स्वच्छ भारत - पर्यावरण संरक्षण

SWACHH BHARAT PARYAVARAN SANRAKSHAN

स्वच्छ भारत - पर्यविरण संरक्षण

SWACHH BHARAT PARYAVARAN SANRAKSHAN

INSTITUTE OF HOTEL MANAGEMENT
CATERING TECHNOLOGY & APPLIED NUTRITION
CHENNAI

Editors

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CHENNAI

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Dated 28.11.2019.

Foreword by Chairman

As we celebrate the 150th Birthday of the Father of our Nation Mahatma Gandhi ji, the best tribute that we could give is a clean India, which was his dream and wish. Our Hon. Prime Minister Shri.NarendraModiji has deeply worked in fulfilling this dream by launching the Swachh Bharat Mission on 2nd October 2014 thereby reaching out to the Nation triggering a positive thought process amongst the commoners in pursuit of clean and healthy India.

In tune to this, I am excited to learn that Institute of Hotel Management Chennai, has aligned its priorities to support and fulfill the mission and vision of our PM led Swachh Bharat Mission successfully. The faculties and the students have immersed themselves to a larger extent in carrying out this noble cause. I appreciate the team work that has evolved to be a huge strength for the Institute.

IHM Chennai has gone the extra mile, many steps ahead by organizing a 2 day National Seminar on Swachh Bharat Paryavaran Sanrakshan on 22nd and 23rd of October 2019. This is a great mileage to the Institute and to the community at large. This academic endeavor is highly commendable and the team has benchmarked by initiating this seminar.

The proceedings of this seminar project the scientific findings of well researched themes are aptly arranged to enhance knowledge systematically. I am happy to see research papers from different organizations including ISRO.

I congratulate the Principal In charge, Head of the Department, Faculties and Students for their team spirit and collective efforts.

Jai Hind!

(ASHOK DONGRE, I.A.S.)
Additional Chief Secretary to Government,
Tourism, Culture and Religious
Endowments Department

DEPARTMENT OF TOURISM
GOVERNMENT OF TAMIL NADU

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V. Amuthavalli, I.A.S.,
Director of Tourism

FOREWORD

Health is wealth. Healthy population is the basis for a wealthy country and it starts from hygiene and sanitation at individual level.

Hon'ble Prime Minister Shri. Narendra Modi ji became the first Prime Minister of India to address the challenge of open defecation from a national stand on 15 August 2014, in his first Independence Day address to the country and was determined to eradicate it in just five years.

Launched to implement this vision, the Swachh Bharat Mission (SBM) had a challenging job on hand but has proved to be one of the major success of the government. Over the past five years, almost 10 crore toilets have been built under SBM-Grameen, and rural sanitation coverage has risen from 39 per cent in 2014 to 99 per cent in June 2019. The Mission's mass outreach effort has mobilized over 60 crore people – nearly half of India's population – to change their behaviour.

To support the vision and mission of SBM, I am happy to see the zeal of IHM Chennai in organizing a two day seminar on Swachh Bharat and also scholastically publishing an edited book on 'Swachh Bharat Paryavaran Sanrakshan'. The research papers cover almost all aspects of environment and its connection with Swachh Bharat.

I am sure the readers will enjoy experiencing a wide spectrum of knowledge as they journey through this book. I congratulate the IHM Chennai for their hard work, dedication and commitment in bring the 2nd edition of the book based on Swachh Bharat.

I wish all the very best for their future endeavours!

(V. AMUTHAVALLI)

सत्यमेव जयते

ज्ञान भूषण आई. ई. एस.
Gyan Bhushan I.E.S.

आर्थिक सलाहकार एवं मुख्य कार्यकारी अधिकारी
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ECONOMIC ADVISOR & CEO
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MINISTRY OF TOURISM
NEW DELHI

Dated: 21.11.2019

FOREWORD

The pulsating pages of the edited book 'Swachh Bharat Paryavaran Sanrakshan' published by IHM Chennai deserves to be congratulated. This 2nd edition is the sequel of the huge success of the 1st edition 'Swachh Bharat Prashansaniya Bharat' published during November 2018. This forward-looking initiative is much appreciated and I am sure this effort will pay tremendous dividends in disseminating a multi-dimensional knowledge to the readers.

A key factor that is tangled with cleanliness is the environment. A very basic element that a human looks for is the clean, hygienic and a healthy environment. The essence of this concept has been rightly utilized by IHM Chennai through a 2-day National Seminar and the research papers presented by the industry experts, scholars and academicians are systematically reviewed and presented in this edited book.

The thematic areas of research cover concepts like 'Role of Government policies in Swachh Bharat', Conservation of natural resources, Role of media in environmental conservation, Swachh Bharat and water conservation, Conservation strategies in rural India, Financial resources for fostering Swachh Bharat, Water quality management, storm water management, Biomass management, Sociological and technological interventions in Swachh Bharat.

I congratulate the organizing team for organizing the seminar and my hearty wishes to the editors for shaping the book excellently. I wish many more success in the coming days.

My Best Wishes.

(Gyan Bhushan)

होटल प्रबंधन खानपान प्रौद्योगिकी और अनुप्रयुक्त पोषण संस्थान
INSTITUTE OF HOTEL MANAGEMENT CATERING TECHNOLOGY AND APPLIED NUTRITION
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NCHMCT

Foreword

Swachh Bharat Abhiyan is in its fifth year of implementation and has pitched in deeply in the minds of the commoners paving way for a cleaner and healthier India. IHM Chennai has rightly seized the opportunity to enhance the understanding in this area by organizing a 2-day National level seminar on 'Swachh Bharat Paryavaran Sanrakshan' which gained maximum momentum as stirred by discussions and deliberations on the theme.

The seminar had a variety of sub-themes that arose great interest amongst the academia and industry. Full length research papers were presented and the issues, challenges and solutions were discussed amongst the audience. It was heartening to see the level of interest exhibited by the paper presenters from various organizations with variety of research findings.

I sincerely thank the paper presenters for valuing and contributing for the betterment of the Nation at large. I thank the session chairs for moderating the plenary sessions with scientific rigor. These papers are now being published as an edited book which will be a reservoir of knowledge and treasure trove of information.

I congratulate the editorial board for going the extra mile in preparing this compendium. I wish team IHM Chennai to continue their concerted and collective efforts in all spheres of academics in the days to come and earn more value for this prestigious Institute.

Thank you!

Shreevats Sanjay
Principal Incharge

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Message

Swachh Bharat Abhiyan was started to fulfill the dreams of Mahatma Gandhi of ensuring a clean and hygienic India. Every citizen participating in this noble drive is termed as 'ambassadors of cleanliness'. Having done myriad cleaning campaigns and exercises, I am extremely happy to see that all the students and faculties of IHM Chennai have become 'ambassadors of cleanliness' in Chennai. It is a matter of pride to witness the great amount of interest shown by our team to be the torchbearers of this mission and lead the whole city by educating them.

In an aim to attempt scholastically, IHM Chennai organized a 2-day National Seminar on 'Swachh Bharat Paryavaran Sanrakshan' where it witnessed the presence of researchers sharing their research papers to the enthusiastic audience and enlightening them with their work. This endeavor is highly commendable and underpins the fact 'knowledge is power'.

I thank each and every paper presenter for their participation. I am thankful to the session and co-session chairs for moderating the discussion. A special thanks to Dr. Bhavni Shankar, Environmental activist for his special lecture during the course of the seminar.

I congratulate the editorial team for bringing out this 2nd edition of the proceedings. I appreciate their hard work and commitment. I thank Ministry of Tourism, Government of India for all possible support extended to us in enabling us to undertake several activities on Swachh Bharat.

Wishing my team a great success.

Thank you!

Parimala. C

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GO GREEN WITH "ATITHI DEVO BHAVA"

T. L. Shine

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ABSTRACT

"Go Green with AththiDevoBhava" is research study on Carbon foot print emission by hotels, ways to emolument of carbon foot print count and measures to conserve energy & to reduce Carbon Footprint Count. One of the major challenges the human kind facing is Global Warning-Climate change. Global warming is effected by Carbon foot print count, carbon footprint is the amount of greenhouse gases engendered to directly and indirectly in support of daily human activities Carbon foot print is evaluated as per the category of hotels, Category of hotels is evaluated by the guidelines given by Ministry of Tourism and it's based on the different facility present in hotel. Carbon foot print is identically evaluated in TCO2e (tone carbon dioxide emission). Research study is made on bases of carbon foot print emission engendered by Star Category of hotels. How many trees should be planted to compensate Carbon foot print. How much Co2 trees can absorb in one year and in its full span of trees life. It is further calculated how much area is required to plant tree to reduce carbon foot print count. Simultaneously hotels have to take congruous steps and best practices to conserve environment and to reduce carbon foot print count.

Keywords: Carbon Footprint, hotels, trees, environment.

OBJECTIVES

- Carbon Foot Print Emission by Star Category of Hotels.
- Calculation on Numbers of Trees required to Compensate Carbon Foot Print Count at Hotels.
- Steps to be taken by Hotels for Environment Conservation & to Reduce Carbon Foot Print.

INTRODUCTION

Indian heritage is well known for its hospitality. "AtithiDevoBhava" 'Guests are equivalent to God'. We treat our guest as God enters our habitation, we give full deference to them and offer best services in terms of food and lodging. It also reflects Indian culture and ideology towards guest.

Population of India is 1,369 million as per data accumulated in 2019, whereas Indian population is growing at the rate of 1.08%. Population and pollutions is one of the primary and major contributor for carbon foot print emission. With the incrimination numbers of population growing day by day India stands 3rd in the world for contributing towards carbon footprint emission.

Carbon footprint is defined as the total collection of greenhouse gas emission caused by an organization, event, product or a person, conventionally expressed in equivalent tons of carbon dioxide (CO2). It is the sum of all emissions of CO2, which were induced by our activities in a given time frame.

Environment conservation plays a major concern for the humanity if we opt ate good and it gives secure future for the next generation, we have to practice the best possible way to bulwark our environment and to reduce carbon foot print count. Environment conservation is the practice of decrementing the quantity of energy utilized it can be achieved through efficient energy use, in which case energy use is decremented while achieving a kindred outcome, or by reduced consumption of energy accommodations.

Hospitality industry is additionally a major contributor towards carbon foot print count. To give best level of gratification towards guest, to maintain best of the luxury standard and accommodations, hospitality industry engenders sizably voluminous count of carbon foot print emission which is additionally a major concern for the environment conservation. This can be controlled only by three ways

a) Opportunely Identifying the carbon foot print count engendered by the categories of hotel.

b) How many trees to be orchestrated to compensate carbon foot print emission count.

c) Steps to be taken by the Hotels for environment conservation and to reduce carbon footprint emission count.

CARBON FOOTPRINT EMISSION BY DIFFERENT CATEGORY OF HOTEL IN INDIA

Hotel's Carbon Footprints

The different categories of hotels as per Ministry of Tourism and Travel are. 1 Star, 2 Star, 3 Star, 3 Star, 4 star, 5 Star. One hotel is taken for the carbon footprint study. This one hotel is culled from the group of hotels having the same facilities and features in a particular star category.

Methods for Accumulating Data for Sundry Emissions

The Ministry of tourism and travel has given several guidelines on the different facilities that are to be present in hotels for getting the required star rating. The different categories of hotels and the respective facilities that are to be present for obtaining the star rating is given in the following table. Additionally, the next table comprises of the different scopes of the carbon emissions that includes Stationary combustion, Fugitive emissions, Mobile emissions, purchased electricity heat and cooling, Business peregrinate, employee commuting, products utilization, contracted treatments, disposal facilities and outsourced laundry. The next table comprises the methods used to amass the data that will be utilized for calculating the carbon footprint of all the emissions that were verbally expressed earlier.

Table 1: Facilities in Different Star Hotels

S.NO	Hotels with Different Facilities	Categories of Star Hotels				
		1	2	3	4	5
1	Guest rooms	N	N	N	N	N
2	Room service	-	-	N	N	N
3	Specialty Restaurant	-	-	-	N	N
4	Bar	-	-	D	N	N
5	Travel desk	-	D	N	N	N
6	Room service	-	-	N	N	N
7	Swimming pool	-	-	D	N	N
8	Shops, Kiosk, Money exchange	-	-	D	N	N
9	Dining room	N	N	-	-	-
10	Laundry Services	N	N	N	N	N
11	Coffee shop	-	-	N	N	N
12	Spa	-	-	D	D	D
13	Health and fitness services	D	D	D	D	D
14	CCTV, Smoke detector, Emergency alarm, First aid	N	N	N	N	N
15	Shuttle Services	-	-	D	N	N

Table 2: Different Scopes of GHG emissions in Hotels

Scope	Source/Activities	GHG Emitted
1 (Indirect emissions)	Purchased electricity, heat, cooling etc.	Carbon dioxide, Chlorofluoro Carbons, Methane, and Nitrous Oxide.
2 (Direct missions)	Stationary combustion, Fugitive emissions, mobile combustions from vehicles and other equipment's, on-site disposals and treatments.	Carbon dioxide, Chlorofluoro Carbons, Methane and Nirtrous Oxide.
3 (Other Indirect emissions)	Business travel, Employee commuting, Products usage, contracted treatments and disposal facilities, outsourced laundry services.	Carbon dioxide, Chlorofluoro Carbons, Methane, and Nitrous Oxide

Table 3: Emission Factors for Energy Source

Energy Source	CO2 Emissions (kg CO2e/litres of fuel
LPG	1.611
Synthetic Diesel	2.6763
Unleaded petrol	2.2715
Furnace oil	2.540

Table 4: Different Sources of GHG emission in Hotels

S.NO	Different sources of GHG emissions in Hotels	Method used to Collect Data for Carbon Footprint Calculations
1	Purchased heating	Amount of heating, emission factor from energy Supplier, boiler efficiency.
2	Purchased cooling	Amount of cooling, co-efficient of Performance, chiller type, Energy input, Chiller type, emission factor
3	Mobile emissions	Type of vehicle, type of fuel used to power the vehicle and the relevant emission factors.
4	Fugitive emissions	A 1% increase in overall foot print, incident records and service records if major leaks are found, relevant emission factor.
5	Stationary combustion	Invoices of fuel purchase, relevant emissions factors for the specific fuel.
6	Outsourced laundry	Data from contractor, Laundry tonnage, Occupancy method.
7	Purchased/Generated electricity	Electricity meter readings, Bills and invoices of payments.
8	Shuttle services	Data obtained from travel agencies in contract, fitness certificates, gate pass register, driver registers.
9	Business travel	Fuel based method, Distance based.
10	Employee Commuting	Fuel based method, Distance based.

Calculation and Outputs

- Area Total = Meeting area + Room area + Area Remaining
- Allocation of Room = Area of Room + Area Remaining (Area Ratio)
- Allocation of Conference Area = Area for Meeting + Area Remaining (Area ratio)

Room's area is the total area of all the guest rooms that includes single, double, deluxe rooms and all suites. Conference area is the total area of all conference halls; banquet halls. Remaining area includes corridors, other public spaces, retail areas, spas, restaurants, fitness centers, swimming pools, lounges, bars etc…

- Carbon footprint of entire rooms = Total Carbon emissions count per year × Allocation of Rooms
- Carbon footprint of area for Meeting = Total carbon emissions count per year × Area allocations for Meetings

OUTPUTS

- Carbon footprint Count of one occupied room = $\frac{\text{Carbon footprint of entire Rooms}}{\text{No. of Rooms Occupied}}$
- Carbon footprint of meetings per day Space = $\frac{\text{Carbon footprint of Meeting Space}}{365 \times 10}$

Results Derived

The data is arrived from the different categories of star hotels. The profile of hotel is from one representative hotel under each category of star hotels and the energy consumption details are tabulated from which the carbon footprint count is calculated. The profile of the hotel includes data like the orchestration area, built up area, number of rooms and their respective areas, the different facilities present in the hotels, number of employees, number of occupied rooms per year, number of hours sold for conference halls per year and so on. The energy consumption details include the quantity of LPG, diesel, petrol and electricity that is consumed on yearly substructure for activities such as cooking, engendered electricity, lighting, Air conditioning, employee commuting, steam generation, business peregrinate and shuttle accommodations.

Table 5: Hotel's Profile (1-Star, 2-Star, 3-Star, 4-Star & 5-Star)

S.No	Content	Different Categories of Hotels				
		1 Star	2 Star	3 Star	4Star	5 Star
1	Total Built-up area (sq.m)	750	975	7742	15819	38000
2	Total land area	445	557	1742	5267	8498
3	Total area of rooms and corridors	696	756	6142	9469	11728
4	Total No. of rooms	24	31	112	174	214
5	Rooms Profile					
	i) No. of Luxury suites	0	0	13	11	4
	ii) No. of executive suites	6	3	25	43	8
	iii) No. of standard rooms	18	28	74	123	202
	iv) Area of one Luxury suite (sq.m)	-	-	54.3	660	58
	v) Area of one executive suite (sq.m)	26	28	31.3	1290	46
	vi) Area of one standard room (sq.m)	22	25	27.2	3321	39
6	Total No. of Conference halls	1	2	2	5	6
7	7 Total area of conference halls (sq.m)	18.5	178	195	1112	1239
8	Remaining area (restaurants, swimming pools, spas, fitness centers, lobby, etc)	38	41	1405	5239	5710
9	No. of Employees	20	38	238	280	329
10	No. of restaurants/bar	1/0	1/1	3/1	3/1	4/1
11	No. of hours sold for conferences and events (per year)	768	1440	4320	7200	8640
12	No. of occupied rooms (per year)	600	750	32704	50748	58176

Table 6: Hotel Energy Consumption (1-Star, 2-Star,3-Star,4-Star & 5-Star)

S.No	Energy Source	Quantity/Year				
		1 Star	2 Star	3 Star	4 Star	5 Star
1	Electricity (Total)	259200 kWh	369230 KWh	1740000KWh	3430992KWh	5400000kWh
	i) Clean energy (wind)			1305000kWh	2744794kWh	4320000kWh
	ii) Coal based	259200 kWh	369230 kWh	435000kWh	686199kWh	1080000Kwh
2	Steam Generation (Diesel)	-	-	123342 litres	160680 litres	220024 litres
3	LPG (Cooking)	8300 kg	9120 kg	48000 kg	61440 kg	82314 kg
4	DG (Diesel)	3600 litres	4320 litres	164464 litres	210120 litres	192000 litres
5	Shuttle Services (Petrol)	-	-	7200 litres	10200 litres	Nil
6	Shuttle Services (Diesel)	-	2900 litres	10560 litres	11760 litres	9560 litres
7	Employee Commuting (Petrol)	720 litres	3614 litres	27375 litres	40150 litres	51100 litres
8	Employee Commuting (Diesel)	-	-	3670 litres	7300 litres	7504 litres
9	Total petrol (Litres)	720	3614	34575	50350	51100
10	Total Diesel (Litres)	3600	7220	302036	389860 l	429088

Table 7 : Total Carbon Foot Prints of Hotel (1-Star, 2-Star,3-Star,4-Star & 5-Star)

S.No	Energy source	Emission factor(kgCO2)	Carbon emissions of hotels(KgCO2e/Year)				
			1 star	2 star	3 star	4 star	5 star
1	LPG	1.611/1	13363	14692	77328	98980	132607
2	Electricity (kWh)	0.298/kWh	77241	110030	129630	204487.3	322704
3	Petrol (litres)	2.2715/1	1634	8203	78538	114371	116074
4	Diesel (litres)	2.6763/1	9612	19277	808339	1043383	1145664
5	Total Carbon Emissions		101850	152202	1093835	1461221	1717049

Thus from above tables it can be concluded that:

Carbon emission Count Per year for a 1 star hotel	101.850 tones CO2e
Carbon emission Count Per year for a 2 star hotel	152.202 tones CO2e
Carbon emission Count Per year for a 3 star hotel	1093.835 tones CO2e
Carbon emission Count Per year for a 4 star hotel	1461.221 tones CO2e
Carbon emission Count Per year for a 5 star hotel	1717.049 tones CO2e

- Rooms till conference halls ratio for 1 star hotel = 696 / (696+18.5) = 97.4% and conference halls ration to rooms ratio = 18.5/(696+18.5) = 2.6%
- Rooms till conference halls ratio for 2 star hotel = 756 / (756+178) = 80.9% and conference halls ration to rooms ratio = 178/(756+178) = 19.1%

- Rooms till conference halls ratio for 3 star hotel = 6142 / (6142+195) = 96% and conference halls ration to rooms ratio = 195/(6142+195) = 4%
- Rooms till conference halls ratio for 4 star hotel = 9469 / (9469+1112) = 89% and conference halls ration to rooms ratio = 1112 / (9469+1112) = 11%
- *Rooms till conference halls ratio for 5 star hotel = 11728 /(11728+1239) = 90.44% and conference halls ration to rooms ratio = 1239/(11728+1239) = 9.66%

Table8 - Carbon Footprint for Room and Conference Halls (1Star, 2Star,3Star,4Star & 5Star)

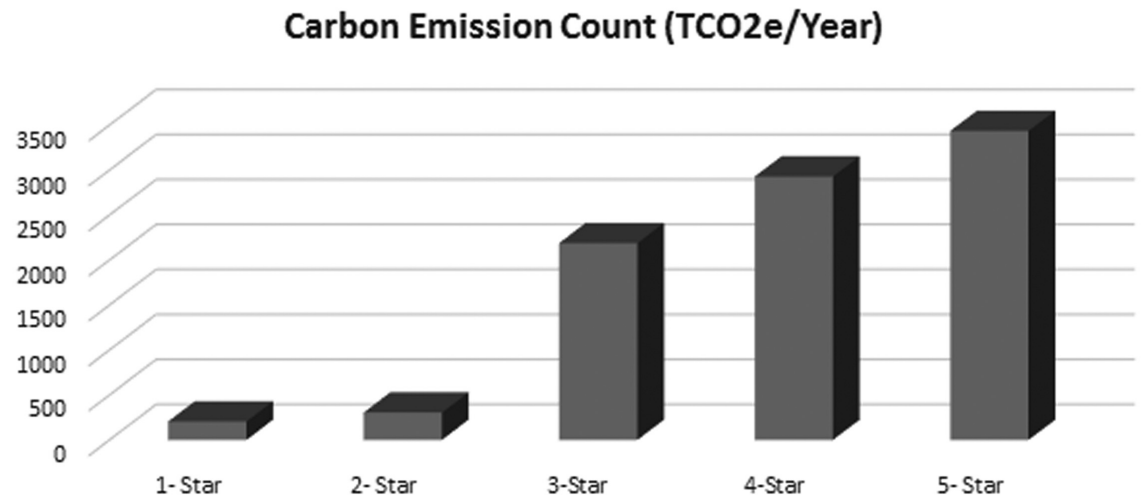
S.No	Carbon footprint	Category of hotel(TCO2e/year)				
		1 star	2 star	3 star	4 star	5 star
1	Rooms Carbon Footprint	99.20	122.96	1050	1305.3	1552.85
2	Conference Halls Carbon footprint	2.65	29.032	43.75	161.2	164.2

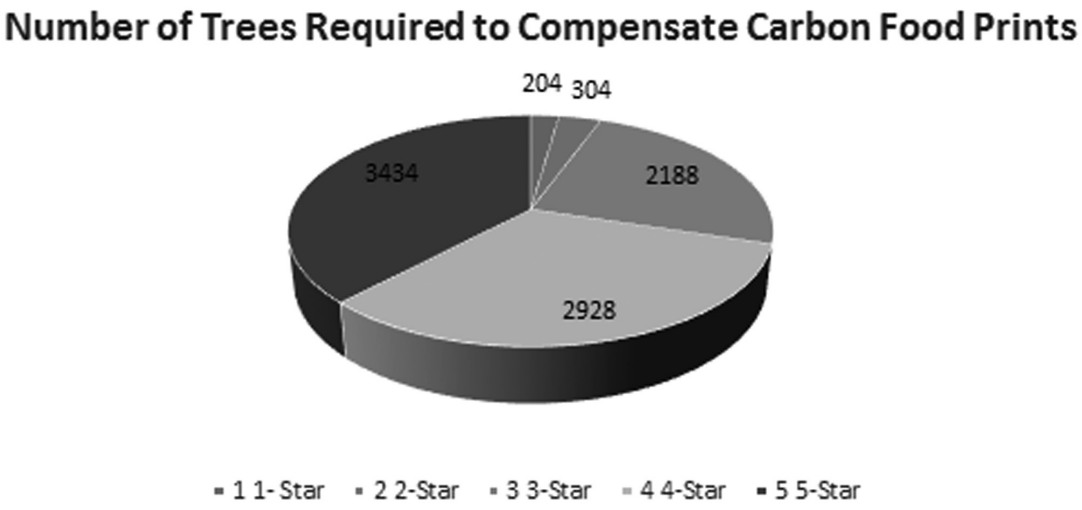
- Carbon footprint per occupied room on a circadian substratum is given by the formula = Rooms carbon footprint / no. of occupied rooms.
- Carbon footprint per sq.m of Conference halls on a hourly substratum is given by the formula = Conference halls carbon footprint / (365*10).

