

Way to entrepreneurship through daily household waste management

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ABSTRACT

Successful entrepreneurs must have or develop variety of skills like business know-how, innovation, creativity and good technology skills. Managers describe entrepreneurship with terms as innovative, flexible, dynamic, risk taking, creative and growth oriented. Thus the entrepreneur can find new opportunities from the house hold waste management which can be successfully converted into business which can earn profit to them. Nearly half of the people junk there house hold waste on open site, which will cause ill effects to the society. 70% of the people are ready to give their household waste to any agency which will pay them small amount or no amount. Most of the people are ready to give their waste to a private agency. 80 % of the people want the agency to come to their door for collection daily. Thus we can say that there is opportunity for starting new business like collecting food waste from various households from a region to decompose it and create manure to sell. 59% of the people never think about recycling their waste. 40% of the people never think of the products to buy in recyclable packaging. This gives a new opportunity to start business like collection all the objects which can be recycled from a particular region and recycle it or give it to recycling center. Majority of the people except in Bhingar region are ready to install the machine which will create bio gas for their family which is based on household waste. Thus this is good opportunity to start the various businesses like producing the machine, installation of the machine as well as good opportunity will be provided for marketing the machine which is good solution for the problem of LPG gas which every household is facing. If agency will pay the people some amount for the waste they give, then waste can generate money for the people so that they will not treat waste as waste. People will handle it properly, which will result in good & healthy environment also it will be helpful for the people who will collect waste for various processing.

Key words: Entrepreneurship, waste management, Daily household waste.

Introduction

Entrepreneurship is the process of launching, owning, and running a new business which begins at a small scale and may grow into a successful small, medium, or large company. Entrepreneurs must be ready to take risks and possess the vision to convert new ideas into business opportunities and earn profit. Successful entrepreneurs must have or develop variety of skills like business know-how, innovation, creativity and good technology skills. Managers describe entrepreneurship with terms as innovative, flexible, dynamic, risk taking, creative and growth oriented. Thus the entrepreneur can find new opportunities from the house hold waste management which can be successfully converted into business which can earn profit to them.

Waste is roughly defined as anything or material or object which is of no use to the owner and hence owner wants to dispose it, but the same thing can be used by another person as a raw material to produce some new thing or object. So if the waste is handled in a proper way then this waste can be used either for recycling, reuse, to create biogas, or to prepare fertilizer so that amount of waste which is going to government vehicle will be reduced tremendously. House hold waste is the waste which is generated in the home and which we dispose it by giving these things to municipality garbage collector which comes to collect our waste. Garbage is used for animal waste, vegetable waste, by products of food preparation etc which can be decomposed rapidly where as trash is a solid waste like packaging, bottles, building waste, plastic which do not decompose easily so we have to think for their reuse or recycling. In Ahmednagar city total waste generated per day is 106 metric tons. 32 vehicles are used to collect municipal solid waste from house to house. House to house collection is done in only 40% of total area, which means most of the house hold waste is not collected so people dispose them by throwing in open site which will have its side effects. Ahmednagar Municipal Corporation has 20 acres of land for processing & disposal of municipal solid waste. Municipal solid waste is the third highest cost to local government, so the method of disposal should cost least and provide more benefits.

The main aim of study is to make people as well as government aware about the employments as well as to create entrepreneurs by making proper use of daily house hold waste so that it will reduce the volume of daily waste which goes to government waste collection, so landfill will not be a problem & government will also have to spend less on waste management. It will also help to increase various entrepreneurs which will create employment for the people.

Literature Review

1) Keeping Our Cities Clean: Urban Solid Waste Management in Karnataka Written by Madhushree Sekher Journal of Social and Economic Development July - Dec 2004 Vol.6, No.2

This paper broadly examines the process of municipal waste management in cities, situating in Karnataka. The paper is on a case study of solid waste management process in Bangalore. It highlights the characteristic of municipal waste generated, the management practices involved and the stakeholders in the refuse collection and disposal services, and there upon attempts to identify future Interventions to strengthen the delivery of public municipal services. Some strategies and intervention required have been suggested here to address the problem of urban solid waste management like Increasing waste segregation through source separation, Strengthening institutional interventions through public-private partnerships , Increasing waste recovery, Popularizing reuse practices.

