to gutter is higher comparatively, and increasing significantly, it is also inadequate and insufficient. This poses the need for adequate supply of waste management facility. It is not the proper management of the waste water in this village.
8. The number of families having sanitation pits is lesser, even though it is increasing in Bilashi village. The families using their waste water for gardening is very insignificant, and also shows a meagre growth. It is a thing of satisfaction that families whose waste water is attached to gutters is higher and also shows a considerable growth during the study period. It is not adequate so far as total number of families is taken into consideration. Thus, this village has no proper management of the waste water.

SUGGESTIONS:

Following are the different suggestions made for the better waste management in the rural area of Sangli district.

1. Boot and hand gloves etc. should be made compulsory to the workers engaged in the conservancy department of village panchayat.
2. The existing refuse collecting vehicles are not sufficient to collect the solid waste generated in villages. The additional refuse collecting vehicles may be provided.
3. The existing methods of disposal of solid waste are crude and unscientific. Some solid waste was burnt at road side, some solid waste water used to fill quarries in the rural area, and some was thrown at dump sides. Eco-friendly methods of disposal of solid waste like composting, vermin composting, disposal and incineration of hazardous waste can be accepted.
4. The leaves of trees and compostable part of the solid waste should not be burnt. Instead of that it may be collected and provided to the farmers to compost fertilizers. For this purpose collect and carry system may be implemented.
5. The nuisance of stray cattle, pickers, squatting around the dust bins should be controlled.

6. There is need of environmental education and civic sense. It should create the awareness about clean environment on local T.V., radio and new papers.
7. The financial positions of rural local bodies should be strengthened for the proper management of the waste.
8. The special grants from union and state government will be very much useful in financing of waste management in the rural areas.
9. The training and mechanism of recycling of waste should be provided for the proper waste management.
10. People's active participations will enable in the proper management of the waste.

CONCLUSION:

The studying of waste management is very much important. Its importance further increases because of its study relating to rural areas. The above analysis reveals a unsatisfactory picture of the waste management in the rural areas of Sangli district. This study is a little bit attempts in that direction. There is a need for such number of studies, because it is a vast scope and very significant topic. Likewise, the present study is based on the secondary data only, which is not adequate; the use of primary data is also needed, which will disclose the number of new things relating to the waste management especially in the rural areas.

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