CARBON EMISSION FROM HOTELS AND HOW MANY NUMBERS OF TREES SHOULD BE PLANTED TO REDUCE CARBON FOOT PRINTS

Table No 1- Numbers of Trees Required to Compensate Carbon Foot Prints Emission

S.No	Category of Hotels	Carbon Emission Count (TCO2e/Year)	Number of Trees Required to Compensate Carbon Footprint	Remarks
1	1- Star	203.7	204	One tree can absorb 1 Tons of Co2 till it reach 40 years
2	2- Star	304.194	304	
3	3-Star	2187.58	2188	
4	4-Star	2927.721	2928	
5	5- Star	3434.099	3434	





Calculation is Made in the Substratum of –

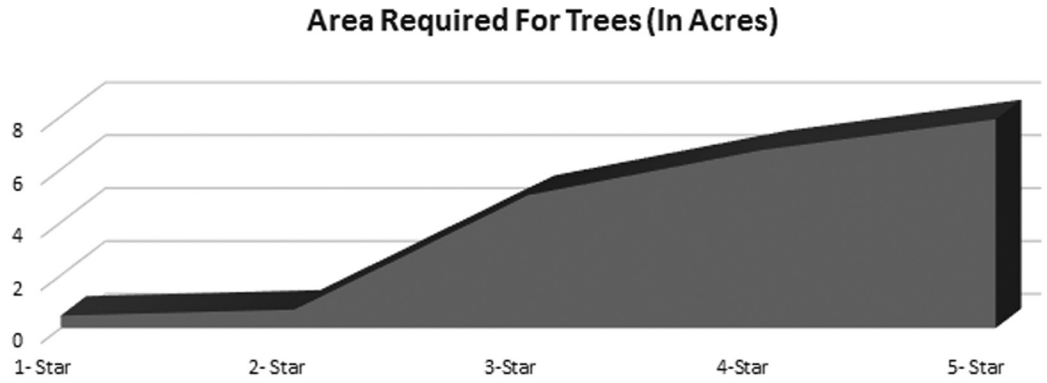
A tree can absorb as much as 22 kilograms of carbon dioxide per year and 1 tons of carbon dioxide by the time it reaches 40 years old.

Table No-2 - Area (in Acres) Required to Plant Trees to Compensate Carbon Foot Print

S.No	Category of Hotels	Number of Trees Required to Compensate Carbon Footprint	Area Required (In Acres)	Remarks
1	1- Star	204	0.468	10 × 10 feet of area is required for one grown up tree
2	2- Star	304	0.698	
3	3-Star	2188	5.029	
4	4-Star	2928	6.731	
5	5- Star	3434	7.894	

Calculation is Made in the Substructure of –

If 10 × 10 feet of area required to orchestrate a tree, 435 numbers of trees can be planted in one acre of land



Conclusion of Finding

At cities populations are growing and the places are constraining to the extreme limits. Hotels are orchestrated as per the space management theory to accommodate all facilities to categorize the category of star hotels. Mostly this much area is not available with hotels to plant this many numbers of trees at their hotel premises to compensate carbon footprint count. Congruous steps to be taken to ascertain less generation of carbon foot print and to do environment conservation for reduction in production of carbon foot print.

STEPS TO BE TAKEN FOR ENVIRONMENT CONSERVATION & TO REDUCE CARBON FOOT PRINT EMISSION AT HOTELS

Energy Conservation

Reducing energy through using less of an energy services are called energy conservation.

SUNDRY AREAS IN A HOTEL WHERE ENERGY CAN BE CONSERVED

a) Food Production Department Victuals & Beverage Department Front Office Department House Keeping Department

b) Energy can be conserved in the form of *Light *Water * Refrigeration *Air conditioning

DIFFERENT WAYS TO CONSERVE ENERGY

Hotels should follow these suggestive ways for reduction of carbon footprint emission.

GUEST ROOMS

a) Turn off guest room lights when rooms are not physically occupied. Use minimum lighting when making up and cleaning rooms. Utilize natural light whenever possible

b) Turn off corridor lights, or reduce it to 50% when natural light is available. Turn off lights in linen rooms, storage room and maids closets when not in utilization. Check your areas for light level. Reduce number of lights if possible. Utilize lower wattage bulbs wherever possible.

c) Have lamp shades cleaned at once. Bulb gives more light with clean lamp shades. When rooms are not physically occupied switch off music & TV Sets.

d) Report water leaks immediately. Keep room hot water temperature at lowest acceptable limit.

e) Keep windows closed and curtain on. The ingress of sultry air in summer and cold air during winter contribute to profoundly and astronomically immense waste or energy.

f) Minimize utilization of lights during night cleaning by switching on only those lights which are genuinely required to emaculate a particular area. Bellhops may be advised to leave only such lights on which are genuinely needed by the guest while leaving the room.

g) Solar energy and wind mills which are the best source of natural energy to be utilized at the maximum to reduce carbon footprint emission.

Guest Bathrooms

a) Make sure your flushes work efficiently to desist from having to utilize the flush twice due to faulty components. This avails conserve energy in the bathroom with every flush.

b) Use of shower cubicles require less water in lieu of bathtubs.

c) Use of low flow shower heads. They may not produce as much water pressure, but they conserve water energy by the gallons per minutes. Hotel bathrooms Pipes and Taps to be tightened properly without any leaks.

d) By utilizing recycled toilet paper energy can be conserve in bathroom, petrochemical-free personal care products, environmentally cordial cleaning products, CFL vanity bulbs and organic towels.

Public Areas

a) Use of compact fluorescent light bulbs (CFL). Utilization of energy preserver card slots. Utilization of lighting sensors.

b) Replace exit signs with Light Emitting Diode (LED) exit signs. Change of exterior lighting timer switches to turn on and off by zones. Utilization of dimmers in the night.

c) Use of grey water system that covers rainwater or other non-potable water for on-site irrigation. Utilization of ultra-low flush toilets and low flushing WC. Automatic flushes activated by infra-red sensors ideal for utilization in public area.

d) Use of aerated taps and water flow restrictors. Utilization of timer controlled sprinkler systems and self-closing nozzles for gardening.

Laundry

a) Have lights turned off when not in utilization. Periodically clean lamps and lights fixtures. Clean and wash walls, floors and ceiling.

b) Operate washing machines at full load, partial loads may require same amount water as plenary loads. Check and record your water consumption. Find wastages, if any &Compare water consumption daily.

c) Consider utilizing cold water detergents. It will greatly reduce energy consumption. Reduce hot water temperature to 120 degree Fahrenheit. Repair or supersede all hot water piping insulation.

d) All steam line values should be checked for leaks. That is, you should be able to shut off steam to any machine not in utilization keeping steam supply main open. If possible, utilize final rinse water for 1st wash. Reduce time between loads to obviate tumblers from cooling down.

e) Air line should be checked for leaks. Periodically clean exhaust duct and blower of lint and dust. Keep steam pressure at lowest possible level.

f) When machine is not being utilized Shut off steam valve. Keep radiator coils liberate from dirt all the times. Ascertain all steam traps in perfect working order.

g) Keep an eye on the preventive maintenance schedule of all laundry equipment's by Engineering Department to ascertain timely compliance. Ascertain that Drying tumblers and washing machines are kept clean and liberate from scale at all times.

h) Ensure that extractors are working felicitously. Incomplete extraction increase load on dryer and consumes more energy for drying. Reschedule machine operation to reduce peak demand charges. Apprise boiler room when steam is not required so that boilers can be shut down to preserve fuel.

PRESERVING ENERGY IN AIR CONDITIONING AND REFRIGERATION

a) Usage of thermostats in air conditioning to coordinate with the daily temperature.

b) Utilization of fuzzy logic in mini bars which automatically tunes the temperature of air .

c) Use of refrigerant additive to all of air conditioning systems- increases heat transfer, reduce compressor run time, preserves energy, and increment compressor life.

d) Installation of window film to lower heating and cooling loads and reduce glare in guest rooms. (Utilization of opportune insulation and reflective roof coverings).

Conservation of Water-Limit Water Waste

a) Water scarcity is an recognized global problem, water projected to exceed supply by 40% by 2030.

b) Most water (97%) is in the oceans, which cover 71% of the Earth's surface. 3% is freshwater, two-thirds of which is tied up as frozen water in glaciers and at the poles. There is only 1% as freshwater in rivers, lakes, the atmosphere and in groundwater.

c) Hospitality industry is one of these where water plays a determining part in everyday operations and potential magnification. Most hotels pay for the water they consume twice – first by purchasing fresh water and then by disposing of it as waste water. Water accounts for 10% of utility bills in many hotels.

Water Management Plan

a) Start quantifying water consumption and set some tangible targets. start point and ascertain how much water you are currently utilizing.

b) Understanding quantification and target setting is the way for kenning your water costs. Work out what would be the potential cost savings and the payback period for any capital investment.

Once quantification and targets have been set, you can establish a water conservation plan. Here are some suggestions of how best to go about this to reduce carbon footprint.

a) Carry out a water audit to analyze where savings can be made and from where major water costs.

b) Calculate the water consumption per guest per night by dividing by the number of guests for that month& by the total water consumed in guest rooms. If your utility bill is in cubic meters rather than liters, multiply the number of liters by 0.0001.

c) Check if funding / loans is available from regime or other sources for investment in incipient technology or water reduction schemes.

d) Establish authentic goals for each department and the entire hotel. Subsequent objectives and goals to all employees for reduction of water consumption.

e) Train staff so they understand how to make prudent utilization of water and how to maintain equipment for optimum energy-efficiency. Take solution form staff to reduce water consumption.

f) Establish a monitoring and targeting system so that you can customarily report progress back to staff and other stakeholders. Incentivize through feedback and reward prosperity.

g) Join forces with other hotels and provide mentoring to avail them reduce their water consumption. Always test first to optically discern that any quantifications taken will not compromise quality, health or safety.

Bathrooms

a) Shower flow should be adjusted for no more than 10 liters / min.

b) Low flow toilets utilize an average of just six liters per flush. install duel flush toilets so guests can opt for a shorter flush. you can reduce the water utilized in flushing by placing a brick.

c) Taps should have a maximum flow of six liters per min, or four in hand washing sinks in public bathrooms.

d) Maintenance is a key part of preserving water consumption – a leaking toilet can lose 750 liters of water day.

Laundry

a) If outsourced, what procedures accommodation provider have in place to reduce water and energy use.

b) Wash minuscule quantities in a 5kg machine and always ascertain machines are fully loaded.

c) Consider utilizing "intermediate extraction" between rinse operations.

d) Consider the reuse of water from previous rinse cycles for the first wash of the next cycle by installing ad interim holding tanks.

e) 500-room-plus hotels could consider installing a continuous batch washer (CBW), which utilizes all the rinse water for pre-washing and main suds operation

f) Ensure that the water flow rates on tunnel washers and CBWs are adjusted to the manufacturer's recommended setting.

g) When buying washing machines, it should be of good water consumption rating

Swimming Pools

Swimming pool can increment fresh water consumption in an large hotel by up to 10%. Steps will avail ascertain no water is wasted.

a) Conduct customary maintenance to avert leaks.

b) Backwash the swimming pool every two to three days rather than circadian. It is withal best to opt for a backwash system where water can be recaptured and utilized for irrigation.

c) Always cover swimming pools when not in utilization to prevent evaporation and reduce the need to empty and refill.

d) To reduce water uses at pool shower install push-button showers.

Grounds

a) Do not water grounds in the heat of the day. In hot climates, the best time to water is in the evening

b) It's best to avoid utilizing automated wagering systems, however if they do have to be used water can be preserved by fitting timers on sprinklers to control water use. Moisture sensors in gardens and grounds can additionally be acclimated to avoid over-watering.

c) Use rainwater harvesting techniques to divert and capture rainwater from roofs and gutters.

d) Install a treatment system that will enable you to utilize treated ebony water from toilets in the gardens. The treatment plant needs to be punctiliously situated in cognation to prevailing winds and screened from view. These systems must be well controlled.

e) A well-designed and controlled irrigation system will distribute water when and where it is needed.

f) Using your own organic compost will integrate nutrients and avail retain moisture in the soil.

g) Placing wood chips on top of soil avails to reduce evaporation.

h) Native species of plant often need less water so design and landscape your grounds in keeping with the subsisting environment.

Kitchens

Taps in kitchens should have a maximum flow of 10 liters per minute

a) Only use dishwashers on full load.

b) Pre-sousing utensils and dishes preserves utilizing running water. Wash vegetables and fruits in a sink of water rather than a running water rinse.

c) Avoid thawing victuals under running water and evade utilizing running water to melt frozen water in sink strainers.

d) Minimize the utilization of frozen water machines and adjust settings to dispense less frozen water.

Housekeeping

a) Put procedures in place and conduct training to apprise housekeeping on how they can reduce water use. These procedures should include how many times to flush the toilet when cleaning, not to leave taps running or use exorbitant water, utilizing a mop rather than hose when cleaning floors.

b) Water efficiency systems.

c) Grey water systems enable up to 50 per cent of wastewater to be returned to the hotel after treatment for toilet flushing.

d) Low-flow technology installation can preserve astronomically immense volumes of water across bathrooms and kitchens, with minimal effect on the customer experience.

e) Adjustable flow restrictors on taps enable them to distribute a lower instantaneous flow rate than screw-operated taps and can reduce water use by over 50%. Similarly, low-flow shower heads cost very little and use around 9.45 liters a minute compared with conventional heads.

DITCH DISPOSABLES

Disposable items have become so ingrained in our daily habits that we may not realize all of the small, everyday actions that are integrating to the amount of disposable waste that culminates up in oceans and landfills and increase in CFC. Due to changes in lifestyle one can make today to ditch the disposables and reduce our environmental impact. Mentioned items can be discarded from day to day operation and to supersede with opportune solution/items for reducing carbon foot print at hotels.

a) Current Use- Plastic Water bottles. Replace with- Install a tap filter at Hotel or buy a filtering jug.

b) Current Use- Single serve coffee pods. Replace with- Brewing Coffee.

c) Current Use-Paper cups. Replace with- Reusable mugs.

d) Current Use- Boxes of tea bags. Replace with- Refillable tea leaf tins & single paper bag loose leaf.

e) Current Use- Disposable utensils. Replace with- Reusable set of cutlery.

f) Current Use- Plastic bags. Replace with-Reusable bag that can be foldable and carried around in your car, pocket, or purse.

g) Current Use- Shampoo Pouch. Replace with- Shampoo bars.

h) Current Use- Disposable razors. Replace with- Use Safety razors made from stainless steel only the blades need to be superseded.

i) Current Use- Floss picks. Replace with- Water flosses.

j) Current Use- Plastic water filters. Replace with- Use Charcoal sticks filter or Eco cordial filtered water dispensers.

GUEST REUSE LINENS

Bedding and towel laundry leads to paramount energy and water consumption. 70% of customers adhere positively to this approach. Choose sustainable towels, beddings and mattress covers with an eco-label when replacing them. Linen requiring ironing demands much work opt for wrinkle-free cloth. Housekeeping staff training and support, such as clear written instructions to supersede linen that should not be changed. At reuse guest linen reduce carbon foot print count by

a) Successful implementation of towel and bedclothes reuse scheme to guests.

b) Guests are provided with clear information and instruction.

c) Adequately sized and easy to use towel rails are installed.

d) Proper staff training.

e) The reduction in water use achievable through reuse.

f) Request for guests to avail the establishment conserve water by reusing sheets and towels.

g) Clear description of the procedure for reusing sheets and towels.

h) The environmental benefit of laundry reuse programs will lead to water and energy savings, as well as reduced chemical use.

ECO-FRIENDLY CLEANING SUPPLIES

Using environmentally-cordial hotel cleaning products for hotel will not only good for the environment, it's good for staff, guests and hotel reputation as a bellwether in the green hospitality movement. Environmentally-friendly hotel cleaning products which will reduce carbon foot print emission counts are:

a) Safer for Staff and Guests

b) Better for the Environment

c) A Key Element of a Green Marketing Campaign

d) The Future of the Industry.

ENCOURAGE ORGANIC FARMING AND COMPOSTING

Organic Farming

Organic farming is a method of crop and livestock engenderment that involves much more than opting not to utilize pesticides, fertilizers, genetically modified organisms, antibiotics and magnification hormones… provide attentive care that promotes the health and meets the behavioral desiderata of livestock. Organic agriculture enables ecosystems to better adjust to the effects of climate change and has a major potential for reducing agricultural greenhouse gas emissions. Organic agricultural strategies, by recycling organic matter and tightening internal nutrient cycles, contribute to carbon sequestration.

Composing

Composting directly reduces carbon dioxide (CO2) and other potent greenhouse gases, like methane (CH4) and nitrous oxide (N2O). Composting is an efficacious way to reduce greenhouse gas emissions. Helps soils hold or sequester carbon dioxide. Integration to emission reduction, compost replenishes and revitalizes exhausted farm soils by superseding trace minerals & organic organic material, reduces soil erosion and avails obviate storm Dehydrogenate monoxide runoff. Recycling is an efficacious way to reduce greenhouse gases.

EMBRANCE RECYCLING

Minimizing the waste produce in the hotel, one can further reduce environmental impact by recycling the waste. Businesses in the hospitality Hotels can reduce the weight of their waste by 16 per cent. Another huge impact the hospitality industry has on the environment is due to the amount of waste hotels create. It can reduce carbon foot print emission by:

a) Exhaustively evaluate your recycling needs

b) Perpetually monitor and evaluate

c) Utilize a customized recycling accommodation

d) Ascertain you consolidate

e) Consider donating extra supplies

f) Minimize changes

g) Inspirit guests to get involved

h) Get staff involved and make them aware about recycling.

i) Keeping a partner hotel will always help in recycling needs.

CONCLUSION

Predicated on the research study carried out on different star categories of hotels it is observed that:

a) On descending orders Carbon foot print emission is high in 5 Star,4 Star,3 Star,2 Star and1 Star.

b) Otherwise the diesel, petrol and LPG consumption in the 1 star and 2 star category are very less in place of other star categories of hotel because the number of employees, room occupancy are all very less compared to the other category of hotels.

c) If the 1 and 2 star hotels are able to purchase clean energy by installing adequate electricity generation methods, then these categories of hotels can thrive, but if not, in an environment amicable manner, 3, 4 and 5 star hotels seem to be the best hotels.

d) Due to constrain in area of Star category of hotel, Hotels are not taking felicitous plan to plant trees to reduce carbon foot print count.

e) With this research study it is possible to reduce carbon foot print count by opportune inculcation, cognizance to hotel staff and guest to take collective efforts to reduce CFP count.

f) If these practices are followed the goal will be derived by hotel industry in the direction of low emissions approaches than those used when there is no cost to emitting carbon dioxide into the atmosphere.

g) Government of India, Tourism Department and IHM Chennai should take felicitous initiative to take congruous audit on carbon foot print emission by the hotels which are applied or having affiliation by Star Category.

h) Department of Tourism should pass law or make correction in the existing law in the parliament to ascertain that felicitous steps are taken by hotel to compensate carbon foot print count afore certifying their star category affiliation.

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LEVERAGING CORPORATE SOCIAL RESPONSIBILITY TO ATTAIN SWACHH BHARAT - CASE STUDIES OF CORPORATES AND THEIR DEVELOPMENT INITIATIVES

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ABSTRACT

Swachh Bharath Abhiyan is one of the most highlighted cleanliness campaigns started by the Government of India in 2014. It was launched to achieve Swachh Bharath by 2019, as a fitting tribute to Father of the Nation, Mahatma Gandhi. Since the launch, the campaign has impacted several lives in the country and hence proudly called as a mass movement towards cleanliness. Under the leadership of Prime Minister Narendra Modi, the citizens were encouraged to achieve Gandhiji's dream of clean and hygienic India. From celebrities to common men and women, from Corporate houses and their employees joined the Prime Minister in his mission to achieve a clean India. Corporate Social Responsibility is a potent tool for achieving social, environmental goals by partnering with the government. This paper makes a special reference to Swachh Bharath Abhiyan and the expertise of the Corporate Social Responsibility in collaborating and achieving the objectives of the movement. This qualitative research presents case studies based on extant literature on CSR and the bold initiatives initiatives by the corporate houses in India.

Keywords: Swachh Bharat Abhiyan, CSR, Tata Consultancy services, Dabur India.

PROLOGUE

Swachh Bharat Abhiyan: The Cleanliness Movement

Swachh Bharat Mission, is a movement with the aim to ensure hygiene, waste management, and clean sanitation, was on his 150th birth anniversary. The Campaign aims at sanitation planning, behavioral changes in the minds of Indian citizens and involving private partnerships to collaborate for the greater good of the society. Therefore the Indian Government has identified a partnership model for its involvement in building the Swachh Bharat Fund and various models like OPEX, operation and maintenance and CAPEX, capital expenditure. The movement received support and collaboration from a range of government ministries, private sector organisations, the philanthropic ecosystem, civil society, and the media and entertainment sector participated to bring sanitation messaging and awareness to citizens at significant scale. With this the creation of facilities and infrastructure for the Clean India Movement has been accelerated positively. Addressing the United Nations General Assembly PM Modi mentioned that India has is an epitome for other developing countries for driving the world's biggest sanitation campaign within the 'Clean India Mission'. He has proudly stated that over 110 million toilets have been built in just five years is indeed a milestone.