2) Municipal Solid Waste Management in Current Status and Way Forward submitted by Amit Singh

According to this paper Rapid population growth, urbanization and industrial growth have led to severe waste management problems in the cities of developing countries like India. The large quantity of waste generated necessitates a system of collection, storage, transportation and disposal. It requires knowledge of what the wastes are comprised of, and how they need to be collected and disposed. Recycling of waste, energy generation and employment opportunities from waste management also have immense potential. However, it has been widely observed that the municipal corporations in India do not have adequate resources or the technical expertise necessary to deal with the problem. Successful waste management requires the participation of citizens, local governments, and private entrepreneurs. With growing population and economy of the urban regions in the state, generation of municipal solid waste is on the rise. Segregation of waste needs to be enhanced to improve efficiencies at the processing levels. Construction and demolition wastes should be segregated (collected separately) and recycled. There is a need to review the municipal laws and policies to enable registration of societies of recyclers to operate within the framework of law. Municipal bodies will be required to create a general public awareness for reducing, reusing and recycling of the wastes

Research methodology

This subject of creating entrepreneurs using household waste management was taken into consideration because every day we create waste in our house, if it is not disposed properly it

can have many side effects. So the aim of the study is to create new employment opportunities by understanding, the awareness about waste management, their disposal pattern of waste and so on. The study is mainly based on daily household waste so in this study, the researcher only considered food, glass, tubes, plastic, paper, cardboard, boxes and others. The researcher has not considered clothes other hazardous waste, furniture, old things & other waste which are not produced daily. For this study the data were collected from 100 households from various regions of Ahmednagar city. The questionnaire was getting filled from the spouse of head of the family because she manages & dispose the waste daily.

Objective

Primary Objective:

1) To suggest the ways for developing various opportunities for entrepreneurship based on household waste.

Hypothesis:

1) To study whether a majority of the people are aware about the ill effects of waste.

P=Proportion of people who are aware about the ill effects of waste.

$H_0 = P = 0.5$ v/s $H_1: P > 0.5$

2) To study the proportion of people who are ready to give waste to the private agency region wise are equally likely.

H_0 : Proportion of people who are ready to give waste to private agency is equally likely in all regions.

H_1 : Proportion of people who are ready to give waste to private agency is not equally likely in all regions.

3) To study type of house you live in and ready to decompose the waste in your own compound are dependent.

H_0 : Type of house you live in and ready to decompose the waste in your own compound are independent.

H_1 : Type of house you live in and ready to decompose the waste in your own compound are independent.

Types of data:

i) *Primary data:* Primary data were collected from various household in Ahmednagar city by using questionnaire.

ii) *Secondary data:* Website, Internet, Research Magazines, magazines, newspaper.

Source of data:

Ahmednagar city.

Research instrument

The questionnaire designed contains closed end as well as open ended questions. Open ended questions were asked to suggest which new services they want in the future.

The questionnaire was designed to identify whether a majority of the people are aware about the ill effects of waste management. Are they ready to decompose? Are they ready to give waste to any private agency? Are they ready to install the machine which will create a bio gas for their own family using food waste and human waste?.The questionnaire contained the questions related to the amount of various waste generated in percentage, are they aware about recycling and decomposition of waste etc.

Scope of study

The region of study is Ahmednagar city.

Sample size

100

Data collection method

To carry out this research the population was divided into 5 strata: Savedi, Old Nagar city, Kedgaon, Bhingar and Nagapur. From each stratum the sample of size 20 was collected randomly. Hence stratified random sampling method is used for data collection.

Statistical tools for complete analysis: For statistical testing Researcher have used Chi square test because the variables under study are attribute, Z test for testing proportion of people about their awareness. Whether they are ready to give waste free of cost, are they ready to give waste to any private association,etc. Descriptive statistics such as frequency, relative frequency, mean, mode, proportions and percentage bar graph and pie chart is used whenever required.

Limitations

- I) The scope of waste management is very large; the present paper concentrates only on daily household waste generated.
- II) The population is very large and sample size collected is 100 due to time constraint.

Data Analysis and Findings

Note: The respondents have not marked all the options of questionnaire so the total may not match.

Testing of hypothesis

- I) To test whether majority people are aware about the ill effects of waste.
P=Proportion of people who are aware about the ill effects of waste.

