



HYGIENIC MANAGEMENT OF AGRICULTURAL AND ANIMAL WASTE IN RURAL AREAS -ISSUES AND SUGGESTIONS - A STUDY OF SOMASAMUDRA GRAMA PANCHAYAT

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ARTICLE INFO

Article History:

Received 6th September, 2017

Received in revised form 25th

October, 2017

Accepted 3rd November, 2017

Published online 28th December, 2017

Key words:

Agriculture, Livestock, Global Warming, Pollution, Somasamudra village, Poverty, Diseases, Waste Disposal Policies, Rural Population, Agro processing skills.

ABSTRACT

People in rural areas of India are mainly involved in primary sector. They are actively engaged in agricultural and livestock rearing. The agricultural wastage viz., straw from rice/jowar/wheat/corn leaves, cobs, trash from cane/ crop etc., hazardous waste from excess usage of pesticides and fertilisers and the livestock wastage mainly from animal dung and urination etc., are not hygienically disposed in a particular dumping yard near the village. Infact they are used to some extent as fuel for cooking and for agricultural purposes and the rest is dumped near to their residing homes openly. The policies made by the Central/State or Local government dealing with waste management in rural areas are not fruitful. The tendency of the rural people has not changed since centuries in India with respect to this dumping of waste and they are adjusted to living along with it. Majority of them are unaware of the negative effects of it. The effective utilization of the agricultural and animal waste is at a very low pace in India. This inturn is posing a serious issue to the people and environment by increasing the chances of spreading air/water/soil/ pollution, increasing the issues related to climate change/health issues of the population, causing fire issues, causing acid rains, thereby mainly driving the rural people towards poverty as they need to spend more on health issues and so on. Developed nations have made strict policies to dispose the agricultural and animal wastage effectively with the help of modern technology but due to poverty the rural people in developing countries like India are not marching ahead with modern waste disposal technologies. This is where the governmental sector has a major role to play in disposing it effectively and timely and make the rural areas a happy place to live.

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INTRODUCTION

In the list of developing countries India is one of the major country where its rural population is primarily dependent on agriculture and livestock for livelihood in rural areas. They are dumping the waste near their residing areas. The livestock in majority of the cases is a part of their home and they live along with it. Approximately 98 per cent of the rural population is continuing this traditional tendency for centuries together in India. The main reason that can be attributed to this issue is because of poverty due to meagre land holdings and low returns. The measures taken by the governmental agencies are not effectively implemented at later stages leading to failure of the policies of waste management compared to urban areas in India. The issues arising out of this ineffective management has its direct and indirect impact on people and environment not just in the study area or India but throughout the globe.

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Objectives

The objectives of the study are as follows:

- To study the tendency of the rural farmers in the disposal of agricultural and animal waste in the study area.
- To study the significance of effective management practices of agricultural and animal waste.
- To analyse and relate the reasons for the traditional disposal of agricultural and animal waste in the study area.
- To identify the issues and suggest measures for effective and economical management of agricultural and animal waste in the study area.

Research Problem

The farmers in the rural areas are engaged in agricultural and livestock rearing activities. They are blindly following the age old tendency of disposing the waste near their home or near their house. This has its own effects on the health of the population living in rural areas and paving the way for the

spread of many kinds of diseases. In developed countries the waste management practices with the help of modern technology and disposal of waste far from the residing areas are being practiced effectively. In the study area the local government has a major role to play to regulate the waste management and community participation is the most important requirement to develop and transform rural areas as visualised by Mahatma Gandhiji that the villages should become self reliant.

Scope of the study area

The scope of the study is limited to Somasamudra Village Panchayat limits due to paucity of time and money.

Need for the study

The issues arising out the waste disposal in rural areas is a local, national and international issue impacting negatively on environment and population. Living beings are biological in nature and are sure to add residue in one form or the other. The effective disposal of this residue in living areas is a need for concern. The society is witnessing new and dangerous affects of ill waste disposal. The causes for this are varied and diverse in different regions of the world and there is a dire need to identify them timely to find a solution and protect mankind on this planet.

Significance of the study

This study is helpful to identify the tendency of the people in the study area for not adopting new and modern methods of agricultural and livestock wastage effectively. It will be helpful for the researchers/policy makers/policy implementers to take effective steps to overcome this menace in a proper manner and with the participation of the community as a whole.