The Agenda

The seven key mission statements are enlisted below:

They are:

1) Open defecation elimination;
2) Manual scavenging eradicating;
3) Scientific solid waste management;
4) To bring behavioural changes related to healthy sanitation;
5) Awareness about sanitation and public health dissemination;
6) Capacity building of urban local bodies (ULBs); and
7) To promote private participation in CAPEX (capital expenditure) and OPEX (operation and maintenance) model.

According to World Bank reports, non-availability of sanitation infrastructure and poor hygiene have impacted India's GDP amounting to an annual economic loss of approximately 6.4 percent in the year 2014. SBA is a long and decisive step to address the social and behavioral problems. Watchdogs like the UN and other international forums like R.I.C.E. have reported the gravity of the issue of open defecation which stands at 60% of the Indian population have no access to clean sanitation or practices open defecation. Access to clean sanitation, to maintain high hygiene, is the agenda to elevate the sanitation profile and be able to maintain good hygiene for better health and opportunity. Also, this behavioural change can impact and improve the standards of living for a majority section of the Indian society.

The Impact

India has over 650,000 villages in 677 districts, of which about 60,000 villages and 16 districts are Open Defecation Free (ODF) after the creation of the Swachh Bharat Mission Framework. The scale of the task is wide, it requires focus, planning and dedicated action. To quote the Honourable Prime Minister, he said for the success of the movement, we as indian citizens need cooperation, Its neither the Government's activity nor the Citizen's duty, Its both and hence it will transform as a movement. Under Prime Minister NarendraModi's 'Swachh Bharat' mission, the government has built more than 90 million toilets across the country. As a product segment, toilet cleaners were used at 22.5%, or nearly 65 million households as of June quarter compared with 10.4%, or 29 million households when the sanitation programme was launched, according to global consumer research firm Kantar Worldpanel. Google Maps now lists over 57,000 public toilets in over 2,300 cities across the country, the company announced on the eve of Mahatma Gandhi's 150th birth anniversary, fulfilling a key aspiration of the Father of the Nation.

The National Annual Rural Sanitation Survey (NARSS) 2018-19 by the Independent Verification Agency under the World Bank, which has offered financial assistance for SBM-Gramin, has released a survey report for the period between November 2018 and February 2019. The Key point is that 93.1 percent of the households had toilets and 96.5 percent of them were using the toilets. Such massive toilet coverage has helped the government achieve another milestone. When the United Nations prepared the list of 17 sustainable development goals (SDGs) to be achieved by 2030, one of its foremost agendas required countries to "achieve access to adequate and equitable sanitation and hygiene for all and end open defecation". Meeting SDG 6.2 then seemed a humongous task for India that topped the list of laggard countries and is often described as an Asian enigma by researchers, but with the world's largest cleanliness campaign here with clear planning and implementation with focus, will aid in achieving the target.

On an average, a person in rural India was exposed to between 2,500 and 3,300 SBM-related messages over the last five years. This is one remarkable impact as within 5 years, the mission and its ways of working could reach the Indian population. This also means that on an average at least one time, any Indian citizen would have heard, noticed, participated in the campaign. To initiate behavioural change, 650,000 swachhagrahis were recruited. They were the ground level workers who played a greater role in sensitizing the mission's idea, its mode and implementation.

Corporate India and Swachh Bharat Abhiyan: The Partnership and Benefits

Responding to the call of Prime Minister NarenderModi, Corporate India has enthusiastically participated in the movement and made it a huge success. Public and Private companies are appending in cleanliness activities under their compulsory Corporate Social Responsibility (CSR) schemes which is a statutory requirement as per Companies Act, 2013.The famous corporate houses from different segments such as L&T, DLF, Vedanta, Bharti, TCS, Ambuja Cements, Toyota Kirloskar, Maruti, Tata Motors, Coca Cola, Dabur,

Aditya Birla, Adani, Infosys, TVS and many others have earmarked budgets for Swachh Bharat projects. According to one estimate Rs.1000 crore worth of various cleanliness projects are in the pipeline by the corporate sector. These projects include building toilets in distant villages, running workshops on behavioural changes, waste management, and water hygiene and sanitation activities among other things. In a bid to invite corporate funds for Swachh Bharat campaign, the government had recently decided that corporate contributions towards this scheme will now be counted as CSR spend. And to make it clearer later the Corporate Affairs Ministry also amended Schedule VII of the Companies Act to specify that contributions to 'Swachh Bharat Kosh' would be an eligible CSR spends. Therefore, not only government and private individuals but also the corporate sector is playing its role in making India totally clean.

REVIEW OF LITERATURE

The CSR mandate has encouraged many corporates to initiate social, national and environmental developmental programs. It has brought them to the forefront of society and let them solve problems. Instead of associating themselves with a non-profit or an NGO, many corporates have established started overlooking the activities that are beneficial for the society and utilized the foundation to demonstrate their contribution to society. The traditional models of philanthropy are now being replaced with a strategic approach to social impact. Thus the founding company will collaborate to eradicate social evils, conservation of natural resources, waste and sanitation management.

Definitions for Corporate Social Responsibility

The concept of corporate social responsibility (CSR) aims both to examine the role of business in society and to maximise the positive societal outcomes of business activity. (Sustainable Development Innovation Briefs February 2007). CSR has a variety of definitions and interpretations and while Freeman defined it as the responsibility of the various stakeholders of the Corporate and utility of CSR for the support of disadvantaged group (R. Edward Freeman, 1984 and 2009). Chester Barnard's defines CSR as the focus on the stakeholders for the greater good of the society. The society will stand as an important beneficiary. The aim is to engage them in CSR because in case of failure of such engagement companies may lose the support of the community and other non-financial stakeholders. The Stakeholder theory was then reframed by Donaldson and Preston (1995) who stressed that the moral and ethical dimensions of CSR are more important than the business dimension of the concept. Nowadays, more and more researchers and authors focused on the stakeholder approach in the development of the business responsibility theories (Cohen 2010).

Moon (2002b) argues that Business Responsibility is a non-profit community involved exercise which mandates voluntary contribution of finance, goods, and services to the community or a governmental cause. (Moon, 2002) This is often in the form of social and beneficial partnerships with nonprofit and for-profit organizations. In 2003, Molly Attenborough and James Shyne conducted a study named "CSR, public policy and the Oil Industry in Angola" on ten major oil companies currently operating in Angola. The study describes the role of public sector in strengthening CSR. It prompted how CSR investment as a business value and its impact upon targeted beneficiaries. The study also describes the importance of the public sector in carrying out the CSR activities and focusing on the participation of potential public section that would make corporate efforts impactful for the beneficiaries and companies both. It was found that the representatives of ten oil companies were familiar with the issues of CSR and they were ready to recognize the importance of the ethical and practical imperative of CSR for their companies to operate in a socially responsible and environmentally sustainable manner.

Implementation of CSR:

McGaw (2005), cites that it will aid to identify the best qualities in business leaders and their potential to become global leaders based on sustainability will be a major challenge in the implementation of CSR. However he assigns this responsibility on the corporates to enhance the leadership capabilities of individuals for real change to see the business responsibility index (Alessia D'Amato, 2009). According to this author, the task and challenge will be to develop leaders for a sustainable global society by encouraging his/her imagination and the accomplishment of a positive change. Harish Kumar (2012) in his research article entitled "CSR Revisited" has thrown lights on four different approaches of companies towards CSR viz; Good Governance, Ruinous CSR, Discretionary CSR, and Illusion CSR. According to him the attitudes which drive CSR

are Philanthropic Attitude, Governmental Actions, Environmental Concern, Ethical Consumerism, Crises and Calamities, Globalization and Market force, Social Awareness and Education, and Social Expectations

India and CSR

Corporate Social Responsibility (CSR) is the incorporation of socially advantageous programs and practices into a corporation's business model and culture. India is one of the first countries in the world to make CSR mandatory for companies following an amendment to the Companies Act, 2013 (Companies Act) in 2014. This has been a lauding feat that has motivated corporates for CSR activities and initiatives. Under the Companies Act, businesses can invest their profits in areas such as promoting rural development in terms of healthcare, sanitation, education including skill development, environmental sustainability, etc. Section 135(1) of the Companies Act prescribes thresholds to identify companies which are required to constitute a CSR Committee - those, in the immediately preceding financial year of which: (i) net worth is Rs.500 Crore or more; or (ii) turnover is Rs.1000 Crore or more; or (iii) net profit amounts to Rs.500 Crore or more. (Ministry of Corporate affairs)

When CSR regulations were introduced in 2013, India became the first country to mandate specific spends on CSR for all corporate entities based on income, or profit, or net worth criteria. This was unique when compared to the practices followed in the US, Britain or Europe, where CSR regulations follow a more 'philosophical' approach of 'doing well by doing good', and is driven through an overall corporate governance framework in which corporates are required to report on specific project. There is no denying the fact that as a country, India has gained tremendously through CSR 1.0, which saw corporates come forward in last 4-5 years to build social infrastructure across India. But with data and spending patterns in front of us, CSR 2.0 can help create a sustainable socio economic infrastructure to achieve India's $5 trillion economy goal based on this government's principle of minimum government, maximum governance.

BLUEPRINT OF THE STUDY

METHODOLOGY

Data and information used in this descriptive paper were collated from different information sources namely international and national journal articles and reports, government reports, web based statistics, and fact sheets. Information is gathered through extensive online search and analysed to understand the scope of CSR for financing and constructing social infrastructure for achieving the Cleanliness Campaign - Swachh Bharat Abhiyan. Case studies are presented by Case studies about the Corporate houses are presented based on the research online and with reference to the initiatives by them.

OBJECTIVES

1. To outline the impact of Swachhbharat mission as a development goal on the Indian Society.
2. To present case studies of Corporates that have leveraged the Swachhbharat India Campaign

CASE STUDIES : CORPORATE HOUSES AND THEIR RESPONSIBILITIES

Tata Consultation Services: 1,475 toilets, 4 states

Since 2014 when the Prime Minister NarendraModi launched the Swachh Bharat (Clean India) campaign, TCS has been so active by collaborating and contributing to the movement. The biggest initiative is the Swachh Bharat: SwachhVidyalaya (Clean India: Clean Schools), the company has been creating resounding impact. As the Prime Minister Modi urged the corporate sector to get involved in the construction of toilets in schools across the country, the schools allotted to TCS was spread across four states — Andhra Pradesh, Telangana, Bihar, Tamil Nadu.

TCS has built 1,475 toilets for Indian schools—but the effort that went into this impact is immeasurable. The company formed a task force to work with central and state governments to focus, plan and delineate work amongst itself, the aim was simple, 'bring a change'. However in spite of planning meticulously, the company had to face several pitfalls that varied from village to village, city to city.

To start with, a pilot study was conducted to know that suitable construction models, then small-scale preliminary modeling was done to define the design, timing, and cost of implementation. The biggest advantage was when TCS leveraged technology to ensure successful and timely implementation. The country's largest software exporter utilised the power of technology in and out to solve problems and pitfalls which they encountered during the process. TCS equipped the students for the ongoing management of the new facilities, it actively conducted training programs

for students, teaching staff, and the local community. The corporate house sensitised the villages by monitoring the community people and their behaviours. Cleanliness posters now dot the walls of common areas and classrooms. Students are encouraged to participate in the effort with "I am the Change" badges. This impact created in the young minds influenced the local community.

To date, TCS has constructed 1,475 toilets in four states, and playing an important role in a very large-scale effort to promote healthy living and school attendance throughout India. TCS had earmarked a budget of Rs.100 crore for building dedicated sanitation facilities for girls in selected schools. TCS had to encounter several problems, one of the important and persistent issues while constructing toilets was the Water problem, many villages had less or no access to bore wells, hence the corporate house had to construct and dig bore wells. TCS also engaged two maintenance partners across the selected states to ensure the toilets are cleaned daily and equipped with consumables like soap. Because only building a toilet won't help. The futuristic plans of the company makes the efforts count and establish it better amongst others.

Dabur India: 5 Swachh Model Villages

Dabur India had a simple idea is to turn selected villages into model villages and offer them a variety of services, from operating health posts to offer vocational training programmes to the youth in these villages. To take this aim for ward, Dabur India has adopted 5 villages namely Nandpur, NaglaGajju, Naraina, Nidhawali and Domatikri. Under this programme, the company ensured that all households in these five villages have toilets. Dabur India had constructed close to 600 toilets under this initiative. Besides this effective achievement, Dabur constructed separate toilet blocks in around 20 schools in these villages. Last year, the company had announced plans to construct nearly 1,000 household toilets as part of the Swachh Bharat mission. As a first step, the women of the household were given an account payee cheque in two installments, with the first cheque given after the pit is constructed and the second installment once the entire construction is completed

Dabur had a separate team constructing, planning and monitoring clean, Germ-free public toilets across the country. A team of Volunteers will be positioned in the villages and these volunteers would disseminate the message that a clean and germ free toilet is a basic need of a human being for leading a healthy life and to safeguard from common diseases. As an organization, Dabur believed the ideology of Swachh Bharat mission and its true worth. Its efficiency is best reflected by the service it has rendered to the community and the society.

RECOMMENDATIONS: FOR BETTER RESPONSIBILITIES AND BETTER SERVICE

1. The centre has to properly monitor the corporate funding and have an account of it, to know the funds penetration at various levels and monitor the initiatives.
2. The habit of cleanliness and good health has to be imbibed, SBA needs further extension of around five more years. To make it more successful, cooperation amongst the implementation bodies is a must.
3. To fulfill the vision of the Prime Minister, SBA must be implemented faster. More than funding, the focus must be on changing behaviour, so that people continue to use the newly constructed toilets and understand the need for better hand hygiene - action that could save the lives of 300,000 young children every year.
4. The right to sanitation must become a part of the right to life under Article 21 of the Constitution. Sanitation is a 'state' subject and 74th amendment to the Constitution (1992) empowers urban local bodies with responsibility of public health, sanitation, conservancy and solid waste management.
5. Management of Municipal Solid Wastes still is a big challenge. For effective Management of Municipal Solid Wastes, the principle should be based on 'The polluter pays'. Sanitation and Waste management must be the prime focus of the Government.
6. Swachh Bharat Abhiyaan needs the Gandhianpush. "So long as you do not take the broom and the bucket in your hands, you cannot make your towns and cities clean," Mahatma Gandhi famously said.
7. The most important of all is a Standard operating model to ensure maintenance and implementation and technology intervention to study the impact. Constant Surveys and monitoring reports on the development initiatives by the corporate have to be done and followed regularly.

EPILOGUE

CSR's contribution towards the community, social and environmental issues will eventually impact the development index of the country. Post the Amendment of the Companies Act, India's mandate for CSR spent has regulated the CSR spent amount for developmental and environmental initiatives in the Country. With a clear CSR policy, the country has moved forward to initiate corporate houses to participate and contribute to the Nation and its needs.

This is a preliminary and qualitative study which explains the efforts of a government that included the local, state and national and corporates which are private and PSUs for driving the Swachh Bharat Abhiyan. The participation of these stakeholders will bring about a desirable change for the society.

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AWARENESS ON SWACHH BHARAT MISSION AMONG DIFFERENT STAKEHOLDERS IN CHENNAI – AN ANALYSIS

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ABSTRACT

Cleanliness plays an important role in our day to day life. The largest "behavioural change" programme ever to be launched globally to bring about qualitative and quantitative shift in the way a country addresses sanitation is Swachh Bharat Mission. The main aim of this study is an attempt to find out the awareness about Swachh Bharat mission among various communities, such as schools, colleges, drivers, vendors, etc. The method adopted for the study was Survey method. The sample for analysis was selected using simple random sampling technique. The findings revealed that the Swachh Bharat Mission has made some difference at the awareness level. The real challenge towards Swachh Bharat mission is to bring attitudinal change.

Keywords: Swachh Bharat, awareness, cleanliness.

INTRODUCTION

The first step towards protection of the environment is Knowledge. Numerous attempts are being made to explore ways to sensitize our citizens about Swachh Bharat. Awareness of keeping the environment clean is created by the propaganda for Swatch Bharat. In coincidence with the 150th anniversary of Mahatma Gandhi's birth, this mission has gained approval from almost all sections of the government and society and lauded as a "sacred mission".

"Save Narmada Agitation",

"Swach Bharat Abhiyan" (Clean India Mission)

"Go Green"

are the various cleanliness projects and campaigns undertaken by the government. Biggest step taken ever as a cleanliness drive till date is the campaign of Clean India movement. To make it popularize globally and common public aware of it, 3 million government employees including students from schools and colleges had participated in the event. Educating and acknowledging people about the importance of cleanliness in our surroundings are the main aim of this campaign. The objectives of the Swachh Bharat mission are as follows:

1. To construct individual, cluster and community toilets and work towards establishing an accountable mechanism of monitoring usage.
2. Elimination or reduce open defecation.

3. To create Public awareness about the drawbacks of open defecation
4. To recruit dedicated ground staff to bring about behavioural change
5. To change people's mindset towards proper sanitation use.
6. To keep villages clean.
7. To ensure solid and liquid waste management through gram panchayats.
8. To lay water pipelines in villages, making certain facility to any or all households.

REVIEW OF LITERATURE

1. Selvam and Nazar (2011) in their study revealed that all the students do not have environmental awareness and responsibilities. Awareness should be created by the faculties among the student community.
2. Mariammal (2015) revealed in her study that there was a significant relationship between environmental awareness and environment commitment.
3. Fisman, L. (2005), in his study showed that the awareness about local environmental was found only among students living in high socio-economic neighborhoods.
4. Sengupta, Das and Maji (2010). Explained in their study that environmental awareness not only implies knowledge about environment but also values and necessary skills to solve environmental problems. The initial step leading to the ability to carry on responsible citizenship behaviour is environmental awareness.
5. The Hindu, (October 4, 2014) quoted that the endeavour of the Government is to turn it into a mass movement requiring not just toilets, but also a change in behaviour and mind-sets of people.
6. Ajzen & Fishbein, (1980). explained in their study that levels of knowledge, awareness, and willingness to act in response to a cause or an event are directly associated with the individual behavioural intentions.

OBJECTIVE

1. To identify the awareness about Swachh Bharat mission among different stakeholders in Chennai
2. To identify the awareness about the different objectives of Swachh Bharat

METHODOLOGY

The present study was carried out to assess the level of knowledge on Swatch Bharat among the different stakeholders in Chennai. The investigator had used the survey method of research for the study. Convenient sampling method was used with the people who were available during data collection and volunteered to participate in the study.

Secondary Data

Secondary data for the research were retrieved from various sources such as reference materials, archival sources, textbooks, news papers, journals, articles, reviews and websites.

Sample

The sample of the study included 75 people from different levels. The levels were grouped into 3. Level 1 included the low level stakeholders like street vendors, drivers, sweepers, etc. Level II people included the mid level stakeholders like the college students, school goers, educators, research scholars, etc., Level III included the high level stakeholders like the management people, entrepreneurs, policy makers, decision makers, etc.,

Tools

In the present study the following tools were used by the investigator.

a) Personal Data Sheet

b) Swachh Bharat mission Awareness Test

The tool was constructed by the investigator and validated by the respective subject experts.

Statistical Techniques Used

The data was analyzed by using the following statistical techniques

1. Mean
2. Percentage analysis

DATA ANALYSIS

In the present study the data was collected on the basis of questionnaire and personal interviews on awareness of a national mission Swachh Bharat.

The level of awareness of Swachh Bharat Mission among the stakeholders was found using percentage analysis on a sample of 75 stakeholders. The result is shown in Table 1.

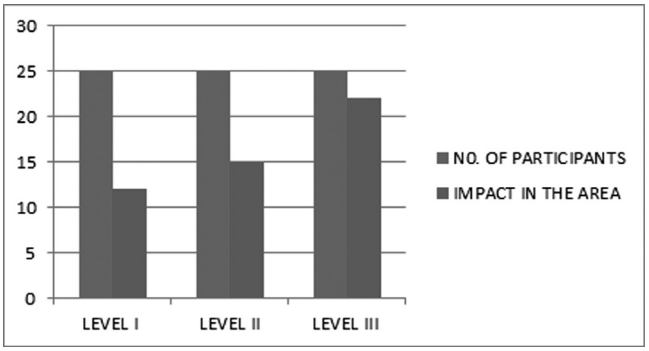
Table 1: The level of Awareness of Swachh Bharat Mission Among the Stakeholders

Awareness Level	N0. of Participants	Awareness	Mean	% Analysis
LEVEL I	25	12	0.48	16%
LEVEL II	25	14	0.56	19%
LEVEL III	25	16	0.64	21%

From the table 1, it is inferred that the level of awareness of Swachh Bharat Mission among the stakeholders is at moderate level. The analysis revealed that the Level I have shown 16%, Level II have shown 19% and Level III have shown 21%, in awareness of Swachh Bharat Mission.

Awareness about the objectives of Swachh bharat mission:

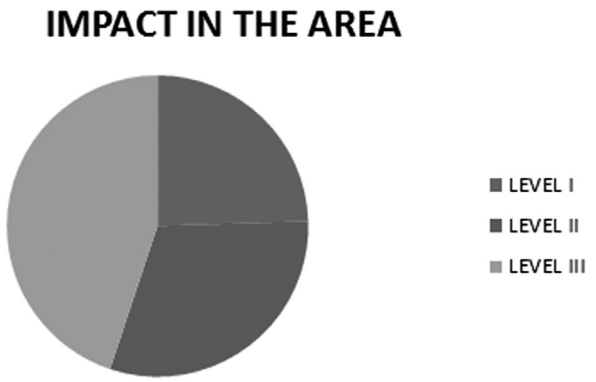
Fig.1: Awareness about the objectives of Swachh Bharat Mission



The figure 1 shows that Awareness about the objectives of swachh bharat mission is higher among level I group.

Impact of Swachh bharat mission in the levels of respective area:

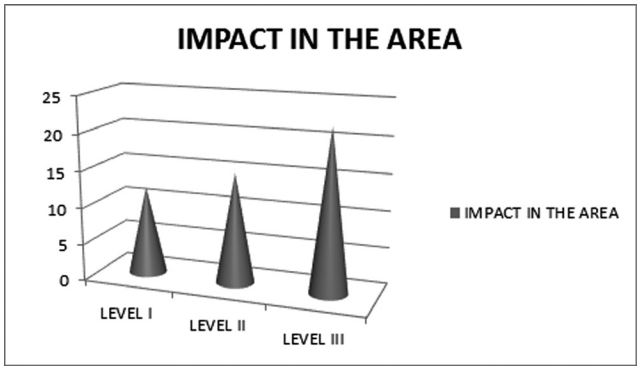
Fig 2: Shows the Impact of Swachh Bharat Mission



The figure 2 shows the impact of swachh bharat mission is higher among level II group in their respective areas.