$H_0 = P=0.5 \quad H_1: P > 0.5$

$P = 72/96 = 0.75$

$Cal Z = \frac{p - P_0}{\sqrt{(P_0 Q_0/n)^{1/2}}} = 4.901$

Table 1: Hypothesis Information

Cal Z	Tab Z	Conclusion
4.901	1.64	Reject H ₀

The majority of the people are aware about the ill effects of waste.

- II) To study whether region in which they are equally likely to give waste to a private agency.

H₀: Proportion of people who are ready to give waste to private agency is equally likely in all regions.

H₁: Proportion of people who are ready to give waste to private agency is not equally likely in all regions.

Table 2: Proportion of people who are ready to give waste to a private agency

Region	Yes (O _i)	E _i
Bhingar	16	15.4
Kedgaon	18	15.4
Nagapur	10	15.4
Old city	19	15.4
Savedi	14	15.4
total	77	

Table 3: Conclusion

Cal X ²	Tab X ² 4 degree 5% level of significance	Conclusion
3.3296	9.488	Accept H ₀

Ready to give waste to private agency is equally likely in all regions.

- III) To study whether there is a relation between the type of house they live in and ready to decompose.

H₀: Type of house you live in and ready to decompose the waste in your own compound are independent.

H₁: Type of house you live in and ready to decompose the waste in your own compound are independent.

Table 4: Relation between the type of house people live in and their will to decompose the waste

Type of house	Ready to decompose the waste in your own compound			
	Yes	No	Can't say	Total
Bungalow	18(14.625)	13(14.25)	5(7.125)	36
Flat	8(6.093)	5(5.9375)	2(2.968)	15
Row housing	7(15.03)	19(14.645)	11(7.323)	37
Twin bungalow	6(3.25)	1(3.167)	1(1.583)	8
Total	39	38	19	96

Table 5: Conclusion

Cal X^2	Tab X^2 6 degree 5% level of significance	Conclusion
14.045	12.592	Reject H_0

Type of house you live in and ready to decompose the waste in your own compound are dependent.

Q. Does the Municipal corporation vehicle come daily to collect the waste?

Table 6: Municipal corporation vehicle come daily to collect the waste

Yes	53	53%
No	47	47%

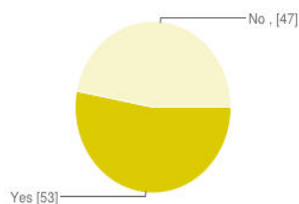


Chart-1: Municipal corporation vehicle come daily to collect the waste

53% of the people say that vehicle comes regularly for collection of waste but if we see area wise the table below gives region and frequency of vehicle.

Table 7: Region wise frequency of vehicle that comes regularly for collection of waste

Region	Frequency of vehicle
Bhingar	Once in three month
Kedgaon	3-4 days
Nagapur	Daily
Old city	Daily

Savedi	After 2 days
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In Bhingar the frequency of vehicle is once in 3 months, in Kedgaon it is after 3-4 days, in Savedi after 2 days, in Nagapur and Old Nagar city it comes regularly.

Q. Do you dump household waste on site?

Table 8: Percentage of people which dump household waste on site

No household waste is dumped on my property or on public property.	35	37.63%
A limited amount of nontoxic household waste has been/is dumped on my property.	20	21.5%
Household wastes and liquids, appliances, tires, and other junk are dumped on site	38	40.86%

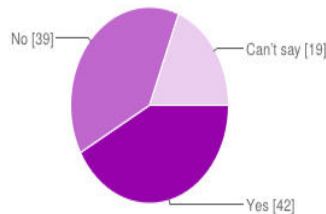


Chart-2: Percentage of people which dump household waste on site

40.86% of the people junk there household waste on open site, 21.5 % dump it in their own property and 37.6 % do not dump the household waste in their property or on open site

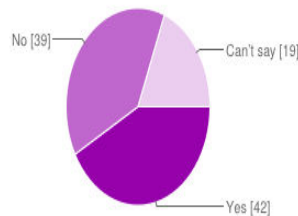


Chart-3: People are ready to decompose the waste in their own compound

Table 9: People are ready to decompose the waste in their own compound

Yes	42	42%
No	39	39%
Can't say	19	19%

42% of the people are ready to decompose the waste in their own compound to create the manure based on daily household waste, 19% cannot decide whereas 39% are not ready to decompose.