Brief profile of the study area

Somasamudra is a large village located in Ballari District, Karnataka State, India. The total number of families residing in this village is 1536. According to the Indian Constitution of India and the Panchyati Raj Act of Karnataka the village is being administrated by a Sarpanch/Head of Village and is an elected representative of Village and indirectly elected to the post of Sarpanch for a fixed term by the directly elected representatives of the Village.¹

2011 Census Data of Somasamudra Village

Table 1

Sl.No:	Particulars	Male	Female	Total
1.	Total number of houses			1536
2.	Population	3989	3969	7958
3.	Child (0-6)	569	522	1091
4.	Schedule Caste	699	711	1410
5.	Schedule Tribe	842	883	1725
6.	Literacy	71.87 %	49.38 %	60.58 %
7.	Total Workers	2388	2116	4504
8.	Main Worker	0	0	4409
9.	Marginal Worker	44	51	95

Source: Census of India 2011.²

As mentioned in the above Table 1 the total number of houses in the study area are 1,536. The total population is 7958 and among them the male population is 3989 and the female population is 3969. The child population is 1091 and among them 569 are male and 522 are female. The total Scheduled

Caste population is 1410 and among them 699 is male population and 711 are females. The Scheduled Tribe population is 1725 and among them 842 are males and 883 are females. The total literacy rate of the village is 60.58 per cent and among them the male literacy is 71.87 per cent and 49.38 per cent is female literacy rate. The total working population in the study area is 4504 and among them 2388 are male workers and 2116 are female workers and among total workers 1713 were cultivators (Co-owner or Real owner) while 2240 are the agricultural labourers. The main workers (Earning for more than six months) in total consists of 97.89 per cent. The marginal working population (Earning for less than six months) are of 2.11 per cent respectively as per the census report of 2011.³

Traditional methods of waste disposal in the study area

The tendency of waste disposable near their houses is being practiced since their forefathers. They treat it as property and utilise it for the next season. They are not aware that due to its open dumping causes various kinds of pollution and thereby leading to common diseases. Its impact on environment and their children is not a concern for them. They are just worried about its protection from robbers because of its use in the production of crops in future.

Availability of modern technology for waste disposal

In western and developed countries are utilising the modern technology for various purposes to compress and process the agricultural and animal waste in the rural areas. The developing countries and underdeveloped countries are not aware of these developments and due to poverty are not able to afford to buy it. Majority of the farmers do not have adequate skills required for the operating of the equipments. In developed countries the farm produce is directly linked to the processing industries and it is like a dream to the poor farmers in the developing and underdeveloped countries like India. This is hindering their fullest development and fall behind compared to their western counterpart.

Management of effective waste disposal enhances the income of people in the study area

There is huge demand for the agricultural and animal waste because many industries are dependent on that as a major source of raw material. They produce manures, fertilisers and so on and again sell the same for higher price to the farmers at markets. The farmers are not aware of its significance that it will provide them with half of what they earn from the production of crops.

Role of local government in waste disposal

The garbage disposal by the local government is ineffectively functioning in the study area. The officials responsible for the disposal of waste generated in the rural areas are least worried about the ill effects of it. There is no questioning about the issues arising out of it. Open defecation is a common issue and the diseases generating through it are not paid any heed to solve it. On ground level land filling is being practiced in the study area but below the ground level land filling with latest technology as being practiced in the developed countries has become a myth in the rural areas. The Somasamudra Gram Panchayat is not having any kind of linkage with the industries dependent on waste as the raw material. The markets for

agricultural and animal waste buyers in the rural areas are not find anywhere.

Methodology of the study

This research study is descriptive in nature. The data for the study has been collected from the primary and secondary sources. The universe of the study is one hundred rural respondents in Somasamudra Village of Ballari District in Karnataka State. The research technique used in this study is simple random sampling method. This study is both exploratory and analytical in approach.

To collect the primary data the interview schedule method and personal observation technique has been used to analyse the perception of respondents in the study area. The secondary sources are collected from various government websites, Wikipedia, books, journals, local newspapers, district statistical information with respect to annual reports and concerned department websites. The collected data has been tabulated and analysed through simple statistical tools and thereby the inferences have been drawn based on this in the study area.

Gender-wise distribution of the respondents
Table 2

N=100

Sl.No.	Gender-wise distribution	Percentage of the respondents (%)	Total (%)
1.	Male	63	
2.	Female	37	100

Source: Computed from the primary data

Table 2 indicates that the total universe of the study is 100 respondents. The male respondents constitute 63 per cent of the population and the female respondents represent 37 per cent of the population in the study area respectively.

Age wise distribution of respondents
Table 3

N=100

Age group	% of respondents
Children (Below 18 years)	16
Youth (18-31)	41
Middle age (32-50)	22
Aged (50-60)	14
Senior Citizens (60 and above)	07
Total	100

Source: Computed from the primary data

Table 3 depicts the distribution of the respondents in the study area according to their age. The table reveals that the total respondents in the study area constitute 100 members, the children below the age of 18 years cover 16 per cent, the youth in the age group of 18-31 constitute 41 per cent, middle age respondents in the age group of 32-50 cover 22 per cent, aged respondents in the age group of 50-60 represent 14 per cent, and the respondents belonging to the age group of 60 and above are recognised as the senior citizens by the Government of India and constitute 07 per cent in the study area respectively. The different age groups were selected for the study mainly to provide an overall scenario of the affected people in the study area.