Awareness about technology usage in swachh bharat mission:

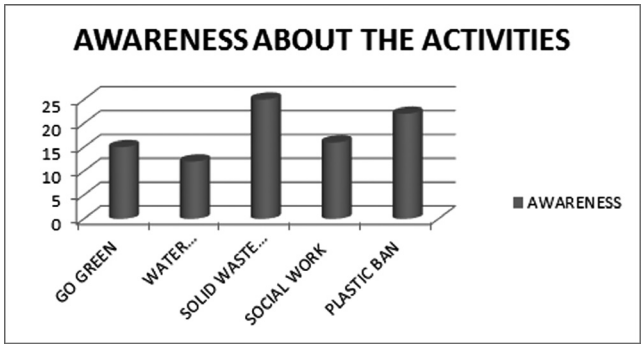
Fig 3: Awareness about Technology Usage in Swachh Bharat Mission



The above figure reveals that awareness about technology usage in swachh bharat mission is less among the level I and level II groups. Level III has higher level of awareness about the use of various applications promoted for swachh bharat mission.

The awareness about the activities under swachh bharat Mission:

Fig 4: Awareness about the Activities under Swachh Bharat Mission



The above figure reveals the awareness about the activities under swachh bharat mission among the different levels. The awareness about solid waste management is on the higher side. The awareness about the water management has to be improved to a greater extent. Awareness about the different social work activities like painting, sapling distribution, seed ball creation has to be highly motivated among the public.

CONCLUSION

Basic sanitation and waste practices awareness level in various communities has raised up. Many schools, colleges, hotels have started segregating waste and composting wet waste at local level and have learnt to be more responsible. But it is still a long road ahead. For smaller waste generators such as street vendors and shopkeepers in crowded markets a comprehensive awareness programme is required. Ownership of the Swachh Bharat Mission from the municipality to the ground-level can be shifted by the participation and feedback of the Citizen's. If every individual segregates the waste and composts the wet waste the burden from our landfills can be reduced to a greater extent. Wastes should be reduced, reused and recycled for the better future. Bio-gradable and recyclable should be ones highest priority. Swachh Bharat Mission is an ambitious programme which has made some difference at the awareness level and at the infrastructure level. The study reveals that swachh bharat campaign has a positive impact on people. The awareness about swachh bharat mission is moderate among the different levels of stakeholders. With the combined effort of government and people Swachh Bharat mission can be successful.

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THE CAMEO OF CHENNAI RESIDENTS IN PROMOTING CLEAN & GREEN INDIA - A CASE STUDY ABOUT THE RESIDENTS OF THIRUVEEDHI AMMAN KOIL STREET

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ABSTRACT

"Great things are done by a series of small things brought together" – VAN GOGH Save nature is not just any slogan. It's an idea, a dream that we can have plastic free green and clean environment. We cannot deny the importance of cleanliness in our lives. Maintaining a clean environment is for the vigor of all humans, as their health completely depends upon the environment.

In order to make it effective our Prime Minister NarendraModi accomplished a campaign which is Swachh Bharat Mission or Swachh Bharat Abhiyan for the period 2014 to 2019. The motto of Swachh Bharat Abhiyan is to clean up the streets, roads and infrastructure of India's towns, cities, urban and rural areas. The prominent slogan towards Swacch Bharat Abhiyan or clean India is "One Step towards Cleanliness".

The intention of this paper is to elaborate the steps taken by the residents of Chennai towards clean India. The various activities followed by the residents of Chennai towards managing the waste is observed. It also explains the hardships faced by them while creating the clean environment and the help required from the government is also stated. The data from the Chennai residents are collected and analyzed.

Keywords: Cleanliness, Waste Disposal, Environment, Hardships, Awareness.

CURTAIN RAISER

"Change starts from you"

The journey dates to 2013 when a resident of the Thiruveedhi Amman Koil Street, K L Bala, recalls how his friend and secretary of the resident's welfare association in the area, knocked on every door in the locality. It was a combination of flats and individual homes in Chennai's R K Nagar, which houses 80 families. He mobilized them to step out, greet each other and break the ice.

"Prior to this, people and their lives were restricted to the four walls of their own homes. Many who had lived there for the better part of their lives were clueless about their neighbors! So, we all got together and held several meetings. We decided to identify priority issues for our street and work on the solutions together," he told The Better India.

The issues were many—innumerable automobile shops turning the street into a repair hub; visitors parking their vehicles without permits for endless hours; a broken platform that was poorly maintained; strewn garbage and open defecation—the same as any

other urban colony. And so, the residents came together to bring about change and reclaim their street. Because they knew that 'In unity laid their strength.'

Cut to 2019, the Thiruveedhi Amman Koil Street Residents Association (TAKSRA),was recognized by the State Government for its many environmentally-conscious initiatives. It bagged the Pollution Control Board's Green Award, presented by Chief Minister of Tamil Nadu, Edappadi Palaniswamy.

STEPS TAKEN BY THE RESIDENTS AT START

Every home on the street segregates its waste. While their wet waste is processed into compost every quarter, plastic waste is collected and recycled.

Generating more than 12,000 kg of manure annually, the society has not only managed to get rid of the abandoned vehicles that encroached its street but has now converted the stretch into a blooming garden which has a combination of flowering potted plants, lush trees, and intricate creepers. An old school compound was being treated as an open defecation spot, was reclaimed and painted with colorful art and portraits of inspiring personalities as shown in the figure 1.1.And it doesn't stop there.

Apart from having rainwater harvesting in each of its buildings, TAKSRA also created a recharge well for water conservation. It follows drip-irrigation for its street garden and is now working on implementing grey water recycling soon

Fig1: Renovated School Compound

THE NEXT BIG STEP

The society's next step was to adopt a bin-less model and send as little waste to the dump yard as possible. One of the first steps towards this was to adopt waste segregation in every household. They also set up common compost pits for all the dwellings to process wet waste (vegetable waste, dry leaves, flower waste, etc.).

Following a three-month composting cycle, the association generates 300 kg of compost per cycle which, when multiplied by ten buildings, is 3,000 kg. In a year, the total manure produced comes up to a whopping 12,000 kg!

A major part of this manure is used for the street garden, and the excess is sent to the corporation's dry leaf composting unit at a park in the vicinity.

FUTURE GOALS

A few other projects in the pipeline include grey water recycling to water the garden. While the model is on the verge of completion in Bala's building, it will soon be replicated for other dwellings.

They are also exploring the use of solar energy for street lights and lighting up common spaces within the buildings.

When asked about winning the Green Award, Bala beams, "One of the reasons we won the CM's award was that we voluntarily formed a group to adopt a sustainable model, although we were not a gated community, with the power to enforce rules". We are constantly on the lookout of newer innovations. People, as well as associations, refer to TAKSRA as the best model, we aim to live up to that expectation."

He concludes by saying, "Our next plan is to invite more birds into our neighborhood and make it livelier. We are experimenting with different species of plants to attract them."

THE ROLE PLAYED BY THE GOVERNMENT OF INDIA

A 'Green' App to fix Chennai's water woes using century-old research on trees IS FUNDED BY Tamil Nadu Government. The mobile application, developed by IFS officer Sudha Ramen, has more than 50,000 downloads. It focuses on plantation techniques. At a time when Chennai is grappling with an acute water crisis, a mobile application is offering a simple solution to the problem – by increasing city's green cover.

Treepedia, developed by Sudha Ramen, an IFS officer and recipient of Dr. Kalam Innovation in Governance Award, launched the App in 2018 and it has more than 50,000 downloads till date. The App focuses on plantation techniques and inter-cropping and

also highlights the concerns of a diminishing tree cover. A sum of Rs.18.4 lakh has been funded by Tamil Nadu government, for the project.

Tamil Nadu government, under the scheme "Tamil Nadu Innovative Initiatives", funded this project. Tamil Nadu Forest department, my parent department, supported me by all means to complete this project says Ms. Sudha Ramen. From several sources information regarding Forest Research from past 100 years has been collected. Presently, it is developed as a one-way application wherein the forest department will be able to update or add any information related to Tree cultivation through this App. To collect the data on trees and plantation models a set of five JEFs went around the state. They interacted with farmers and their societies to get additional information on trees," Ramen added.

The App covers a different set of topics, including cyclone-resistant trees. Native trees are the best solution to this. Those trees have natural geographical adaptation to suit the environment. Selection of the right tree matters a lot. Usually, people ignore the post-plantation care and maintenance. After planting, the tree requires care for about two to three years. During their phase of growth, based on their utility, the tree requires branch pruning on a regular basis. The more heavily branched tree will add to its weight and hence get badly damaged during disasters like cyclones. The root system of a tree should also be known before selection," she added. Treepedia is a central contact point that gives details on trees and its significance, district-wise plantation techniques and also has videos that give insights into the plantation techniques.

EAI one of the India's leading business support firm and renewable energy research, is located in Chennai.

Thus was formed the EAI Green Chennai Initiative. It is an initiative from EAI to evolve a platform that will involve hundreds of people from Chennai to make our city a role model city that hundred more from around the world would like to follow!

Some of the drives planned under EAI Green Chennai are:

1. Providing regular updates on the web on various avenues and ideas to make the city green.
2. Regular workshops and presentations.
3. Evolving a simple, workable action framework in which individuals, and not governments or corporate, can play a dominant role.
4. Highlighting eco-friendly activities in the city that have been successful.
5. Evolving a role for college students in the city.

FEW OTHER NOTABLE MENTIONS

1. Mullai, a part of the five ancient landscapes in Tamil Nadu, was a region with abundant grasslands stretched to the horizon. 'Vanam' means 'forest' in Tamil. As both names together would suggest Mullaivanam, is a person who have been in love with nature with all his life. The desire to spread this perspective to others is what led him to establish a sapling bank in Chennai in 2008.

   As a part of this initiative, so far ,90 lakh saplings have been planted in Tamil Nadu. Being a believer of collective effort, he motivates people to join him and hundreds of college students, IT professionals, and others are involved in his mission. He has been awarded for his works, even then he does not want to take a break from his mission, and in fact his next plan of action is to plant one crore neem seeds across India.
2. In one of a kind of its own move, Chennai's environmentalist Dr. Abdul Ghani, known as the 'Green Man of India', has launched a tree ambulance service to cater to the needs of the trees. Tree ambulance aims to deliver a positive environmental impact by exclusively caring for trees, by helping the trees to be uprooted back to their feet if they are sick.

   Now that the pollution levels are at an all-time high in and around the world, and the green spaces are quickly losing out to industrialization and commercial spaces, it is imperative that grown trees are fostered and protected.

   First aid treatment, seed bank, shifting trees, survey of trees, tree distribution is amongst the services that are being offered by Tree Ambulance. Ghani said that he plans to expand this project on a national scale by 2020.
3. The Hindu embarked on its newest initiative to help increase the green cover in and around Chennai by reaching out to its loyal readers. A sapling will be planted for every copy of The Hindu newspaper dropped at the boxes placed in the shopping malls.

   The CSR initiative from the Group has been well received and the responses are overwhelming. Community, an NGO creating man made forests have been partnered with.

As the city grows, we need to be more and more conscious of the environmental impact of this growth. Hence they have invited their readers to come together and drop off as many copies as they would like to contribute to this social movement. (As said by Dr, SathyaSriram, Head of Strategy and Marketing, The Hindu Group.)

CONCLUSION

Cleanliness task has turned from a extra responsibility to an urgent need due to the increased environmental threats such as Global warming, urbanization, restoring of historic monuments. Cleanliness is one major concern in maintaining the major cities as it was in its original state. Increasing population, extensive usage of Plastic goods and modernization of routine lifestyle had made the cleanliness task more challenging then never before. Hence implementing of new concepts and ideas in order to increase the awareness about cleanliness and sanitation becomes inevitable.

Though it turns harder to carry out, it synchronously makes it inevitable for a overall well balanced better country. Though we are well aware that our Government is taking numerous steps for the Clean India Program, we as an individual citizen of the Country also need to participate towards its goal. As the Saying goes, "If You Want To Change the World, Start With Yourself First" If we are really concerned about the change in environment, the change starts from us. We as an Indian Citizen it's our duty and responsibility to protect develop and take care of our nation. We should help the government in all the possible ways we can. "One cannot build a castle", similarly one particular residents or society cannot build a clean India for a better and brighter future.

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EFFECTIVENESS OF GARBAGE SEGREGATION PRACTICES IN CHENNAI

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ABSTRACT

As from the campaign SWATCH BHARATH PARAYVARAN SANRAKSHAN. This study examined the effects of GARBAGE SEGREGATION PRACTICES IN CHENNAI. The concept of finding the level of efficiency in garbage segregation of households in Chennai. Public and households were tested on a segregation of garbage task happened in and around Chennai is a place where the most rural, middle class and elite people reside. The perceptions of Chennaities are varied. The composting yards set up in each zone for turning waste into compost that might see an increase in segregation which is made compulsory. The Municipal Solid Waste (Management and Handling) Rules, 2000, had directions to implement source segregation in a phased manner by engaging with residents associations. But people's attitude, argue officials, needs to change to make the rules a reality. "The Tamil Nadu pollution control board (TNPCB) checks the water quality every month. There is no contamination, Percapita Generation per day 650 gms. Estimated Generation of Solid Waste Per day Garbage 5400 MTs. Construction and Demolition Waste - 700 MTs.

OBJECTIVES

The main objective of the research lies in finding proportionate of people's awareness level in allocation of waste in domestic level. Whereas As per the government rule of segregation of waste directly from the home itself, Is happening or not.

METHOD OF STUDY

The need of this study was to find people's participation in solid waste management in different parts of Chennai. To attain this, a research is engaged. Many methods was conducted in and around Chennai City by observation, questionnaires, online data, group discussions, were to mark the problem, explore strategies to fix the problems and to evaluate the outcomes.

I. Questionnaires,

II. Observation, group discussion

Waste Management

Primary Collection

Sweeping, collecting, and storing the waste in the specified bins Door to door collection of garbage Collecting the Source Separated Waste from the Households by Tricycles or Light Motor Vehicles and

bio-degradable waste is being sent to decentralized waste processing facilities and dry waste is being collected every Wednesday for recycle purpose and remaining waste to transfer Stations/dump sites.

Waste Disposal

At present Garbage generated in Chennai is dumping at two land fill sites and construction and demolition waste is being used for covering each layer of garbage in two dump sites. For remediation of the existing Landfill or scientific closure and to have the integrated waste processing facilities with waste to energy plant as component at the existing Kodungaiyur and Perungudi dump sites, the Transaction Advisory Consultant have prepared DFR and sent for approval of the competent Authority and simultaneously the RFP documents are under preparation.

Number of Disposal Sites: Two (Kodungaiyur and Perungudi). The objective of the study is based on the level and amount of solid waste segregation process which has been happening in different part of the Chennai city. The actual research involves in how efficacy the implementation of garbage segregation is fulfilled.

In a move that has been long pending, Chennai city corporation officials have set October 2 as the date for residents across all zones to begin waste segregation. This is meant to decrease the amount on non-biodegradable waste dumped in landfills. As from the solid waste department of the Chennai Corporation, the city generates 3,200 tons of garbage on a daily basis.

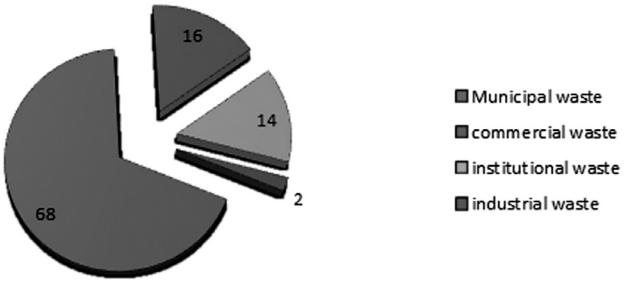
This garbage is collected from bins in 15 zones and split between Chennai's two dumping yards - Kodungaiyur and Perungudi. Garbage from zones one to eight are carried by trucks to Kodungaiyur, which has a 270-acre landfill in the northern part of the city, while eight to fifteen arrive at the Perungudi landfill in South Chennai.

While the date has been fixed, there is reportedly no plan yet to enforce segregation. Penalties and rewards still remain a matter of discussion. According to studies, 68% of municipal solid waste generated is residential waste, 16% is from commercial waste, 14% institutional waste and 2% industrial waste. Majority of the garbage in Chennai is in the form of green waste (32.3%), and inert materials (34.7%) like stone and glass. The rest consists plastic material and other non-biodegradable substances.

DISCUSSION

- Why required awareness wasn't spread adequately?
- How often the provision for segregation does is facilitated?

% OF GARBAGE SEGREGATION



Result

The results of the study showed that the current participatory approach, which mainly focuses on raising awareness or imparting environmental education, is not adequate to maximize the people's participation in Chennai due to the persistence of institutional and social constraints.

This study discovered that promoting people's participation in its ultimate form is more effective when

(1) The municipality develops the knowledge and skills to fulfill the new role of service partner; (the contractor's)

(2) People understand (rather than merely being aware of the problems) the harmful effects of their behavior and realize their roles and responsibilities;

(3) People are empowered with knowledge and skill and

(4) Motivation and interaction exist among all parties.

FINDINGS

According to the research and the data which is analyzed the certain percentage of the people as mentioned are not aware of the harmful effect and the cause, so government should implement more missions and targets and goals to be achieved to make the Solid waste management a successful mission in few years.

CONCLUSION

People of Chennai have to be developing the importance and the level of awareness regarding the need in segregation of the waste which ultimately leads to 99% of clean places to be derived. So by doing more awareness programs and swachh bharat rallys and explaining the rural people about the segregation and why it should be done will help to develop the solid waste management into a better practice.

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RELIGIOUS WISDOM, WISE-WATER MANAGEMENT AND GREEN PLAZAS : A BRIDGE TO SUSTAINABLE WATER MANAGEMENT

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ABSTRACT

Water is the cradle of life. As a resource central to life and livelihood, water has always been the locus of social action. Providing sustenance as well as salvation, both spiritual and secular, the power of water cannot be overstated. Water is the centerpiece of all human life and an important element to spirituality. The over-exploitation and misuse of water has converted the waters of life into waters of death. Preserving and managing water is a nation's highest priority.

Keywords: Water, Religious wisdom, natural resources, conservation.

'BLUE GOLD' and Religious Wisdom

There is an inherent relationship that exists between humans and water and there also between water and religion[1] . In India as elsewhere water plays an important role in purification rituals. Nature is God's creation and it is to be treated with fear and respect, because it is sacred. Many indigenous communities give importance to water, ponds, lakes, rivers, streams etc. Any type of control or domination or denial of natural resources create spiritual, social and emotional problems in the lives of these people[2] . Water has religious, political, social, economical and ecological importance in human life. But the people, government and private companies have been misusing it by controlling and exploiting water and its resources. Therefore we need a theological understanding of water to protect, preserve and manage water. Controlling and snatching water and its resources and using it for business profit is a sin, because it threatens the existence of God's great creation (human being) and the continuing act of co-creation along with God. Places near water resources are not only places of worship, but also fellowship, a place where they find relationship, co-operation, sharing etc. Thus water is a sacred common heritage of the people to be nurtured, conserved used and shared equitably. Exploitation of water sources for luxurious lifestyle, unsustainable agricultural farming, water mining for trade and capturing surface water for reservoirs for industrial use are unethical[3]. Planned water management strategies can help for sustainable development. It is time to give thought to water as the source, symbol and celebration of life uniting people and blending cultures.

Water resource management has for a long time been regarded as a male preserve, despite the fact that women utilize and manage most water resources at many levels in the society. There is a need for engendering[4] water resource management and that women can better represent or understand the problem.

The church, temple or other religious institutions need not be identified with water conservation from the point of view of ideology and philosophy alone. There are enough 'theological resources' to engage in water conservation programmes. Water is one of the bare necessities of life and God has given us this life-

sustaining resource. We must recognize the integrity of all creation. Humanity, in service to God, has a special role and is called to be stewards of God's creation. It is important that we recognize 'greed', 'selfishness' and 'ignorance' at the roots of the current water crisis. Given the context of impending water stress, a renewed emphasis on the stewardship of water and all other natural resources that our creator has provided seems to the author of the paper a most important ethic.

Swachh Bharat Abhiyan is a welcome move to promote greater sanitation, health and hygiene in our country. It is indeed a praiseworthy project, as it attempts to bring about a change through habit formation among the people[5]. The various religious traditions of our country promote a deep inter-connectedness and harmony between human life and its environment.

Healing waters and Sustaining Positive Changes

Bhutan the land of peace and spirituality tops the World Happiness Index[6]. People here grow up with learning of how even living and non-living object in their environs is associated with spiritualism. This learning finally helps them to utilize and conserve various natural resources[7]. People here believe that natural resources possess some divine powers which can help to mitigate or wash out various human health concerns completely. Water is one such resource, which is considered sacred in Buddhism too and also used to cure various human diseases. Another mythical story of magical water weaves is Walagyelpo's Drucpchu in Punakha which is about 127kms away from Paro town in western Bhutan. Thus 'water therapy' is a traditional practice in the landscape dominated by the followers of Buddhism.

In Ladakh, Lahual Spiti and Uttarakhand, many natural water springs, including the hot water springs containing sulphur and limestone are believed to possess curative properties. One such natural water spring is of Sahastradhara in Dehra Dun where a large number of visitors go annually take bath and bring it home for treatment of skin diseases.

The proper conservation or sustainable ulitisation of such natural resources demands people's willingness to participate in management[8]. Bhutan has set an exemplary standard in community participation of natural resources. The proper management of Jagymin Chu and other water resources has become possible after the community came forward to do so. Thus in an era of global water crisis, religious wisdom may be used for sustainable water management by linking spiritual values.

Natural basins for rainwater harvesting in front of yards give houses a unique look[9].

Wise-water Management

Water is fundamental to the survival of communities but many urban centres around the world are facing water shortages. Some are on the verge of an impending water crisis. Rapid urban expansion fuelled by industrialization, rural migration and natural increase, besides an urban emphasis placed by globalization has all led to a 'water-stress'[10] .

Sound water management was the basis on which human civilizations were built and prospered. When they neglected to properly manage water, they crumbled.

Water conservation and good water practices are part of the solution to the water crisis. Children and young people are key stake holders of our vision for water and that 'Water Awareness Programme' (WAP) should be inter-generational[11]. This is an unexplored frontier, nevertheless a strategic one in our effort to bring greater water awareness. We must facilitate their participation in water conservation programmes and enable the percolation of a water ethic.

Unfortunately governments have resorted to relying on ground water resources. The solution is not to resort to the easier exploitation of ground water. Now Chennai is also primarily dependent on ground water resources to meet the needs of the citizens. The ground water availability in turn depends on rains with the failure of monsoon rains the situation has deteriorated. For most residents, it is a bucket-to-mug existence. Moreover the quality of water has sharply declined.

Drinking water is supplied to the city from rain-fed areas at Poondi, Red Hills, and Sholavaram. Due to over-extraction of ground water, there has been sea water ingression that has affected coastal aquifers. Ground water is a replenishable asset. We must invest in each monsoon so that drops of rain are chanelised into the aquifers with planned deliberation.