Q. To find percentage of people region wise who are ready to decompose waste to create Bio gas?

Table 10: Region wise people who are ready to decompose waste to create Bio gas

Area	Yes	No	Can't say
Savedi	14	4	2
Bhingar	9	6	5
Kedgaon	14	4	1
Old nagar city	3	7	10
Nagapur	1	18	1

70% of savedi people are ready to decompose waste to produce manure.

45% of Bhingar people are ready to decompose waste to produce manure.

73% of Kedgaon people are ready to decompose waste to produce manure.

15% of Old Nagar city people are ready to decompose waste to produce manure.

5% of Nagapur people are ready to decompose waste to produce manure.

From the entire above question we can conclude that waste is not collected regularly. 40 % of the people throw their waste on site and most of the people are not decomposing their household waste. So this gives an opportunity for an entrepreneurs to collect the daily household waste which can be easily decomposed such as food waste, vegetable waste, leaves of plants etc from a particular region decompose to create a manure and sell it to the farmers which will increase soil fertility as well as production

Q. If any agency will pay you small amount or if they do not pay, are you ready to sort the waste & store it properly?

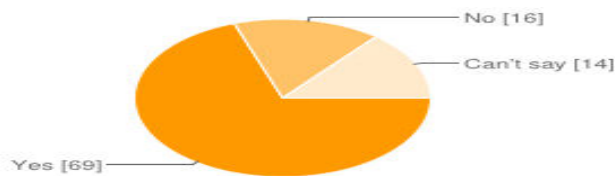


Chart-4: Agencies ready to pay you small amount

Table11: Agencies ready to pay you small amount

Yes	69	70%
No	16	16%

Can't say	14	14%
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70% of the people are ready to give their household waste to any agency will pay you small amount or no amount , 14% people cannot decide while 16% refuse to give waste to private agency.

Q. Do you want the agency to come to your door for collection daily?

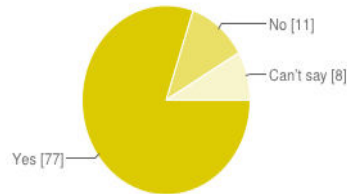


Chart-5: Agencies ready to come to your door

Table 12: Agencies ready to come to your door

Yes	77	80.2%
No	11	11.45%
Can't say	8	8.33%

80.2% people want the agency to come to their door for collection daily, 8.33% cannot decide while 11.45% of them do not want the agency to come to their door.

2) If we see the average waste percentage of each group created daily in the house it follows 26.19% on an average is food waste ,18.54% on an average is plastic waste,17.27% on an average is paper waste, 12.39% on an average is glass waste and 24.44% on an average is other waste.

Q. How much do you recycle?

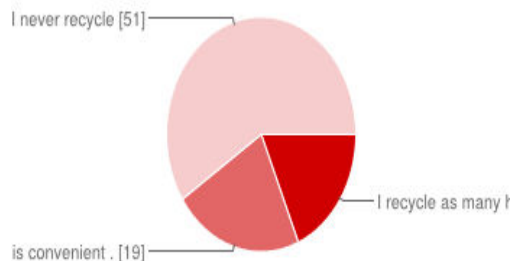


Chart-6: Percentage of recycling

59.3% people never recycle, 22.09 % people think of recycling when it is convenient and 16% of the people recycle as many household waste as possible.

Table 13: Percentage of recycling

I recycle as many household waste items as possible	16	18.6%
I recycle when it is convenient.	19	22.09%
I never recycle	51	59.3%

Q. Are the products you buy in recyclable packaging?

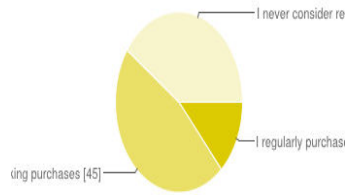


Chart-7: Peoples who buy products in recyclable packaging

Table 14: Peoples who buy products in recyclable packaging

I regularly purchase containers/packaging that can be recycled.	13	13.4%
I sometimes consider recyclability when making purchases	45	46.39%
I never consider recyclability	39	40.2%

40.2% people never think of recyclability, 46.39% people sometimes consider recyclability while purchasing and 13.4% people regularly purchase containers/packaging that can be recycled. It means out of total waste 48% of the waste is recyclable but it is not disposed in a proper way, also the volume of waste which is generated in a house is less so they may not consider it for recycling. If any agency will collect all this waste which can be recycled the volume will increase and he can give it to recycling center or create a new recycling center so this is another opportunity for entrepreneurs to collect the waste that can be recycled from a region.