Caste-wise distribution of respondents
Table 4

N=100

Caste	% of respondents
Upper castes	42
OBC's	28
Scheduled Caste	21
Scheduled Tribes	09
Total	100

Source: Computed from the primary data

In Table 4, it is depicted that 42 per cent of respondents belong to upper castes, 28 per cent belong to other backward communities, 21 per cent of them belong to Scheduled Castes, 09 per cent of them belong to the Scheduled Tribes respectively.

Literacy wise distribution of the respondents
Table 5

N=100

Sl.No.	Literate (%)	Illiterate (%)	Total (%)
1.	54	46	100

Source: Computed from the primary data

Table 5, indicates that the 54 per cent of the respondents are literate and the rest of the 46 per cent respondents are illiterate in the study area respectively.

Findings of the Study

The findings of the study based on the analysis of the primary data are mentioned below in table 6:

Table 6

Sl.No.	Perception of the respondents in the study area
1.	100 per cent of the residents belong to Somasamudra Grama Panchayat
2.	100 per cent of the respondents are from below poverty line families
3.	95 per cent of them own agricultural land and produce crops
4.	05 per cent of them have leased the land for cultivation and produce crops
5.	92 per cent of them have the livestock along with agriculture and the rest 08 per cent of them are purely dependent on livestock
6.	65 per cent farmers are purely dependent on agriculture and the rest 30 per cent of them are involved in minor businesses along with agriculture
7.	100 per cent of the respondents dispose the agricultural and livestock wastage near their homes due to security reasons of their wastage which will have monetary benefits when sold or re-utilised for agricultural purposes
8.	100 per cent of them do not have any biogas plant.
09.	38 per cent of the agricultural waste is utilised for agricultural purposes and the rest 62 per cent of it is sold to the wholesaler at their doorstep
10.	65 per cent of the animal waste is utilised for the production of crops in the next season and till then it is dumped near their homes and the rest 35 per cent of it is sold to the wholesalers
11.	100 per cent of them replied that they spray fertilisers and pesticides for the growth of crops and to protect them from pests and other diseases
12.	79 per cent of them replied that they suffer from minor fever/cough/sneezing/etc., every now and then but doesn't know the reasons for its frequent occurring
13.	100 per cent of them replied that they did not knew about the new and modern technology to dispose the waste effectively and earn money through it
14.	100 per cent of them are not aware about the industries or companies that utilise the animal and agricultural wastage by converting it to fuel or fertiliser for reuse
15.	100 per cent of the respondents are not able to afford the new and modern technology to convert the waste to fuel or some other form due to poverty and knowhow
16.	100 per cent of them replied that they and their forefathers are dumping the waste from agriculture and livestock near their homes to minimise expenditure for the next season of cropping as they use certain percentage of it in one or the other form
17.	67 per cent of them tie the livestock within their home after the entrance of the main door
18.	100 per cent of them replied that on the side of the government or any NGO or the company owners ever demonstrated the new technology in their villages for effective utilisation of the agricultural and livestock wastage
19.	100 per cent of the respondents replied that any seminars/conferences/workshops were not organised to create awareness about the effective, efficient and economical conversion of the waste for

	more profits
20.	100 per cent of them replied that they were not linked up or had any agreement with any company that utilises the agricultural and livestock wastage
21.	100 per cent of the respondents replied that as they have small and scattered land holdings it is not economical to purchase the costly waste disposal equipments for more returns from the agricultural and livestock wastage
22.	100 per cent of them replied that there is no pooling of the waste due to lot of differences in caste system and chances of misuse
23.	100 per cent of the respondents replied that the community participation in waste management is a myth and not a reality in jointly pooling and jointly managing the ownership of the purchased modern equipments as the differences may lead to confusion and disbelief with respect to sharing of profits out of it and further paving a way for the conflicts between the castes and families
24.	100 per cent of the respondents said that they are not in a position because of small land holdings to approach the banks in order to get the loan by mortgaging their only source of livelihood unless the equipments are freely distributed through the government or non-governmental organisation
25.	100 per cent of the respondents are willing to have a hygienic ideal village with well planned and regularly maintained by the government agencies
26.	100 per cent of the respondents are not satisfied with the open drainage system as they are not regularly cleaned
27.	100 per cent of the respondents face the problem of mosquitoes/pathogens/insects/flies/bad smell/termites/stray dogs/stray donkeys/stray pigs/ and they are openly criticising the local government in their village for not controlling the issues related to their negative effects on people in the study area since independence
28.	100 per cent of the respondents replied that there are lot of caste differences and direct and indirect caste conflicts of major and minor nature in the study area.