We can resort to pumping water from ground water resources from faraway places. Rain water harvesting is a viable alternative. However, the slow pace of RWH initiatives are often attributed to vested interests of

private water companies in the city, half of which are illegal. Now Tamil Nadu Government has made rain-water harvesting mandatory in Chennai[12].

Home is a university where most of the learning takes place for which we do not earn degrees. But they shape our attitudes, ethics and lifestyle. So it is important that water conservation assumes a family model. We must encourage schools, colleges and local governments to develop and promote a water conservation ethic among children and young people. We must patronize businesses that practice and promote water conservation.

Green Plazas

Constructing eco-parks near the lakes could be a new getaway. Most of the eco-farms are close to forest areas and having such farms near to water bodies in cities could draw tourists.

The pioneering initiative of Lt. Col. Suresh Patil has resulted in the rejuvenation of the Muredha nullah in Pune, Maharashtra and ended up inspiring other civic bodies and communities in cities in India to go green[13]. In North Chennai, Tamil Nadu, the confluence of Otteri *nullah*[14] and Buckingham Canal has not been desilted. The eco-restoration project in Mambalam nullah, to reduce flooding in T. Nagar (Chennai), has not been taken up too. The drains to facilitate flow of water from water bodies have not yet been properly redesigned, leading to inundation in the neighbouring areas. Work on development of water harvesting structures in public spaces has not been properly implemented. A few years ago, the Nemillichery lake spread across 14 acres, was filled with garbage. Today it is filled with rainwater thanks to local residents who took up its restoration[15] . Rejuvenation work was undertaken by the Nemillichery tank Rejuvenation Committee, formed by the residents' association.

Several decades ago, the Cooum was a freshwater resource was also dotted with *dhobikhanas* or wash areas, in the city limits. The Cooum river (Chennai, Tamil Nadu) has exposed itself to myriad uses for people along the banks and was a means of livelihood for many. At present the Cooum has been reduced to being the largest sewage carrier of the city. Chennai has one of the lowest levels of green cover among Metros. An integrated eco-restoration plan should be chalked out. There should be river front developments such as parks and walkways in urbanized stretches. There are seven such water bodies that need restoration – Villivakkam lake, Korattur lake, Narayanapuram lake, Pallavaram Periya Eri, Chitlapakkam lake, Pallikaranai Marsh, Thirupananthal lake.

To the researcher's mind, solutions lie in three directions - restoration of catchment areas, restoration of streams and river basins and acceptance of self discipline in water use. Lake or River corridor management is now emerging as an important supplement to water management[16]. It calls for community participation in taking care of the water bodies, and more enlightened and self-disciplined a community is, the better it will manage its own water body corridor. A 'swachh' Bharat will lay the foundation for a 'Swasth' Bharat and will eventually lead to a 'Samrudhh' (wealthy) Bharat. However we need to be aware that 'swachhata' must be maintained not only on land, but in water as well.

There is Hope !

We need to resort to a collective human endeavour to return to ancient ways of preserving water. We have a wealth of water preservation, catchment and distribution systems in India – the pyne or channels constructed to utilize water flowing through hilly regions; the kata, mund and bandh system of tanks and embankments in Chattisgarh[17]; the jhalara or step wells for bathing that collects the seepage of a lake in Gujarat; a virda or network of wells-in-a-tank dug on low depression area in Kutch[18]; the surangams or tunnels cut to collect water that seeps in along hills and empties into a storage tank with vertical shafts for rain water collection in Kerala; kundis the traditional rain-water harvesting structures in Thar desert; the anicut or small to a medium-sized dam meant to serve as a reservoir and an eri or tank in Tamil Nadu, the maintenance of which is the responsibility of the community; the jampoi or a way of cutting the embankment into small irrigation channels in West Bengal[19]. These systems of traditional knowledge have been lost, stopped or left to ruin. These need to be recovered and affirmed so that fountains of living water may again begin to flow. 'Development' needs to be redefined from the perspective of just and sustainable forms of resource management inherent in traditional forms of wisdom as listed above. 'Reforms' need to be bottom-people-based instead of joining globalization bandwagon that defines 'development' and 'economic reforms' from the perspective of the Ambanis in this world[20] .

CONCLUSION

Local communities taking initiatives to clean their tanks and ponds, the desilting of ponds and lakes, are gaining momentum. If we draw lesson from both the mistakes and follies of the past and the hopeful stories, we can indeed move towards wisdom. Wisdom here can be taken to mean responsibility – responsible use of this scarce resource; reasonableness towards other users; awareness of what our actions and interventions mean to others; and responsibility towards future generations, other forms of life and nature. So responsibility encompasses restraint, a sense of justice and moral obligation and respect for our habitat.

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IMPACT OF SWACHH BHARAT IN WATER CONSERVATION

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ABSTRACT

Clean water is becoming an increasingly scarce commodity. Careful design is used to develop rainwater harvesting, plumbing and ecological sanitation systems that enable buildings to be self reliant for their water needs and avoid polluting water. This reduces the requirement for large-scale water and sanitation infrastructure that consumes energy and can be highly wasteful.

Keywords: Water conservation, recycling, contamination.

OVERVIEW

Water conservation needs to be ingrained in not only the consciousness but also practices of every citizen and system.

A comprehensive review on water conservation with the impact of swachh bharat seems a good topic for exploring the record and current situation of comparative research as it has a long history in agricultural soil and water management, an interim period of multi-purpose storage projects, and expanding prospects in urban design. As we shall see, the denotations and connotations of 'conservation' have varied widely over space and time. Many conservation techniques have deep historical roots in practice and policy. Increasing emphasis is placed on documentation and adaptation of traditional water conservation technologies in modern rural and urban areas (Agarwal and Narain, 1997).

As water scarcity increases worldwide, dialysis facilities should be focused on salvaging water. However, most of them still ignorantly discard to the sewer huge volumes of this reusable resource.

OBJECTIVES

- To reduce the use of water and to avoid water wastage.
- To have a proper water conservation plant.
- To reduce the use of plastic and to give a better idea on recycling of plastic and to avoid contaminating the ground water.
- New method of washing a plate without a drop of water.

IDENTIFIED PROBLEM

Problem found during my research **"IMPACT OF SWACHH BHARAT IN WATER CONSERVATION"**

Nowadays, wide applications of plastics result in plastic waste being present in the water environment in a wide variety of sizes. Plastic wastes are in water mainly as microplastics. Microplastics have been recognized as an emerging threat, as well as ecotoxicological and ecological risk for water ecosystems. But, effluents from tertiary wastewater treatment facilities can contain only

minimally microplastic loads. The issue of discharge reduction of plastic pollutants into water environment needs activities in the scope of efficient wastewater treatment, waste disposal, recycling of plastic materials, education and public involvement.

Water consumption in buildings can be calculated by multiplying the quantity of water used by different water consuming devices in a building by the number of times these are used, as indicated in the table below:

Water Consumption Device	Water Consumption (L)	Number of Uses per day	Consumption (L)
Flush toilet	9	8	72
Hand basin	3	8	24
Washing / cleaning	20	03	60
		Water consumption per day	316
		Water consumption per month	9796

(Table: Water Consumption)

It should be noted that flush toilets and conventional water delivery devices have been used for the calculations above and that these figures can be reduced through use of waterless toilets and more efficient devices.

REVIEW OF LITERATURE

Aijaz (2010) in his paper on, ―Water for Indian cities: Government practices and policy concerns‖, noted that the demand for basic infrastructure and services in Indian cities has increased due to rapidly growing population. Such increasing demands often adversely affect the quality of urban life, the economic productivity, as well as sustainable development. The main purpose in paper was to highlight the problems involved in improving access to water supply in Indian cities faced with a severe water shortage crisis.

Amiraly et al (2004) in their paper on, ―Rainwater harvesting, alternative to the water supply in Indian urban areas calculated that water scarcity is a main feature of north-western states of India.

Araral (2010) in his paper on, "Urban water demand management in ASEAN* countries: Challenges and solutions", pointed that communities face challenges in managing urban water demand when populations are rising, looming water scarcity is on high speed and urbanization is on rising trend. Depending on country‘s circumstances, both short term and long term solutions including tariff solutions, management solutions, technical / engineering solutions, institutional / regulatory solutions and leadership, public education and community involvement were suggested.

SCOPE ON WATER CONSERVATION

Grey Water Generation and Consumption

Grey water is waste water from wash hand basins and showers. Using the table above the production of grey water can be calculated. Here, the grey water production is 24L (hand basins) and 160L (showers) giving a total of 184L/day. The water consumption of the flush toilets are considerably below this at 72L/day indicating that there should be sufficient grey water capacity that can be used to flush toilets, with the excess being used for irrigation.

Using a grey water system here would result in a reduction in water consumption of 72L/day or a 25% reduction in water consumption in the building. This can be factored into the sizing or rainwater harvesting tanks indicated below, to provide a larger margin or to allow for a reduction in tank size.

Rain Water Harvesting Tanks

There are a number of different ways of sizing rainwater harvesting systems. The most practical way is to calculate average water consumption in your building and multiply this by the longest dry period. This is indicated below:

Number of months with low or no rainfall	Consumption (L)	Required Capacity (L)
04	10,000	40,000

A contingency should always be allowed as rainfall can be highly variable with coefficients of rainfall variation in deserts around 200%, in semi-arid areas 40%, and in humid areas 5-13% (SARPN Position paper on water and sustainable development). Thus, in desert areas you may allow for a contingency margin of

200%, whereas this may be 10% in a humid area. This approach is suitable for buildings which aim to be self sufficient.

Environmental Impact Study by UNICEF

(United Nations International Children's Education Fund)

Under the "Environmental impact of the Swachh Bharat Mission on Water, Soil, and Food" by UNICEF (United Nations International Children's Education Fund), groundwater samples were collected and studied from ODF and non-ODF villages of Odisha, Bihar and West Bengal. The study found that, in terms of fecal contamination, non-ODF villages were, on average:

- 11.25 times more likely to have their groundwater sources contaminated (12.7 times more from contaminants traceable to humans alone)
- 1.13 times more likely to have their soil contaminated.
- 1.48 times more likely to have food contaminated and 2.68 times more likely to have household drinking water contaminated.

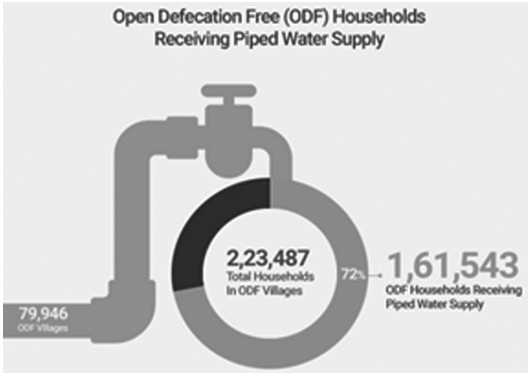
The study findings indicated that these substantial reductions may potentially be attributed to the improvement in sanitation and hygiene practices, as well as supportive systems such as regular monitoring and behaviour change messaging, which have all been critical aspects of the Swachh Bharat Mission.

Rural Water Supply

The Department of Drinking Water and Sanitation provides technical and financial assistance to the States to provide safe and adequate drinking water to rural India. The Department's Centrally Sponsored Scheme, the National Rural Drinking Water Programme (NRDWP), currently focuses on providing access to drinking water to India's rural population. The Department is committed to providing household piped water supply to all rural households by 2024 with a focus on small scale, community managed schemes groundwater schemes wherever possible, with emphasis on source sustainability through groundwater recharge and wastewater reuse.

3 Crore Toilets But Not Enough Water

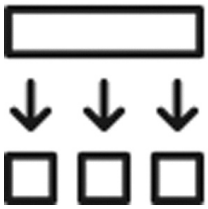
On the other side, the growing popularity of the Swachh Bharat Mission means that more than 3 crore toilets have already been built in India since 2014. In a country scarce in water supply, it often leads to an unusable toilet with no water.



The finance minister stated that open defecation free villages would be given priority for piped water supply. Until now, 79,946 villages have been verified open defecation free, and about 72% of these have water supply. As more villages and districts become open defecation free, the gap between toilets and a lack of water supply will only increase.

Plastic Pollution Prevention

Aside from cleaning up our oceans, which is a very significant first step but not a long-term solution, the best way to address plastic pollution is to change our mindsets and habits with this controversial but nonetheless very useful material.



1. Reduce

To efficiently reduce plastic pollution, there is an evident need of reducing our usage of plastic. It means changing our everyday behaviors an not using plastic when there is a better alternative to it and only using plastic when strictly necessary.

2. Reuse

Plastic may cause pollution when poorly managed but it has lots of advantages too, such as being resistant. Many plastic items can therefore be reused or used for different purposes. Before throwing plastic items, it is important to consider how they can be reused.

3. Recycle

Plastic recycling consists of collecting plastic waste and reprocessing it into new products, to reduce the amount of plastic in the waste stream.

4. Educate

Another crucial solution is education in order to increase awareness and behavioral change.

METHODOLOGY

Research refers to the systematic investigation of specified problem based on the data collected. Research design is the conceptual structure within which research is conducted. The nature of the research, the sampling procedures, method of data collection reliability and validity of measuring tools, and the details of measuring tools used in the research are also included.

SAMPLING TECHNIQUE

In this research, the researcher has adopted the technique of providing sample questionnaire and the target of sampling the questionnaire was around 15 peoples. The fixed 15 sample questionnaire are used for the analysis process and to provide interpretation and conclusion.

DATA COLLECTION

The data was being obtained from common people. So the respondents were explained more on water conservation which leads to my topic. Also I gave an clear idea on the effects of plastics. This project of data collection was started on the date of 20-9-2019 and was been completed on 01-10-2019

TOOLS USED FOR DATA ANALYSIS

The data collected with the help of primary and secondary sources are analyzed by using percentage analysis and pie chart.

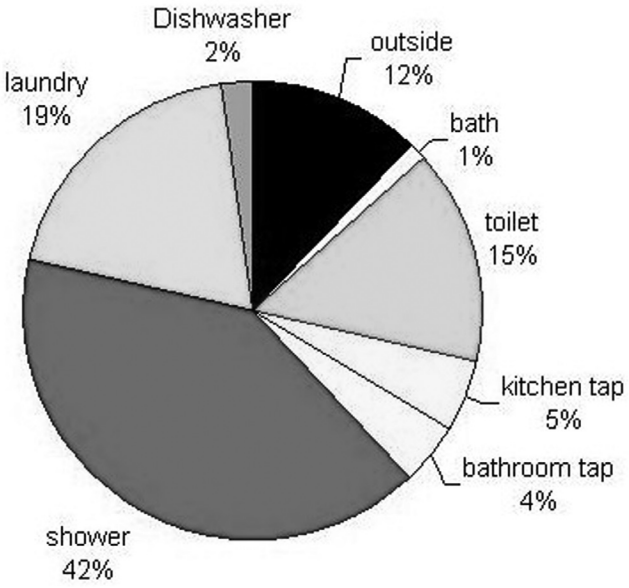
SAMPLE QUESTIONNAIRE

Water Questionnaire

1) What water system do you have?
   a) Central water
   b) Local (well)
   c) Drivenwell (shared by several families)
2) What kind of sewage system do you have?
   a) Local
   b) Central
   c) Polluted water is driven into the nature (ground etc)
3) How do you wash up?
   a) Under running water by hand;
   b) By hand but without letting the water run
   c) Using a dish-washer
4) While brushing your teeth, do you ....
   a) Let water run
   b) Use a glass of water
   c) Either, it depends
5) What do you use for getting washed?
   a) Take a bath
   b) Take a shower
   c) Go to sauna
   d) Other
6) While taking a shower, do you ....
   a) Let the water run all the time
   b) When I am shampooing/soaping, I turn it off
   c) Both, it depends

7) What kind of toilet do you use?
   a) Economical WC
   b) 1-system WC
   c) DC (dry closet)
8) How much water do you use per month?
   a) Less than 10m3
   b) 10 - 25 m3
   c) More than 25m3
9) What's your monthly water bill?
   a) We don't pay anything
   b) Under £10
   c) €10 - 50
   d) Over €50
10) Do you experience water shortages?
   a) No, never
   b) Rarely
   c) Almost every year
   d) There are constant problems
11) How would you evaluate the quality of your drinking water?
   a) Very good
   b) Satisfactory
   c) We use a water filter
   d) Very bad
12) Do you use bottled water?
   a) Not at home
   b) A few bottles a week
   c) We use only bottled water for drinking
13) Do you collect rain water for your household?
   a) No
   b) Sometimes
   c) Often (for watering the garden, washing the car, etc)
14) What's your family's attitude towards saving water?
   a) We often talk about it
   b) Mostly parents mention it from time to time
   c) We don't think about it
15) How much of the earth is water?
   a) 71%
   b) 51%
   c) 91%

Result



A pie chart of where water was used in the house confirms other research into water use. The most water in the house was used in the shower (280 l/p/d), followed by the laundry (132 l/p/d) and toilets (105 l/p/d). Simple measures such installing low flow shower heads, water efficient washing machines and dual flush toilets can reduce water bills in these major water use areas.

During marriage function in Indian culture many people used to keep soiled plates for washing in washing counter and they will wash the soiled plates with large amount of water, in order to overcome the usage of good water for soiled plates, people are using few of the following steps and they are as follows:

1. The soiled plates are firstly dusted with a cotton brush.
2. Then the plates are being put in to a large vessel of wooden sands.
3. Then a person use the wooden sand to wipe out the extra soiled particles from the plates.
4. Then the plate are being wiped by a micro fiber cloth for two time.
5. Then the plates are ready to reuse again without wasting of a drop of water.

CONCLUSION

I am so glad that you have been able to learn a little bit about how we can be a helping hand in the conservation of water in our world. Taking care of our planet is a big responsibility. We have only scratched the surface of conservation of water, but if we all work together, we can bring about change, not only with water, but with air, land, energy, waste, and others. Even though you have completed this task, do not stop here. I encourage you to try and find out the ways you can help your community to become active in conservation. Get involved and dig deeper for life.

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IMPACT OF SWACHH BHARAT IN WATER CONSERVATION – REALITY Vs DREAM

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ABSTRACT

India is a sovereign, socialist, secular, democratic republic. The country is filled with a rich heritage and tradition that has no equivalent around the world. India is still under the category of a developing country due to several factors that deter the overall progress of the country. The government of India has taken several initiatives to project India in the fore front. As part of the initiatives of the Government of India, the *Swachh Bharat Abhiyan* or the Swachh Bharat Mission which is considered to be a nation-wide campaign, was begun in 2014. It is supposed to last until 2019. The objectives of this campaign is to develop a cleaner country with better roads and infrastructure.

In order to hasten the objective, a program on universal sanitation coverage has been introduced. This programme focused exclusively on sanitation. This mission was flagged off by the current Prime Minister of India, Narendra Modi, at Rajghat, New Delhi. He had launched this programme on 2nd October, 2014, which was to be coordinated by the Secretary of the Department of Drinking Water and Sanitation along with the Ministry of *Jalshakti* that comprised of two other sub-Missions namely the *Swachh Bharat* Mission in the village level called the *Gramin* that operated under the Ministry of Drinking Water and Sanitation and the Swachh Bharat Mission in the city and town level called the Urban mission that operated under the Ministry of Housing and Urban Affairs. The Mission targets to achieve a Swachh Bharat meaning Clean India by the end of the year 2019. This year has been chosen in order to offer a tribute to Mahatma Gandhi, the father of the nation on his Sesqui centennial (150^{th}) birth anniversary.

This campaign is India's prime cleanliness drive. There are about three million stakeholders from all parts of India who are a part of the mission. These volunteers are called as *Swachhagrahis*, who are the key Ambassadors of cleanliness. Their aim is to promote sanitation at the village level. The *Swachh Bharat* initiative has incurred the construction of toilets all over the country. From open defecation to using toilets, there has been an enormous amount of water that been used in the construction of toilets as well as usage in the numerous toilets built in the last five years. This paper aims to focus on the Swachh Bharat mission aimed at cleanliness, as well as the issues of water management that hinder *Swachhatah*. Water conservation is the need of the hour. If water is not conserved, it will very soon result in the issues that might provoke several other problems. This paper will also deal with and issues pertaining to the availability of water, the policies, strategies to conserve water and how well it can be applied to the Swachh Bharat mission. The paper will throw light on what the nation aspires as a dream and what exactly happening in reality.

Keywords: *Swachh Bharat Mission*, Clean India, Narendra Modi, Water Conservation, Ministry of Drinking Water and Sanitation.

INTRODUCTION

Surfing waves of water or clouds of powder snow is the best feeling on earth.

- Hannah Teter

Water is the elixir of life. Every one of the face of earth knows the value of each and every drop of water. India is a sovereign, socialist, secular, democratic republic.The country is filled with a rich heritage and tradition that has no equivalent around the world. India is still under the category of a developing country due to several factors that deter the overall progress of the country. Climatic transformation is a universal issue. The earth has been warming due to the increased emission of greenhouse gas in lieu of human activity. This will catastrophically result in rising sea levels, reduced water availability and several other issues. Pollution is not the only ingredient that harms the environment, but the impurities of the air and water play the key roles. Water is the softest of all things, but still is the most powerful natural element. It has been shaping the earth we live in. It is a very crucial source for the sustenance of life one earth. Every living cell comprises of water in a different ratio and proposition. It serves as more than a liquid and as an essential component of life[1].

When the well is dry, they know the worth of water.

- Benjamin Franklin

Water is as essential as life, as it sustains life. There have been people who die without water. Water nourishes life and pacifies it. Water travels amidst the various paths on the earth, by blending and mixing with all things it comes across. Control, supply, demand, conservation and maintenance of water is the need of the hour. There have been many civilizations and cultures that have manifested their greatness by projecting their mastery over the various water bodies. Water has enabled rise and fall of civilizations and facilitated trade and new sea routes. Human relationship with water and its various sources have always been an aspect of expertise. Water has to be observed and analysed in order to be understood better. Only if its course and nature are analysed will someone be able to predict its character.

OBJECTIVES

This paper will deal with and issues pertaining to the availability of water, the policies, strategies to conserve water and how well it can be applied to the Swachh Bharat mission. This paper aims to focus on the Swachh Bharat mission aimed at cleanliness, as well as the issues of water management that hinder *Swachhatah*. Water conservation is the need of the hour. If water is not conserved, it will very soon result in the issues that might provoke several other problems. The paper will also throw light on what the nation aspires as a dream and what exactly happening in reality.

METHODOLOGY

The methodology that has been followed in the preparation of this research study is simple narrative and descriptive method. This method enables the reader to understand better and imbibe the essence of the study.

REVIEW OF LITERATURE

There are several literary and secondary sources that are available about water and water conservation. But the sources for the analytical study of how to apply water conservation to the Swachh Bharat mission and its impact are the most challenging ones to find. Apart for newspapers and magazines that are primary sources, there are a few web sources that are the official sources for the mission. The compiling of this research paper has involved the reference with several government official sources and online newspapers.

GOVERNMENT INITIATIVE

The government of India has taken several initiatives to project India in the fore front. As part of the initiatives of the Government of India, the *Swachh Bharat Abhiyan* or the Swachh Bharat Mission which is considered to be a nation-wide campaign was begun in 2014[2]. It is supposed to last until 2019. The objectives of this campaign are to develop a cleaner country with better roads and infrastructure.