3) There is a machine which will generate biogas for their own house, which operates on food waste and human waste. This will give solution for the problem of LPG gas to every household.

Q. Are you ready to install the machine which will create a gas for your family using daily household waste?

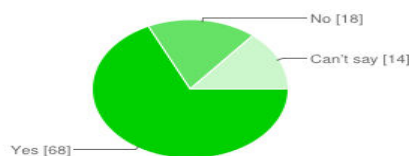


Chart-8: Opinion of peoples to install the machine.

Table 15: Opinion of peoples to install the machine

Yes	68	68%
No	18	18%
Can't say	14	14%

68% of the people are ready to install a machine which will create a gas for their family based on daily household waste, 14% cannot decide whereas 18% are not ready to install a machine which will create a gas for their family.

Q. Regionwise percentage of people who are ready to install the machine which will create gas for their family?

Table 16: Regionwise percentage of people who are ready to install the machine

Region	Yes	No	Can't Say
Bhingar	3	6	2
Kedgaon	15	3	2
Nagapur	16	3	1
Old Nagar city	16	1	3
Savedi	17	1	2

27% of Bhingar people are ready to install the machine which will create gas for their family.

75% of the people in Kedgaon are ready to install the machine which will create gas for their family.

80% of the Nagapur people are ready to install the machine which will create gas for their family.

80% of the old Nagar city people are ready to install the machine which will create gas for their family.

85% of the Savedi people are ready to install the machine which will create gas for their family.

Average waste percentage of each group created daily in the house are as follows 26.19% on an average is food waste ,18.54% on an average is plastic waste,17.27% on an average is paper waste, 12.39% on an average is glass waste and 24.44% on an average is other waste.

Conclusion and Recommendations

1) Majority of the people of Ahmednagar city are aware about ill effects of waste. Proportion of giving waste to private agency is equal in all the regions of Ahmednagar city. 40.86% of the people i.e. near about half of the people junk their household waste on open site, which will cause ill effects to the society. 70% of the people are ready to give their household waste to any agency which will pay them small amount or no amount. Most of the people are ready to give their waste to a private agency. 80% of the people want the agency to come to their door for collection daily. 39% people never think of decomposing the waste to create manure. Type of house you live in & ready to decompose are dependent. Most of the people in bungalow, flat, row housing are not ready to decompose

Thus we can say that there is opportunity for starting new business like collecting food waste from various households from a region to decompose it and create manure to sell. Thus in one big city many people can get an opportunity to start this business.

2) 59% of the people never think about recycling their waste. As the volume generated in every house for recycling is less they may not consider about recycling. 40% of the people never think of the products to buy in recyclable packaging. This gives a new opportunity to start business like collection all the objects which can be recycled from a particular region so that the volume

For recycling will increase they can start a new centre for recycling as well as producing packages using recyclable material or it over to any recycling center.

3) Majority of the people except in Bhingar region are ready to install the machine which will create bio gas for their family which is based on household waste. Thus this is good opportunity to start the various businesses like producing the machine, installation of the machine as well as good opportunity will be there for marketing the machine which is good solution for the problem of LPG gas which every household is facing.

4) Average waste of each group is as follows 26.19% food waste, 18.54% plastic waste 17.27% paper waste, 12.39% glass waste & 24.44% other waste. So if waste is managed properly, by providing new opportunities of entrepreneurs in decomposing, recycling, biogas etc the amount of waste will be reduced to only 25%. i.e. amount of waste which will go to landfill will be reduced tremendously. Government has to spend less revenue on waste management, also the land required & its effects will be reduced.

5) If agency will pay the people some amount for the waste they give, then waste can generate money for the people so that they will not treat waste as waste. People will handle it properly, which will result in good & healthy environment.

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