Source: Computed from the Primary Data based on Interview Schedule

Waste disposal problems specific in nature to Somasamudra Village

The issues that have been identified during the research study are stated below:

- There is no separate dumping yards allocated for every family in the village by the government.
- The land holdings of the farmers is very less resulting in less income and less purchasing power.
- The village is not well planned.
- The village Panchayat is not paying any heed to the issues related to the management of agricultural and livestock waste being dumped near the houses in the study area.
- There is no change in the tendency of the rural population about the disposal of agricultural and livestock waste.
- There are lot of differences among castes and this is posing to be a major problem for joint community participation in overcoming this issue of waste management.
- Clusters based on castes are living at different areas in the study area and not mixed as it is found in urban areas.
- The awareness camps are not organised to educate the rural masses especially the illiterate about the negative effects of improper disposal and dumping and storing it near their houses for the next season or until it is sold to the buyer.
- The open drainage system is not well managed regularly and the disinfectants are not sprayed as per the requirement further adding to the unhygienic environment in the study area.
- Majority of them suffer from several common allergies in the study area.
- The biogas plants are not built in their house or farms.
- Traditional methods of cultivation and dumping of its residues has not undergone lot of changes in pre-independent and post-independence period.

- Lack of storage facilities for the produced crops and its wastage is causing huge loss to the farmers.
- There is no display system of the original rates prevailing at the district market yards at the study area.
- There is a huge communication gap between the rural population and the local Grama Panchayat members.
- Burning of the agricultural and animal waste to some extent is prevailing in the study area and thereby contributing to global warming.
- Successful Planning and Implementation from the grassroot level should be given priority.
- Local Political leaders should be encouraged to visit frequently to the waste disposal areas.
- Agro and livestock processing skills and technology awareness campaigns are not arranged in the rural areas.
- Farm and livestock products are not directly linked to the industries processing it thereby spending huge time and money spent on it.

Suggestions to overcome the issues of agricultural and livestock wastage in the study area

The suggestions to solve the issues of the waste disposal in the study area are mentioned below:

- The policies related to farmers are majorly focused on inputs for the production of crops and not on the wastage disposal out of it. So, the process of inputs should also include marketing of its wastage at a fair price.
- Pro-active market policies of the waste generating through it should be paid attention by the government for its storing and disposal and its linkage to the industries dependent on it as a raw material.
- Awareness related to the significance of agricultural and animal waste should be provided through seminars/conferences/workshops et.
- Technology related to the compression of the waste to pellet form should be made available to the farmers.
- Recycling of the agricultural and animal waste garbage into manures should be provided to the farmers.
- The animal and agricultural waste generated at the farmers house should be chemically treated with the modern technology.
- The chemically treated agricultural and animal waste should be compressed and stored in the packets in a storing chamber and those bags should display the name and address of the farmers.
- NGOs should be encouraged to take an active role in providing modern technology to overcome the dumping of the agricultural and animal waste near the homes of the farmers.
- Health officers should frequently visit the rural areas and take strict measures to overcome the waste disposal activities violating the rules related to hygiene and sanitation.
- A team of local volunteers should be created to safeguard the interests of the rural population and supervise to the dumping of waste and its disposal and compression activities along with packing and storing it for future use.

- The rural population should be motivated to change their tendency and traditional ways of dumping the waste near their homes.
- Effective and well planned policies should be made by the government to tackle the issue of agricultural and animal waste in the study area.
- Burning of the agricultural and animal waste should be completely stopped in the study area.
- Participation of all the stakeholders should be encouraged to overcome this common issue in the study area.
- Agro and livestock processing skills and technology awareness campaigns should be arranged in the rural areas.
- The farm and livestock products should be directly linked to the industries processing it thereby minimising huge time and money spent on it.
- Effective and economical management of the waste generating from agricultural and animal waste should be properly collected, stored in a right place, appropriate land allocation should be made for it, and its composting should be taken care of in the study area.

Inference of the research study in Somasamudra Village

A holistic and integrated approach is the need of the hour for an effective hygienic management of agricultural and livestock waste in the study areas. The modern technology of compressing the waste policies need to be adopted by the local government at the very doorstep of the farmer. The farmers should be shown the videos of the modern technology in compressing the waste and its availability and usage. Youth should be encouraged to volunteer for the cause of waste utilisation. Environmental department should play a crucial role in waste management activities in study area thereby provide an acceptable solution to the global climate issues. Community participation should be encouraged to solve the issues of agricultural and livestock waste being generated in the study area effectively and economically.

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How to cite this article:

Veera Prasad M (2017) 'Hygienic Management of Agricultural and Animal Waste in Rural Areas -Issues And Suggestions - A Study of Somasamudra Grama Panchayat', *International Journal of Current Advanced Research*, 06(12), pp. 8380-8384. DOI: <http://dx.doi.org/10.24327/ijcar.2017.8384.1348>