In order to hasten the objective, a program on universal sanitation coverage has been introduced. This programme focused exclusively on sanitation. This mission was flagged off by the current Prime Minister of India, Narendra Modi, at Rajghat, New Delhi[3]. He had launched this programme on 2nd October, 2014, which was to be coordinated by the Secretary of the Department of Drinking Water and Sanitation along with the Ministry of *Jalshakti* that comprised of two other sub-Missions namely the Swachh Bharat Mission in the village level called the *Gramin* that operated under the Ministry of Drinking Water and Sanitation and the *Swachh Bharat* Mission in the city and town level called the Urban mission that operated under the Ministry of Housing and Urban Affairs[4]. The Mission targets to achieve a Swachh Bharat meaning Clean India by the end of the year 2019. This year has been

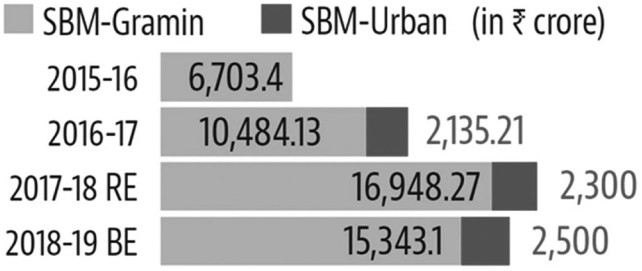
chosen in order to offer a tribute to Mahatma Gandhi, the father of the nation on his Sesqui centennial (150th) birth anniversary.

PRIME CLEANLINESS DRIVE

This campaign is India's prime cleanliness drive. There are about three million stakeholders from all parts of India who are a part of the mission. These volunteers are called as *Swachhagrahis*, who are the key Ambassadors of cleanliness. Their aim is to promote sanitation at the village level[5]. The *Swachh Bharat* initiative has incurred the construction of toilets all over the country. From open defecation to using toilets, there has been an enormous amount of water that been used in the construction of toilets as well as usage in the numerous toilets built in the last five years[6]. The sources of water since time immemorial has been the rivers of the country. These rivers are mismanaged that they result in unavailability of water to the entire country. While it floods in some states, there are other states that suffer draughts. Water management has to be done in a full-fledged manner in order to utilize the water resources to the maximum.

A heavy budget has been allocated for the successful accomplishment of the mission. Though the rivers are sources of water supply, they have to be tapped in such a way that they are utilized to the maximum.

Budget allocation



Source: https://www.hindustantimes.com/india-news/why-swachh-bharat-mission-needs-to-go-beyond-2019/story.html

RIVERS OF INDIA

India has been bestowed with a rich water resource, which has not been utilized in a fruitful manner. The rivers in India have nurtured the growth of the empires and states, but there have also been several other places which have transformed into graves due to the mal administration of water[7]. The rivers of India have been widely categorized into four classes namely the Himalayan rivers, the rivers of the Deccan, the Coastal rivers, and the rivers of the inland drainage basin. The main Himalayan rivers are Indus and the Ganga-Brahmaputra-Meghna system. These flow throughout India. The chief tributaries of the river Brahmaputra are the Subansiri, Jia Bhareli, Dhansiri, Puthimari, Pagladiya and the Manas[8]. In the Deccan area, most of the rivers flow generally in the east direction and fall into Bay of Bengal. The eastern rivers like the Godavari, Krishna, Cauvery, Mahanadi, Narmada and Tapti are West flowing rivers. There are abundant coastal rivers that are moderately small and they drain into the sea near the delta of east coast and the west coast[9]. The rivers of the state of Rajasthan do not drain into the sea, whilst they drain into salt lakes and vanish in the sand with no outlet to sea. Rivers have to be managed in such a way that they serve the nation systematically as per requirement.

ISSUES OF WATER MANAGEMENT

Water is very essential for all activities in today's world. It is very difficult to manage without water. Water management is considered to be the activity of scheduling, evolving and distributing the best use of the various water resources in a systematic manner. Water is a basic necessity and life cannot go on without water. No living being could survive without water. In the recent years there has been an acute scarcity of water. Thus, in order to avoid this kind of a scarcity of water it should be saved and managed efficiently. There are several issues that hinder the conservation of water. If these issues are addressed, then automatically water can be managed.

Water Shortage

Water shortage or scarcity may be the result of excessive use of water or total unavailability of water. It is mostly referred to the lack of fresh water resources that are required to meet the rising demands of water by the people. It has been specified by the World Economic Forum that over the next decade, one quarter of the world's population would have been affected by economic water scarcity. This in turn will lead to several other problems, both economic and social. Water shortage also arises due to mal administration of the water resources by the government as well as the general public. The people and the government should be responsible enough to calculate and mange water accordingly to avoid shortage and scarcity.

Flooding

Flooding is a phenomenon where there is a momentary overflow of either rain or river water that mostly runs onto land that is usually aloof and dry. Floods have been considered to be the most common and most impactful natural disaster that has been striking India through the ages. Usually, Floods may occur as a result of heavy rain, snowfall, coastal or marine storms, and at several times due to the overflows of dams and other water systems like rivers and lakes. Usually the floods occur with no warning[10]. These also result in disrupting transportation, damage buildings, and create landslides. Thus, the flood that is the overflow of water results in submerging the land and either washes it away or wipes it thoroughly. Even when water is being conserved for the future, sometimes floods result in the overflow of the stored water which is wasted. Thus, floods are very unpredictable as well as destructive.

Polluted Water

Pollution is the most dreaded problem in today's world. Pollution in the various forms affects humans and the environment in all ways possible. Polluted water is not advisable for use. Contaminated water results in several harmful disease that are communicable. Water being the most essential need for all human, is very difficult to mange without water and polluted water hinders the routine of all beings and even leads to certain plagues. Polluted water is hard to be treated and is very less in availability thereby interrupting the mechanism of conservation. Polluted water that is available in the rivers and the local water bodies are so badly contaminated that there often seems very less chances of treating them and making them usable. Water is the most essential need of life, there is no need to explain or propagate how necessary it is. The gravest ecological disasters that is faced by humans today is water pollution. This contaminated water not only is a threat to the current society, but also to the future generations, hindering conservation and water management.

River Sedimentation

River sedimentation are also processes that hinder the process of water management and conservation. Basically, river sedimentation is considered to be the phenomenon where soil particles are swept away and and transported by the flowing river water or reservoirs. This river sedimentation mostly occurs when the eroded material carried by water, travels out of the water body to the outer surface of the water as it flows out slowly. These sediments mostly forms a water bed or sedimentary banks and flood the plain with these and deposit them along with the flow of water.

Policy Issues

The major issue of concern that is disrupting water management and water conservation and that has slowed down the Swachh Bharat Mission is the Water Policy of the country. The other issues pertaining to the water management are rudimentary and can be solved to a certain extent, but the policy matters connected to water are the ones that are blocking stones. Water resource policy of the country have been encompassed by the policy-makers. This is the process that affects the entire collection, the process of preparation, the overall usage and the final disposal of water that is actually required to support the various human uses and thereby to protect the environmental quality. The national Water policy addresses the available provision, usage, disposal and the sustainability decisions pertaining to water[11]. These provisions also include the identification of the water body, access to it, the preparation for use and the distribution of the water to various needs. This enables the usage of water for direct human consumption, agriculture and irrigation, industry and the protection of the ecosystem. The water Policy should be targeted at setting the rules for water allocation at different levels and for different uses. The aspects of water disposal should involve wastewater treatment as well as stormwater and the flood management. Conservation and sustainability are the most important issues that needs to be addressed as there is maximum aquifer depletion and other issues like reservoir management and mineral buildup in the river banks. Water policies and the government initiatives have to be sorted out before taking steps towards conservation and managing water. Only then the the missions like Swachh Bharat will be facilitated.

Institutional Issues

The various issues of water management also comprise of proper governance, regulations and finance that are barriers that hinder the achievement of integrated water conservation and management thereby preventing innovations in water conservation. The various water rights and river basin institutions have been set up to take care of the various issues pertaining to the water institutions. The decentralization policy of the government in the management and conservation of water as a resource and as a service have to be resolved in such a way that they are paving the sustainability of

water and not hindering their routing[12]. It is also very important to involve the private sector participation so that the state does not take the sole responsibility of water management and there will be different levels of stakeholders who can be held responsible. The available regulation of the water infrastructure should also be taken into account in order to solve water problems.

STRATEGIES TO CONSERVE WATER

The strategies to conserve water have to be local. They don't have to be national or state level. Just like how charity begins at home, water conservation and management also have to being for each and every individual's home.

The following are a few steps to conserve and mange water at the home level. This will in turn bring about a tremendous change in the entire country.

- Turn off the taps properly.
- Keep water consumption in control.
- Boil the water that you need.
- Save water by only boiling only the many cups of water you need
- Use less water for bathing, avoid showers.
- Wash clothes by saving them rather than washing them frequently and wasting water.
- Use a low-flush toilet.
- Use adequate water for cooking.
- Mange watering the garden
- Harvest rainwater
- Avoid water spills and leaks[13]

The above-mentioned strategies will enable the management and conservation of water to a great extent. Water management is the need of the hour. If these techniques are followed in a sincere and in a dedicated manner, then there would be no problem in water management.

TECHNIQUES APPLIED TOWARDS SWACHH BHARAT MISSION

The Swachh Bharat mission has resulted in the construction of several crores of toilets incurring crores of rupees. This has incurred not only money, but also water, building material and labour. The mission has been utilizing water to be used in the toilets built, thereby increasing the requirement of water. To be exact there have been three crores of toilets built, but there is no enough water for utilization. Thus, the Swachh Bharat Abhiyan definitely needs a very dedicated and sincere Water Policy for the entire nation. The construction of toilets is the primary step in to putting an end to open defecation. Thus, most toilets being built under Swachh India mission rely heavily on water for its utility. India is a country where there is water supply scarcity and often leads to a non – utility of the toilets. The unavailability of water has been an issue persistent in the country for many years now. Data has it that there are 76 million people in India who lack access to drinking water[14]. It is an irony that in spite of the numerous rivers in the country, most of them are polluted and the groundwater depletion is taking place on a rapid pace. The popularity of the Swachh Bharat Mission, the construction of toilets are making the issue water-intensive. This results in unusable toilet with no water.

ASPIRATION AND DREAMS OF THE NATION

The nation always dreams an aspires high. The strategies followed to achieve its goals are mostly hindered by government initiatives and politicians. In the various sectors of the country steps have been taken to construct toilets which would consume less water. Sanitation and water go hand in hand. There are many in the country who do not have access to clean water and toilet due to scarcity of water. The nation has a noble motive to be achieved. It is half way through the mission. The target has been achieved to a great extent to the level where the toilets have been built. If rain water is being harvested and water management is done in an effective manner then the Swachh Bharat mission will be fully achieved. The nation always always aspires high. There are several hindrances that block and obstruct its goals. Still the nation has been able to achieve its target at some point or other.

REALITY

The Prime Minister of the nation Shri. Narendra Modi has initiated the Swachh Bharat mission with a noble ideology. This Swachh Bharat Abhiyan has been placed under the Ministry of Drinking Water and Sanitation. It is a million-dollar question as to whether rural India is furnished with water resources to guarantee that the toilets being built are functional and usable. The water issues comprising of receding water levels, especially during the summer hinders water supply and water for sanitation is considered as depletion by the villagers. In India rainwater harvesting provides enough water availability in rural areas for people to use water properly for sanitation purposes.

Attentions should also be given to the kind of toilets being constructed to prevent open defecation. There are waterless-toilets, which can drastically reduce our dependence on water for sanitation. If such techniques are followed there will be less requirement for water. In the present scenario, the mission is near to have achieved the target. Toilets have been fully built in almost all the rural areas in the country. They have to be utilized by efficiently managing water.

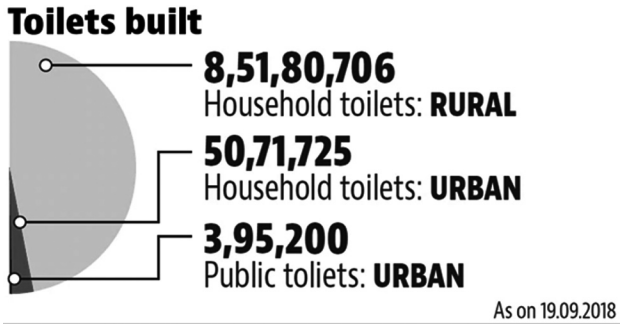
The above table gives a clear idea about the survey conducted with reference to sanitation. This scale of transition is suitable even to meet new challenges. In the years between 2000 and 2014, the problem of open defecation decreased by three percentage points a year, while between 2015 and 2019 it reduced at over 12 percentage points a year. This has been analysed and has been , brought out by the 2019 report by the Joint Monitoring Programme (JMP) for water supply and sanitation by UNICEF and WHO.

RESULTS AND FINDINGS

The construction of toilets alone will not be able to solve the problem of open defection. The toilets need water, there should be proper waste disposal techniques. The National Annual Rural Sanitation Survey (NARSS) had conducted a nationwide survey that was funded and used by the government to establish SBM's success. This promptly included examination on the type of toilets being constructed and clearly defined the safe disposal techniques of human excreta. As per NARSS' latest report, the bulk of toilets in rural India has been ranged to 34 per cent and they have septic tanks with a soak pit. There are also twin leach pit toilets that are roughly 30 per cent. These have enabled the proper functioning of the toilets, thereby preventing open defecation.

CONCLUSION

The impact of water management in the Swachh Bharat mission has been taken up seriously by the ministry of water and sanitation. There has been fruitful impact of the mission.



Source: https://www.hindustantimes.com/india-news/why-swachh-bharat-mission-needs-to-go-beyond-2019/story-EapqrFE0gyalMmKE3uiIEI.html

According to the Swachh Bharat Mission analysis more than 85 million toilets have been constructed in rural areas under the programme. In urban areas, almost 5.5 million toilets have been constructed. There are 400,000 of these toilets that are public toilets. The rural programme claims to have achieved Open Defecation Free status among 21 states and union territories so far. At the district level the number is 457 out of a total of 718 districts in the country. These are impressive statistics and clearly states that the mission has achieved its goal[15].

It is expected that the quality of the toilets constructed would be adequate but not ideal. The silver lining in this programme is that each of the toilets constructed has been geo-tagged in the Swachh Bharat Mission database. This database would enable the good use in re-evaluating the programme's achievements after the next few years. Thus, the water management and the Swachh Bharat mission working hand in hand has been able to achieve the ideology of the mission.

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IS INDIA REALLY 'SWACHH' AFTER SWACCH BHARAT ABHIYAAN?

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ABSTRACT

In this research paper, we are focusing on the Swachh Bharat Mission and whether this mission is on its right path or has it deviated by not having the correct implementation that is required to reach the ultimate goal of this mission by making India a clean and hygienic place to live in. We have discussed various areas where this mission has helped the country by right implementations that have moved mission nearer to its goals and also how these new and creative actions are necessary for the effectiveness of the mission.

A mission is not always perfect and hence has some areas that can be changed or improve upon the mission's efficiency and effectiveness. Therefore here we have discussed the major challenges faced in executing the mission which is not yielding results. These loopholes are just merely costing money to this abhiyaan and not resulting in any improvement. Major attention is given to these low yield investments for this mission and how can these resources be used in the much better areas that would give better results to the Abhiyaan.

This research paper will not just include the facts and flaws of the Abhiyaan but it also has the solutions to overcome these challenges. The effective measures that can be taken to help the mission achieve its goals.

Hence this paper would bring clarity about the Abhiyaan and its implementations along with subtle changes that are required.

INTRODUCTION

Swachh Bharat Abhiyaan or Swachh Bharat Mission was implemented on 2nd October 2014 on the day of Gandhi Jayanti. This Mission was launched by the current prime minister Mr. Narendra Modi, with the ultimate mission of making India a clean and hygienic place. It was launched with millions of people participating around the world by taking a pledge in their respective institutions and schools. This project had a cost of about Rs.1.96 lakh crore (US$ 28 Billion)

This campaign's main mission was to make India open defecation free by 2019 by installing millions of toilets around the country especially in backward areas where people prefer open defecation as it is considered more accessible instead of toilets.

Prime Minister Modi also appointed many government officials for this campaign. Also, many celebrities were made brand ambassadors, to promote this campaign in their respective social media accounts, to influence the people and make them aware of this mission.

This campaign is indeed a great step taken by the government in making India clean and green. The mission was a tribute to Mahatma Gandhi as he always insisted on keeping our surroundings clean He believed that cleanliness can be a major factor for the growth of our country as it will help us physically as well as psychologically. He always considered people as the greatest assets of our developing country.

Swachh Bharat Abhiyaan was not going to be an easy task as the major aspect of this campaign was to change the way Indians think about their country's cleanliness and this was going to be an uphill task for the government. Since then, the government kept reminding the people about the campaign's objective and how important it is to keep the country clean by not littering the surroundings by using commercials on television and hoarding around the city.

As per baseline survey conducted by Ministry of Drinking Water and Sanitation, "the number of people defecating in open in rural areas, which was 55-crore in October 2014, declined to 25-crore in January 2018, at a much faster pace compared to the trend observed before 2014," the Survey said.(VikasPathak,2018).

OBJECTIVES

The objective of the campaign was very clear as the government wanted to make the country clean and green and also to have an impact on people's mentality about the cleanliness of the society. Hence there were many objectives that this mission wanted to accomplish before the 150th Birthday of Mahatma Gandhi which was on the 2nd of October 2019. The objectives that this mission wanted to achieve are stated below:-

- **Behavioral Change** – To change a person's mentality is one of the most difficult jobs that this campaign undertook, and understood its importance as this was a major factor for which the country's cleanliness was hampered. The belongingness was necessary for each and every human being of the country to maintain the sanitation and hygiene of the country. Therefore the country decided to build awareness among the people especially the youth of the country by regular advertisements and pictures around the city on hoarding boards.

  Thus behavioral change impacted the people's minds and made them think twice before littering their own city or country.

- **Quality of Life** – A proper quality of life is very important in one's life to lead a happy and healthy life and the government knew how a person's lifestyle will play a major role in the growth of the nation. The government decided to bring campaigns that will change a few habits of the people living in rural areas by providing them with facilities that they were incapable of getting due to their financial condition.

  A better quality of lifestyle also reflects the values and standards of the nation. Thus the government came out with this abhiyaan to have a major impact on their day to day activities or habits for the betterment of the country.

- **Open Defecation** – In rural areas solid waste management was as low as 30% in the year 2014. This was a major loophole in the sanitation of the country which was also a reflection of human mentality around the country towards cleanliness. To change this, the government decided to open subsidized toilets in the rural areas that will eradicate the issue of open defecation.

  This campaign fought the health problems that used to occur because of open defecation and also influenced the mentality of the people by providing them with toilets that were easy to access.

- **Eliminate Diseases** – Unclean society and contaminated areas bring along many communicable diseases that can be very harmful to the people. Diseases such as malaria, diarrhea, cholera, etc., are some of the diseases that are caused by an unclean environment. Thus it was really important to eliminate these for giving abetter lifestyle for the people.

- **Sustainability** – The Swachh Bharat campaign also had a vision for the long term betterment of the country and it hence insisted the people, adopt sustainable products and facilities which would help in minimizing the harmful effects of the environment.

  The climatic changes affect the Earth immensely and affect the lives of people. It is very important to be sustainably developed as a country. To achieve this, the government has developed a campaign to make the country use maximum sustainable products and services. Thus this campaign also promotes all the cost-effective innovations that are environment-friendly at the same time.

METHODOLOGY

"Is India really Swachh after Swachh Bharat Abhiyaan" this has been a question in the minds of the citizens of our country. Even though the government has been transparent regarding the happenings in our country, the question still lies in our minds.

Thus, the reason for choosing this topic is necessary as it will be a clear computation between its planned and actual output of this campaign. Not only this but a lot of activities are highlighted that were successful and also the areas which could have been improved.

The information has been collected through different websites and through articles about this abhiyaan and different points of view about it. Along with this information, a lot of survey data has also been gone through and the facts are displayed which will help in understanding and interpreting the data much more clearly.

The statistical data was analyzed and interpreted carefully. And after consulting various social sites and government websites we have compiled a set of solutions that the government has already implemented but need a bit more effort for effective implementation.

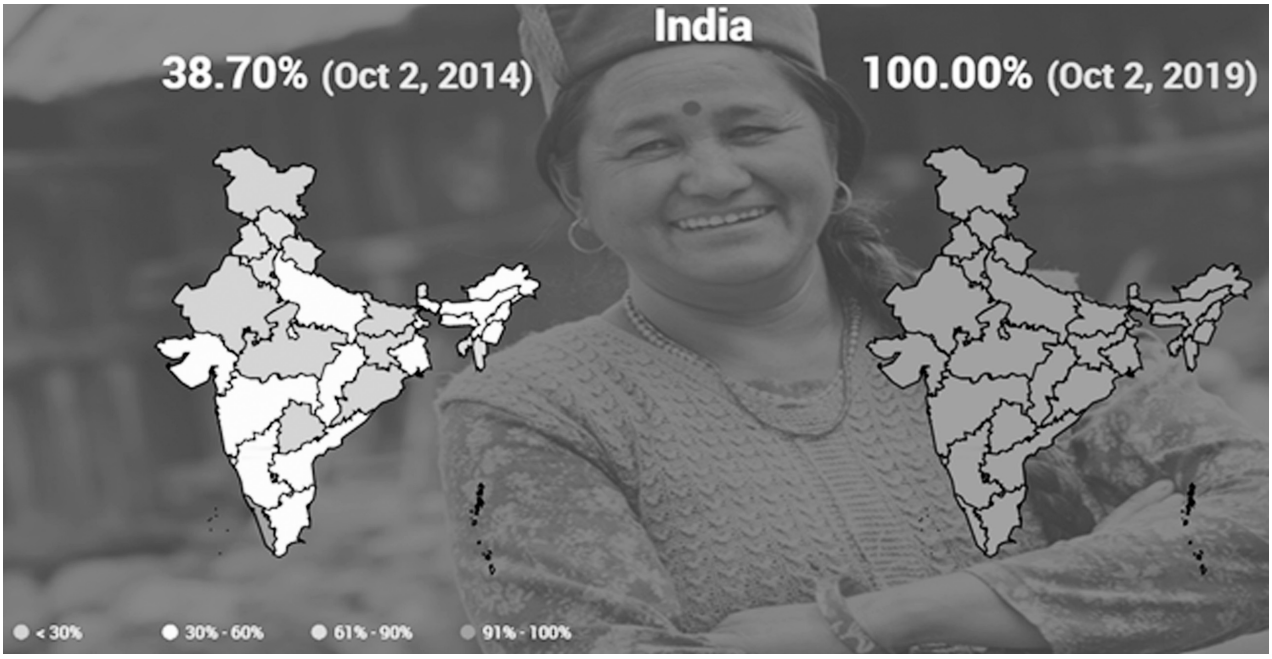
This research paper is absolutely based on the data obtained from government websites.

DATA AND DATA ANALYSIS

In this section, we will discuss the results of this abhiyaan along with the various actions that were taken that really helped and made the mission effective. And also various loopholes that are being a hurdle for this campaign and which should be eliminated as soon as possible.

ACHIEVEMENTS

Open Defecation



Now let us see this comparison.

02nd October 2014 - The first map shows us the percentage of toilets that people get access to during the starting period of the campaign. It states that only 38.70% of the total Indian population had access to toilets, which lead to open defecation and health hazards.

02nd October 2019 - The second map shows us the improvement caused by the Swachh Bharat Mission in India in a span of 5 years. The entire nation's population now has access to toilets and this leads to the decrease in open defecation. This is a great achievement for the campaign itself.

According to the Ministry of Housing and Urban Affairs, at the end of 2017, the government was able to install 4 million toilets in urban areas alone. Also, an over 234,000 community or public toilets have also helped to declare over 1,678 cities as completely open defecation free cities. It was really necessary for the government to develop its urban areas into a much better place to live in by completely eradicating the problem of open defecation.

Now coming to the rural areas, this problem was major and it required more resources and efforts do decrease the huge percentage of people defecating in the open. Hence the government's regular actions, the Ministry of Drinking Water and Sanitation claims that by the end of 2017, there will be about 59 Million toilets installed in the rural parts of the country. This is a huge step for the sanitation for the country and also by the claims of government data, the country's coverage for sanitation has been increased to 65% in 2017 from 39% in 2014.

Prime Minister Modi on 2nd October 2019 announced that **99%** of rural villages in India have declared themselves open defecation free. Making the announcement in front of the village-level workers involved in Swachhta Mission at a mega event to mark the 150th anniversary of Mahatma Gandhi at Sabarmati Riverfront in Ahmedabad, the Prime Minister said that India amazed the world by building **11 crore toilets for 60 crore people within 60 months**.

Sanitation

The sanitation index has also increased with the increase in activities such as open defecation eradication and cleanliness of surroundings and hence it has also reduced the diseases that are caused due to living in a not hygienic environment. Hence according to a report, the installments of IHHL (Individual Household Latrines) have impacted in reducing these numbers.

The following chart shows the change in the number of children below 5 years of age that suffered from diarrhea and malaria due from 2015 to 2019.

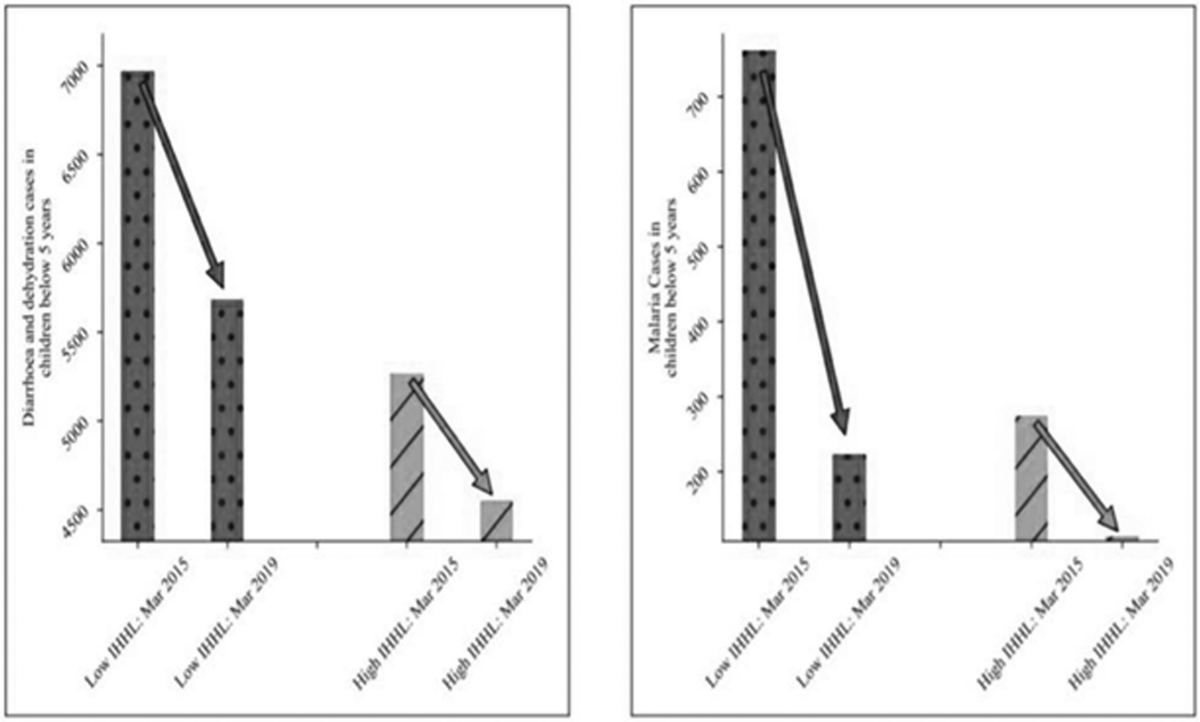


Fig 1: Impact of IHHL Coverage on Diarrhoea and Malaria cases in Children below 5 years

This chart clearly depicts a downfall in the children getting affected by these diseases in both areas with high and low IHHL. The greatest decrease was in the low IHHL areas especially for Malaria, where the numbers have gone down by 600. These findings point to the fact that adequate sanitation plays a major role in reducing diarrhea, malaria, stillbirths, and low birth weight cases.

CHALLENGES

Behavioral change

The government has certainly made the toilets but it is still struggling to bring in a behavioral change in the rural population. According to district officers in rural areas, several villagers in Uttar Pradesh are using the toilets to keep a feed of their cattle and still practicing open defecation. Apart from this, the corporate sector

has shown meager interest in the scheme. According to the latest data with the corporate affairs ministry, among all projects of the Modi government, Swachh Bharat and Namami Gange have received the least amount of funding from private companies in 2014-15.

Maintaining the Standards

Maintaining ODF status is important after a village, block or district is declared ODF. Generally, it so happens that once it is declared, there is no pressure on the district administration to do any activity because the goal has been achieved. Also, people would tend to return to the old practice of open defecation. To make ODF sustainable, monitoring / spot-checking is required for at least once a month after ODF status is achieved and until the change in behavior of the people is noticed.

Workforce

Motivating volunteers to check the condition of sanitation, and offering them good incentives is necessary.

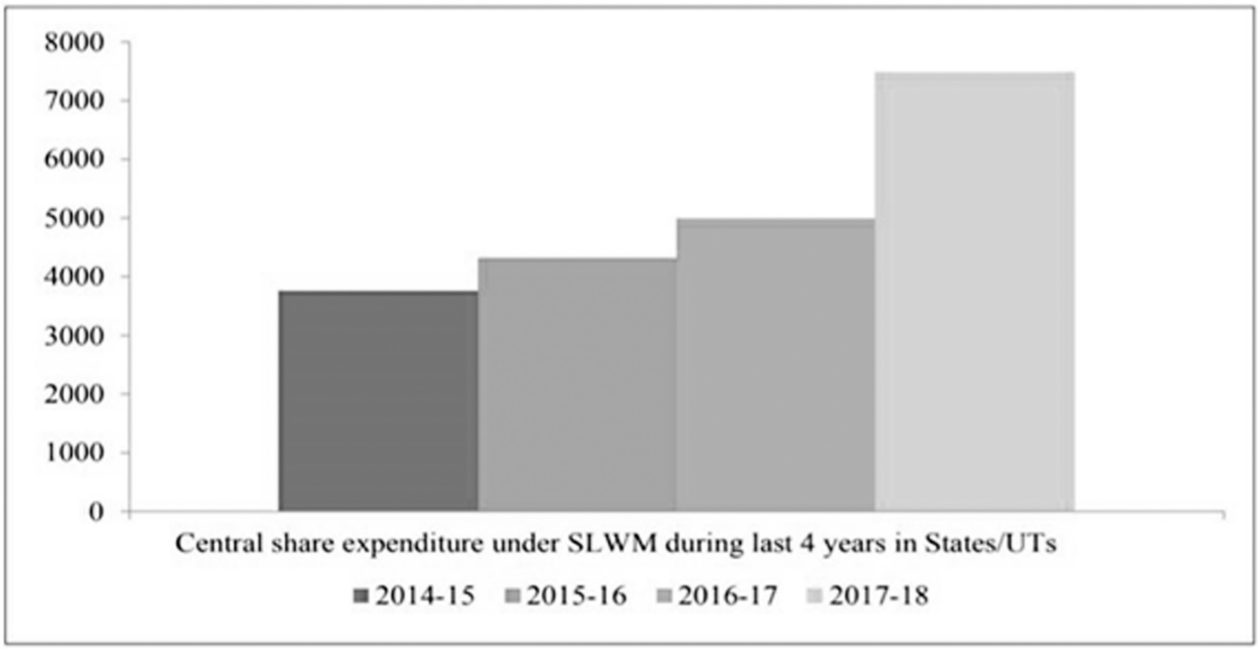
For a behavioral change of the society, a trained workforce is needed that can trigger communities. This involves taking the community through a participatory process of self-analysis where people are informed about the ill effects of inadequate sanitation – how it can adversely affect human life if proper facilities are not used.

Waste Management

Luckily, whatever the SBM was capable to install millions of toilets around the country but, where are these collected waste be dumped? What measures have the government taken to dispose of all this waste?

Waste management is another big issue that not only our country but the planet Earth is facing. Proper management is necessary for the welfare of humans and also for our planet. Therefore here is a chart of the expenditure that the government is occurring for solid and liquid waste management from the year 2014 to 2018

Fig 2: Central Share Expenditure Under SLMW During Last Four Year in States/UTs (₹ Lakh)



Source: Ministry of Drinking Water and Sanitation

In this chart, there is a constant increase in the investments in waste management every year which has increased from around 4000 lakhs to around 8000 lakhs of rupees. The government and the SBM understands the importance of managing these waste that is ecologically acceptable and also with minimal side effects.

SOLUTIONS

Waste management

Now in its fifth year of Swachh Bharat Mission, there is a paradigm shift of the campaign and hence the focus is now on waste management. In 2017, the government decided to launch a campaign called ***Har Din Do Bin*** (Everyday two Bins). In this campaign the government wanted the people to segregate the dry and the wet waste from the source itself so that it gets easier for the government to process them accordingly.

Dry or non-biodegradable waste is tough to manage and therefore they are either recycled or if not land filled. This is the only way to tackle non-biodegradable wastes. And for this the campaign wanted the people to use Blue colored dustbins.

Similarly, for wet or biodegradable wastes, they can be easily converted into manures and be further used as an organic fertilizer for the crops. Green dustbins were decided to be used for this kind of wastes.

But even after its implementation, most of the collected wastes are mixed as they do not get segregated.

To overcome this issue the campaign has decided to collect the garbage and segregate them from the source itself which will make it easier to process them. Cities such as Ambikapur, Muzaffarpur, Mysore, Panaji, Indore have started the systems to support segregation. Here, all the segregated wet wastes are being processed to make manures and all the inert wastes go for landfills.

Now the question arises how much waste is being collected and how much gets treated?

Of the 1.45 lakh tonne of waste generated per day (TPD) in India, 49,401 TPD (34.07 %) is being processed. Just within the past 10 months, the processing capacity has increased from 24 % to 34 %.

Managerial Aspects

It is very important to employ talented and knowledgeable officials to maintain the growth of the company. The changes made in the villages and improvements made should be periodically evaluated and kept in good shape.

CONCLUSION

After all the research and surveys, we can conclude and say that to every problem there is a solution. And the hindrance that was there towards the growth of our country was cleanliness which was wisely retaliated by launching the campaign “Swachh Bharat Abhiyan” in the year 2014.

Seeing the progress 5 years after the launch of this mission, there is a huge change and improvements in the overall cleanliness of the nation, either by removing open defecation or by making the public areas neat and tidy. These small steps taken by volunteered people and by the government have helped India to become a much better place to live in. And Swachh Bharat Abhiyaan was considered one of the most successful campaigns that had affected the people's behavior in such a short span of time by a UN official.

But, we also noted how this campaign still had a few challenges that it had to counter even after 5 years of time. We discussed the issue of Waste Management and how the government had increased its spending on this plan by segregating the wastes accordingly and giving the right treatment to them. This is a major issue that the campaign has to focus more on and come up with the right innovative plan to resolve this issue.

And also the managerial issues which need more skilled labor to motivate and help people understand the importance of swachhta.

Hence, we can see that the government is trying its level best to make our nation Swachh. It is our responsibility as a citizen of this country to create awareness and take steps to make our nation clean.

Thus to conclude, swachhta (cleanliness) is a continuous process and a nation should not be satisfied with a few small-term achievements as there is always a new challenge that the country should focus on and tackle them with good planning and actions. And also we should take small failures as stepping stones towards our successful future.

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WATERSHED MANAGEMENT – A HOLISTIC APPROACH TO IMPLEMENT SWACHH BHARAT PROGRAMS

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ABSTRACT

Swachh Bharat mission is nation- wide campaign in India that aims to clean up the roads, streets, infrastructure of India's cities, towns, urban and rural areas. The objective of the Swachh Bharat include eliminating the open defecation through the construction of household-owned and community owned toilets and establishing a accountable mechanism of monitoring toilet use. Clean environment and Green environment is possible only by conserving water in many ways. Water is a precious element in the environment. Water is used for drinking, irrigation, washing and industrial purposes. Water shapes the earth's surface and regulates our climate.

Keywords: Watershed management, water crisis, water conservation.

INTRODUCTION

The water from various moist surfaces evaporates and falls again on the earth in the form of rain or snow and passes through living organisms and ultimately returns to the oceans. Every year about 1.4 inch thick layer of water evaporates from oceans, more than 90 percent of which returns to the oceans through the hydrological cycle .Solar energy drives the water cycle by evaporating it from various water bodies, which subsequently return through rainfall or snow. Plants too play a very important role by absorbing the groundwater from the soil and releasing it into the atmosphere by the process of transpiration. Global distribution of water resources is quite uneven depending upon several geographic factors. Tropical rain forest areas receive maximum rainfall while the major world deserts occur in zones of dry, descending air and receive very little rainfall.

Although water is very abundant on this earth, yet it is very precious. Out of the total water reserves of the world, 97 percent is salty water and only 3 percent is fresh water. Even this small fraction of fresh water is not available to us as most of it is locked up in polar ice caps and just 0.003 percent is readily available to us in the form of ground water and surface water. Over use of ground water and surface water for irrigation, domestic and industrial use leads to depletion of ground water level. Ground water level can be recharged by effective conservation methods of rainwater. This research paper makes attempts to find out the best ways to increase the ground water level through watershed management approach and how it is effectively useful for implementing Swachh Bharat programmes.

OBJECTIVES

- To analyze water crisis at Global level and at India level.
- To analyze the different water conservation practices adopted in watershed management approaches.
- To provide valuable suggestions to improve the ground water level for the success of Swachh Bharat programme.

Methodology: The research study is a descriptive one based on the data collected from secondary data. The secondary data collected from earlier related research findings, websites, magazines, research publications and books.

Water crisis at Global and India Level: During the years between 1700 and 1800, due to industrialization, urban population was increased and there is a need arise for safe drinking water and sanitation. In 1800, water shortage first appeared in historical records. During 1866, public water supply system was introduced. In 1972, US clean water act was updated and measures were taken to prevent water pollution and sewage treatment plants were constructed. In 2003 United Nations Water was founded as coordinating platform for issues of sanitation and fresh water access. Thirty five percent of the global population experienced chronic water shortage in 2005. The United Nations recognized International year of Sanitation prioritizes health and dignity in 2008. The United Nations designates November 19th as World Toilet Day to highlight the global issue that billions of people still do not have access to proper sanitations. Between 2000 and 2015, 1.4 billion gained basic access to sanitation and UN member sign on the Sustainable Development Goals successors to the Millennium Development Goals that promise clean water and sanitation for all by 2050. In 2018, a statistics says Worldwide, 2.1 billion people still live without safe drinking water in their homes and more than 892 million people still have no choice but to defecate outside. In India it is estimated that 90 percent of the water required for drinking purpose and 75 percent of the water for agriculture irrigation is being tapped from ground water resource. Over exploitation by land owners and urbanization put more pressure on ground water resources and every year ground water level is being depleted at faster rate. If it prolongs, 21 major cities in India will approach Day Zero on a faster rate. The cities like Chennai, Bangalore and Delhi is experiencing the shortage of water. By 2030 the overall water demand in India will become double and forty percent of the population will have no access to drinking water. The central Jal Shakthi ministry has sent a note to state government about the depleting rate of water level and identified 255 water districts across the country as water scarce.

Watershed Management: Watershed is a geo-hydrological unit draining to a common point by system of drains. All land area on earth is part of one watershed or other. Watershed is thus the land and water area, which contributes runoff to a single outlet. When the rainfalls, the water hits the soil and a portion of water enter into the ground in the form of seepage, and rest of the water moves as runoff water. This runoff water can be stored properly in the water harvesting structure to improve ground water. The rain water can be stored and conserved to improve water level through a watershed basis. Watershed is an area which contributes rainfall runoff water to single out let. It describes an area of land that contains a common set of streams and rivers that all drain into a single body of water, such as large river, a lake or an ocean. Water shed management is the process of implementing land use practices and water management practices to protect and improve the quality of the water and other natural resources within a watershed by managing the use of those land and water resources in a comprehensive manner. The three main components of watershed management are land management, water management and biomass management. Land characteristics like slope, terrain, soil depth, and formation, texture, and moisture infiltration rate and soil capability are the major determinants of land management. Water resource management is the activity of planning, developing, distributing and managing the optimum use of water resources. Biomass is the plant or animal material used for energy production. Watershed management is trusted tool for overall development of Land, Water, Vegetation, Human-beings and Animals. It is the proven approach for overall development of the village and people living within watershed area. The type of watershed depends upon the size of the total area. There are five types of watershed which are; Mini watershed (1- 100 Hectare), Micro watershed (100 to 100 Hectare), Milli-watershed (1000 – 10000 Hectare), Sub-watershed (10000 – 50000 Hectare) and Macro watershed (>50,000 Hectare). The main elements of watershed are Land, Water, Vegetation, Human-being and Animals. For the survival of human-beings and animals, vegetation is important and it is possible only by managing the land and water elements effectively. The green cover in the environment is possible only better management soil and water. This is possible through

effective implementation of watershed programmes. The main objective of the watershed programme is to manage and utilize rainfall run-off water for useful purpose, to increase the infiltration of water three by increasing the ground water level. It also helps to conserve the soil from erosion and keep the nutrient level of the soil. Due to conservation of nutrient top soil and water, the green cover of the watershed will get improved. This measure also help to prevent the floods due to heavy rain and helps to manage in the dry situation due to less or scarcity of rainfall in the watershed. It also helps to improve and increase the production of timbers, fodder and wild life resource and enhances the ground water recharge, wherever applicable. The major factors affecting watershed management are watershed characters like shape and size, topography, soils and relief, the total annual rainfall. Land use pattern and water resources and their capabilities.

Watershed Management practices to increase ground water and green cover: The ground water level and vegetative growth could be get improved by adopting different practices like vegetative measures and engineering measures. The vegetative measures include strip cropping, pasture cropping, grass land farming and wood land development. The engineering measures include contour bunding, bench terracing, construction of earthen embankment, farm ponds and check dams. The gully controlling structure like rock dam and establishment of permanent grass and vegetation will help to improve the ground water level.

FINDINGS

Out of total water reserves of the world, 97 percent is salty and 3 percent only fresh water. Most of the fresh water is available in the form ice in polar region and 0.003 percent is readily available to us in form of ground water and surface water.

Most of the water for irrigation, domestic and industrial use are being taken from ground water source and it leads to depletion of ground water level.

In 2003 United Nations Ware founded as coordinating platform for issues of sanitation and fresh water access.

Thirty five percent of the global population experienced chronic water shortage in 2005. The United Nations recognized International year of Sanitation priorities health and dignity in 2008. Between 2000 and 2005, 1.4 billion gained basic access to sanitation and UN member sign on the Sustainable Development Goals successors to the Millennium Development Goals that promise clean water and sanitation for all by 2050.

Watershed management is trusted tool for overall development of Land, Water, Vegetation Human-beings and Animals.

Through the effective implementation of watershed management programmes the water level in the watershed and villages located in the watershed will be benefitted with good recharge of ground water. Once the water level in the villages get improved the Swachh Bharat progamme will be successfully implemented.

SUGGESTIONS

Awareness programme has to be conducted on Clean India and Green India among rural people.

To make the Swachh Bharat scheme successful, water is important. To improve the water level, watershed development programme has to be implemented with the participation of general public.

Rural villages have to have public toilet system with good water facilities and proper maintenance.

All the schools in rural areas should have toilet facilities and it should be maintained properly. The business organization has to adopt toilets in the schools for maintenance.

Action should be taken among to encourage old students of the schools to get sponsor and motivate them to contribute funds for toilet construction and good maintenance.

CONCLUSION

The clean and green environment is possible by maintaining a good ground water level in each and every area. The people in the rural and urban area will lead a healthy life only having good environment and by eliminating open defecation. The toilet should be installed in every house and also in the public places. To maintain the toilet, water is important and most of the places the water is drawn from ground water sources. The ground water is improved through the effective implementation of vegetative measures, land management and engineering measures. These three measures are possible by effectively implementing the watershed management programmers successfully. Watershed management is effective tool for developing green cover as well as maintaining clean environment, which is the main objective of Swachh Bharat programme

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LET'S GO GREEN TO GET OUR GLOBE CLEAN

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ABSTRACT

India a land of rich culture & heritage has its history always intermingled with concept of "living along with nature". Our ancestors had the practices of using the fruits of nature and make their lives efficient . Since the emergence of modern era of Industrial revolution have left unhealed impact over our mother earth. Its high time we need go green to get our globe clean. We are going to shine light on few practices from around our world and our own ancestors of India to remember that we are children of this earth & concept of reduce reuse and recycle is again brought forward to this generation. Also we shouldn't neglect the technological advances given by this century to correct the wrong' to rights. We are going to shine light on few practices from around our world and our own ancestors of India to remember that we are children of this earth & concept of reduce reuse and recycle is again brought forward to this generation. Also we shouldn't neglect the technological advances given by this century like renewable energy, water & air purification systems, sewage treatment solid waste management and hence forth. The concept of sustainability is on high-red alert. We will see a few technological concepts which are cost efficient & been practiced world wide, and utilize them.

Keywords: Environmental sustainability, eco-friendly, reduce, re-use, recycle, new-age alternatives, natural

INTRODUCTION

Formation of 3rd rock from the sun- earth 4.3 billion years ago even after 5 mass extinctions every living creature has lived beside nature's assistance. Our ancestors have a long aged history of been efficient in maintaining the balance of needs and wants. They have lived along with nature's ways and maintained a sustained balance for earth.

The new age man has a bigger view to grow and expand but has lost his way in maintaining the subtle balance of nature. These ways of our ancestors have been either forgotten or skipped to transfer this knowledge to our future generations .Our main objective here is to bring into spot light the old age ways and new age technological advancements and bring out a ray of hope for India and supplement the activities of Swachh Bharath.

VISION

To create awareness of ideas around globe & supplement the Swachh Bharat programme so as to direct our country's R&D towards the route of more for eco-friendly and sustainability

OBJECTIVES

The aim of this paper is to bring awareness from segments of past & present of human civilization, see the most eco-friendly, non-polluting efficient ideas & increase efficiency of ways to harness renewable energy

and make india a epitome of success in growth & make her more environmentally responsible.

METHODOLOGY

We are going to see the following ways

- Past – ways and means of our all ancient cultures around the world who practiced green ways to live a sustained life style ,
- Present – reduce our consumption & exploitation of natural resources
  – re-use all artificially made equipments ,repair and re-use them instead of buying, newer equipments
  – recycle solid & liquid waste, e-waste, domestic & other industrial wastes
  – spotlight newer ways of eco-friendly activities practiced in India & worldwide to improve sustainability of natural
- Future – Implement the most efficient environmentally friendly, non-polluting & re-usable ideas so as the we get to meet to synchronise with our topic "Let's go green to get our globe clean".

DATA & ANALYSIS:

CURRENT GLOBE SCENARIO

Earth after 5 mass world level extinction is moving towards the 6th.This 6th one is a unique one so as to the last 5 happened due to naturally caused disasters which took a long time to completely wipe of primary keystone species.

But the 6th one is caused mainly due to 1 species of creature which has knowingly eating up the planet's resources changing the plates of balance and inducing drastic climatic changes, increased green-gas & carbon emissions. At the end the inevitable of extinction is directed to happen due to human beings/ homo sapiens.

But the irony of this scenario is if humans act effectively & functionally they could actually stop the hazardous effects of climate change , green gas emissions ,pollution & loss of natural habitats by going the way of nature .Been eco-friendly is the word of the hour regardless of under- developed, developing & developed countries.

PANACEA

We are now going to review a few ideas of environmental sustainability and concepts from the both Indian & other civilizations.

India

In India , Emperor Ashoka decreed that it was a king's duty to protect wildlife and the trees of the forests. He got edicts inscribed on rocks and iron pillars throughout his kingdom, prohibiting the destruction of forests and the killing of various species of animals. This historical evidence, surviving to this day, is the first recorded measure on conservation anywhere in the world. In more recent historical times, Mughal Emperor Babur's memoirs (*Baburnama*), Guru Nanak's hymns on '*Baramasa*' (the seasons) depicting each month with a dominant bird image, and Emperor Jehangir's memoirs showing his keen interest in and study of wildlife provide fine illustrations of this Indian tradition.

The early Indians used hay and sticks of thatched houses, the orange baked mud clay of Indus valley civilisations still stand strong. The concept of water conservation is seen in keezhadi findings, in south india as per recent archaeological findings.

Indus Valley Civilizations

Our ancient civilizations starting from Indus valley civilizations they have entrusted the ways of water conservation starting of the great bath, cultivation irrigation from nearby rivers and also internal drainage& complex systems of drainage encasing sustainability. The city in lothal is the most planned and well organized cities.

Aboriginals of Australia

Aboriginal rock art provides clues about the contact between humans and the megafauna as a variety of paintings depict recognisable renditions of marsupial lions and Genyornis, a giant flightless bird, and careful dating suggests that humans and the megafauna co-existed in some places for many thousands of years. Aboriginal rock art, notably in northern Australia, especially Arnhem Land, has been – and still is – a medium which was important in facilitating Aboriginal sustainability, providing information on the type and location of food resources, medicines, poisons, and where to find sources of drinking water. Probably the

world's first maps are those which Aboriginals etched into or painted onto rocks, showing the relationships of land formations and temporary and permanent water holes. Aboriginal communities still use the knowledge portrayed in the ochre drawings and the oral histories passed down through the millennia. We are not so naïve as to suggest that we should all adopt their way of life, but we can learn much about the management of the land and its coastlines from them. Lessons of sustainability learned and honed through thousands of years of cultural evolution on the Australian continent are available for us all.

Africa

Ancient Africans & even current population of Africa have always practised sustainability.

The people had controlled acts of hunting as they always knew the balance was needed as over hunting would bring down the keystone species as well as they felt it was unnecessary to hunt over the bar. The remains of these animals were utilised for arms, vessels, etc. Also the importance of forest conservation has been the important concept of preservation. The various trees, ferns, plants, shrubs and herbs medicinal as well as ecological importance was taught by the elders to the younger generation .

Amazon tribes

Most tribes live entirely off the forests, savannas and rivers by a mixture of hunting, gathering and fishing. They grow plants for food and medicine and use them to build houses and make everyday objects. Staple crops such as manioc, sweet potato, corn, bananas and pineapples are grown in gardens. Animals such as peccaries, tapir and monkeys, and birds like the curassow are hunted for meat.

Some tribes, like the Matis, use long blowguns with poisoned darts to catch prey. Most use bows and arrows, and some also use shotguns. Nuts, berries and fruits such as açai and peach palm are regularly harvested and bees' honey is relished.

Fish, particularly in the Amazon, is an important food. Many indigenous people use fish poison or timbó to stun and catch fish. The Enawene Nawe, who do not eat red meat, are renowned for the elaborate wooden dams called 'waitiwina' which they build across small rivers every year to catch and smoke large quantities of fish. Their Yãkwa ceremony is linked to the fishing dams and has been recognized as part of Brazil's national heritage.

A handful of peoples – the Awá, the Maku in the north-west and some uncontacted tribes – are nomadic hunter-gatherers. They live in small extended family groups and keep few possessions, which allows them to move rapidly through the forest. They can erect shelters from tree saplings and palm leaves in just a few hours.

Like all indigenous peoples, they carry incredibly detailed mental maps of the land and its topography, fauna and flora, and the best hunting places. The Awá sometimes hunt at night using torches made from the resin of the maçaranduba tree

Indigenous peoples have unrivalled knowledge of their plants and animals, and play a crucial role in conserving biodiversity. According to scientific studies, indigenous lands are 'currently the most important barrier to Amazon deforestation

NEW AGE WORLD

- The use of harvesting of renewable energy is the main target of all countries world wide, this in turn goes hand in hand with limiting use of fossil fuels like petroleum.
- The countries in UAE and Africa which are desert prone areas are investing huge numbers of investment in setting huge solar parks to harvest natural sun light.
- The process of reducing expansion of deserts are also started worldwide by using indigineous plants & tree varieties which requires less water and has higher endurance in managing harshest weathers.
- Waste management is now not about merely dumping the unwanted things in a random way it but has become a systematic process consisting of collection, transportation, and proper disposal of garbage, sewage and other waste products. This also offers various solutions for recycling the items, putting the waste to productive use, In a broad sense, waste can be classified into four major types as urban waste, industrial waste, biomass waste, and biomedical waste. With terms that are more specific, waste can be categorized as:

Solid Waste: Solid rubbish consists of number of items found in household along with some commercial as well as industrial locations.

Liquid Waste: Households and industries generate liquid waste.

Organic Waste: Consisting of organic material such as food, garden and lawn clippings organic waste includes animal and plant based material and degradable carbon

such as paper, cardboard and timber, commonly found in household.

Agricultural Waste: Waste generated by agriculture includes waste from crops and livestock.

Bio-medical Waste: Bio-medical waste means any waste, which is generating during the diagnosis, treatment, or immunization of human beings or animals.

Recyclable Rubbish: Recyclable rubbish consists of all waste items that convert into products and use again as all types of metals, paper, and organic wastes.

Techniques of Waste Management

Following are the effective methods of waste management except ocean dumping which has been controlled, regulated and banned in some cases in order to stop the hazardous materials to be dumped into the sea:

- Ocean Dumping
- Sanitary Landfill
- Incineration
- Composting
- Waste separation, recycling and recovery
- Mechanical and biological waste treatment
- Mechanical sorting of wastes

- In this context, we can cite one example of a small city of Gujarat state – Bhavnagar to have a very good system of managing the drains. Bhavnagar is one of the few cities having underground drainage facilities ever since the time prior to independence. The old city of Bhavnagar had underground drainage system. These internal drainage works of the city came into practice since 1936 by Public Works Department of the state.
- During olden days, people had a habit of shopping with a cloth bag. The goods purchased from the market used to be brought home usually in this bag. However, gradually the bag was replaced by a plastic bag. People started feeling ashamed to walk around with a cloth bag, as the use of plastic bags became the national habit. Now the use of plastic is growing due to continuous consumption of various commodities of day-to-day life.

Benban Solar Park in Aswan

Upon completion, this project will be the largest solar park in the world and is named after a Nile river village nearby. It is forecasted that the project is planned to include 41 power plants that will produce between 1.6 and 2.0 GW of solar power by mid 2019.

New Assuit Barrage

The New Assuit Barrage is planned to be the third largest hydraulic power plant, after the High Dam and Nagaa Hammadi. The barrage will provide irrigation water to 690,000 hectares of lands, and is expected to boost the country's power generation by 50% as it includes a combined capacity of 16.4 GW, plus three 4.8 GW turnkey combined-cycle power plants, namely in Beni Suef, Burullus and the New Capital.

New Capital Power Plant

The plant involves the development of three 4.8 GW natural gas-fired CCPPs and up to 12 wind farms with a combined capacity of 16.4 GW.

El Dabaa Nuclear Power Plant

The El Dabaa plant is established with a capacity of 4.8 GW that will be able to feed four million homes with electricity, and will achieve a stable Egyptian grid depending on clean energy and low-cost electricity.

KarmBuild

A leading Egyptian company in architectural design and construction, KarmBuild integrates solar energy technology into building designs by using appropriate cost-effective construction material to reduce energy and optimize environmental techniques like climate-responsive passive-cooling, ventilation and thermal heating. They were the first to install a 50 KW Solar Water Pumping Solution Pilot station on a large commercial farm in Bahareya Oasis, which was considered the first system of its kind in the Arab region. This unique project resulted in not only the reduction of the system's cost, but in boosting its performance as well. They then installed three other solar water pumping stations in Bahareya, one with a capacity of 280 KW, another with 1.125 MW, while the third was installed in 2015, and is a hybrid pumping and drip irrigation system with a capacity of 147 KW.

The system enables the direct pumping of water to flow into fixed irrigation networks, and can run with two energy sources simultaneously (solar photovoltaic and diesel generators). Due to the system's highly efficient use of the solar component, the diesel generator can be switched off during peak hours with a seamless transition. Thirteen solar energy projects will be financed by the International Financial Corporation

(IFC), in addition to loans provided by the European Bank of Reconstruction (EBRD) for 16 additional solar projects

Agriculture Greenhouses, Matrouh

Recognizing the need for integrated and sustainable urban planning practices encouraged the development of urban and agriculture projects, on top of which are the greenhouses in El Hammam, Matrouh, with the aim to provide food security. The structure of greenhouses is made of walls, and a transparent roof to enable plants to grow in regulated climatic conditions. It aims at developing the economy by increasing the production of planted crops and the exploited area across the nation.

Not only does it produce high quality agricultural crops out of season, it also consumes around 70% less water than traditional agriculture areas, as it relies on modern irrigation techniques and setting up drainage water treatment plants to serve greenhouses projects.

Eco-friendly Cities

The government of middle east are planning to establish 15 new cities in the coming years, and has set meticulous criteria in the evaluation process in order to reduce waste, conserve natural resources, eliminate the use of toxic material or pollutants and promote the use of recycled content.

The strategy adopted many ways to maintain sustainability, including the expansion of greenery and replacing lighting with energy-efficient LEDs that depend on solar energy, in addition to developing a Waste Management System using recycling technologies to reuse water waste in irrigation, and an integrated solid waste management system.

In addition to basic key sustainability indicators which were taken into consideration in the implementation plan, the spatial land distribution, housing location and transportation system will aim to reduce distances among homes, services centers and work locations, to minimize cars usage and save time and fuel, and above all, to achieve a clean environment and a healthy lifestyle.

FOSSIL FUEL PHASE OUT

Fossil fuel phase-out is the gradual reduction of the use of fossil fuels to zero use. Current efforts in fossil fuel phase-out involve replacing fossil fuels with alternative energy sources in sectors such as transport, heating and industry. In the Greenpeace and EREC's Energy (R) evolution scenario, the world would eliminate all fossil fuel use by 2090.

In December 2015, Greenpeace and Climate Action Network Europe released a report highlighting the need for an active phase-out of coal-fired generation across Europe. Their analysis derived from a database of 280 coal plants and included emissions data from official EU registries.

A September 2016 report by Oil Change International, concludes that the carbon emissions embedded in the coal, oil, and gas in currently working mines and fields, assuming that these run to the end of their working lifetimes, will take the world to just beyond the 2°C limit contained in the 2015 Paris Agreement and even further from the 1.5°C goal.[29][30][31] The report observes that "one of the most powerful climate policy levers is also the simplest: stop digging for more fossil fuels".

In October 2016, the Overseas Development Institute (ODI) and 11 other NGOs released a report on the impact of building new coal-fired power plants in countries where a significant proportion of the population lacks access to electricity. The report concludes that, on the whole, building coal-fired power plants does little to help the poor and may make them poorer. Moreover, wind and solar generation are beginning to challenge coal on cost.

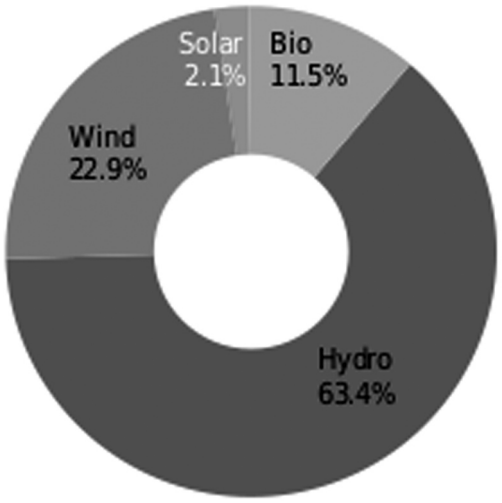
A 2018 study in Nature Energy, suggests that 10 countries in Europe could completely phase out coal-fired electricity generation with their current infrastructure, whilst the United States and Russia could phase out at least 30%.

LEGISLATIVE ASSISTANCE

Major economies

In 8th June 2015, several newspapers ran an article wrote that the leaders of the Group of Seven (or G7, consisting of Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States) agreed to phase-out fossil fuel use by 2100,[41][42] as part of the efforts to keep global temperature increase under 2°C. This was done as a prelude for the United Nations Climate Change Conference (a.k.a. COP 21) hosted in Paris, on December of the same year.

Australia



Electricity generation from renewable sources in Australia in 2010

The Australian Greens party have proposed to phase out coal power stations. The NSW Greens proposed an immediate moratorium on coal-fired power stations and want to end all coal mining and coal industry subsidies. The Australian Greens and the Australian Labor Party also oppose nuclear power. The Federal Government and Victorian State Government want to modify existing coal-fired power stations into clean coal power stations. The Federal Labor government extended the mandatory renewable energy targets, an initiative to ensure that new sources of electricity are more likely to be from wind power, solar power and other sources of renewable energy in Australia. Australia is one of the largest consumers of coal per capita, and also the largest exporter. The proposals are strongly opposed by industry, unions and the main Opposition Party in Parliament (now forming the party in government after the September 2013 election).

Canada

In 2005, Canada annually burned 60 million tons of coal, mainly for electrical power, increasing by 15 percent annually.

In November 2016, the Government of Canada announced plans to phase out coal-fired electricity generation by 2030.

Ontario

Beginning in 2005, Ontario planned coal phase-out legislation. The province annually consumed 15 million tons of coal in large power plants to supplement nuclear power. Nanticoke Generating Station was a major source of air pollution,[47] and Ontario suffered "smog days" during the summer. In 2007, Ontario's Liberal government committed to phasing out all coal generation in the province by 2014. Premier Dalton McGuinty said, "By 2030 there will be about 1,000 more new coal-fired generating stations built on this planet. There is only one place in the world that is phasing out coal-fired generation and we're doing that right here in Ontario. The Ontario Power Authority projected that in 2014, with no coal generation, the largest sources of electrical power in the province will be nuclear (57 percent), hydroelectricity (25 percent), and natural gas (11 percent). In April 2014, Ontario was the first jurisdiction in North America to eliminate coal in electricity generation. The final coal plant in Ontario, Thunder Bay Generating Station, stopped burning coal in April 2014.

China

There are currently no plans to phase out coal burning power stations in the People's Republic of China on the national level.

China's exceedingly high energy demand has pushed the demand for relatively cheap coal-fired power. Each week, another 2 GW of coal-fired power is put online in China. Coal supplies about 80% of China's energy needs today, and that ratio is expected to continue, even as overall power usage grows rapidly. Serious air quality deterioration has resulted from the massive use of coal and many Chinese cities suffer severe smog events.

As a consequence the region of Beijing has decided to phase out all its coal-fired power generation by the end of 2015.

In 2009, China had 172 GW of installed hydro capacity the largest in the world, producing 16% of China's electricity, the Eleventh Five-Year Plan has set a 300 GW target for 2020. China built the world's largest power plant of any kind, the Three Gorges Dam.

In addition to the huge investments in coal power, China has 32 reactors under construction, the highest number in the world.

Analysis in 2016, showed that China's coal consumption appears to have peaked in 2014.

European Union

In July 2014, CAN Europe, WWF European Policy Office, HEAL, EEB and Climate-Alliance Germany published a report calling for the decommissioning of the thirty most polluting coal-fired power plants in Europe.

Belgium

After the government denied a 2009 application to build a new power plant in Antwerp, the Langerlo power station burned its last ton of coal in March 2016, ending the use of coal fired power plants in Belgium.

Denmark

As part of their Climate Policy Plan, Denmark stated that it will phase out oil for heating purposes and coal by 2030. Additionally, their goal is to supply a 100% of their electricity and heating needs with renewable energy five years later (i.e. 2035).

France

In December 2017, to fight against global warming, France adopted a law banning new fossil fuel exploitation projects and closing current ones by 2040 in all of its territories. France thus became the first country to programme the end of fossil fuel exploitation.

Germany

Hard coal mining has long been subsidized in Germany, reaching a peak of €6.7 billion in 1996 and dropping to €2.7 billion in 2005 due to falling output. These subsidies represent a burden on public finances and imply a substantial opportunity cost, diverting funds away from other, more beneficial public investments.

In 2007, Germany announced plans to phase out hard coal-industry subsidies by 2018, a move which is expected to end hard coal mining in Germany. This exit is later than the EU-mandated end by 2014. Solar and wind are major sources of energy and renewable energy generation, around 15% as of December 2013,and growing. Coal is still the largest source of power in Germany.

ECO FRIENDLY FUELS

An **Eco-Friendly Fuel** is an ecologically **friendly fuel**. Its production and use has a minimum impact on the **environment. Eco-friendly Fuels** are produced from naturally occurring materials - examples are biogas and biodiesel.

Carbon-neutral fuel is energy fuel or energy systems which have no net greenhouse gas emissions or carbon footprint. One class is synthetic fuel (including methane, gasoline, diesel fuel, jet fuel or ammonia) produced from renewable, sustainable or nuclear energy used to hydrogenate carbon dioxide directly captured from the air (DAC), recycled from power plant flue exhaust gas or derived from carbonic acid in seawater. Renewable energy sources include wind turbines, solar panels, and hydroelectric power stations. Another type of renewable energy source is biofuel. such fuels are potentially carbon-neutral because they do not result in a net increase in atmospheric greenhouse gases.

To the extent that carbon-neutral fuels displace fossil fuels, or if they are produced from waste carbon or seawater carbonic acid, and their combustion is subject to carbon capture at the flue or exhaust pipe, they result in negative carbon dioxide emission and net carbon dioxide removal from the atmosphere, and thus constitute a form of greenhouse gas remediation.

BIO FUELS

Biofuels, one of the biggest groups of new fuels, include alcohols, ethers, esters, and other chemicals made from plants, agricultural and forestry leftovers, and a large portion of municipal solid and industrial waste.

Biofuels used for transportation include bioethanol, biodiesel, biomethanol, and pyrolysis oils. Unlike petroleum based fuels, biofuels are rapidly biodegradable. An accidental biofuel spill would have minimal impacts on wildlife and the environment, advocates say. They also argue that biofuels burn more cleanly and completely, resulting in less pollution since fewer petroleum pollutants are released into the air and water.

Bioethanol: Ethanol is the most widely used biofuel today. More than 1.5 billion gallons are added to gasoline in the United States each year to improve vehicle performance and reduce air pollution.

Ethanol is an alcohol, and most of it is made using a process similar to brewing beer. Starch crops, like corn, are converted into sugars, which in turn are fermented into ethanol and distilled into its final form. Ethanol made from waste materials instead of specially grown crops is called bioethanol.

As a gasoline additive, ethanol is used to increase the octane, or energy content, and reduce harmful emissions. But it can also be used alone as a fuel, either burned in an engine directly, or used to create hydrogen to power a fuel cell.

Both Ford and Chrysler sell flexible fuel vehicles, which can run either on gasoline or a blend of 85 percent ethanol and 15 percent gasoline.

Biodiesel: This fuel can be made from using edible oils, such a french-fry grease, conjuring images of turning fast-food restaurants into combined food and fuel depots. In reality, making biodiesel is not as simple as pouring fry oil into your gas tank.

For years, scientists have been producing and testing biodiesel fuel, made by converting vegetable oils or animal fats into diesel fuel, as an alternative to petroleum based diesel fuel, or "petrodiesel."

Dimethyl ether: Researchers at Penn State University are working on a way to run vehicles with clean burning dimethyl ether, or DME, the chemical that replaced fluoro-chloro carbons in spray cans. In a study of the emissions produced when burning DME as a substitute for butane or propane, the researchers found that DME had lower carbon monoxide emissions and the same or lower nitric oxide emissions than either commercially available fuel.

DME is normally produced from methanol, but DME production from natural gas and coal-derived syngas may open up this clean fuel for broader use, the researchers said.

Solar cars: Using solar panels to convert energy from the sun directly into power to run a vehicle creates perhaps the cleanest cars ever.

Incoming solar radiation light from the sun is captured by the photovoltaic panels on top of the car. They make electricity, which is then stored in batteries. The electric motor draws energy from the batteries to move the car.

CONCLUSION

These are few of the concepts and ideas formed and utilized in other countries as our main objective here is to create a awareness of available ways which may not be cost efficient immediately but definitely help us in the long run of sustainability.

We need to take into consideration India is still a developing nation with socio-economic and cultural variations but we shouldn't neglect ways and means of maintaining balance on our beautiful earth. The basic necessities of clean air, land, water and resources is to be always maintained and enhanced as it directly affects humans health and stamina ,which are carried forward for the future generations.

The process of going green was always our way of the elders, we diverted quite a bit from that since industrial revolution and world wars, but then a ray of hope has awakened all heads of countries in uniting their efforts to bringing back the concept of Going green to make our globe clean.

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ENVIRONMENTAL CONCERNS CAUSED BY HOSPITALITY & TOURISM INDUSTRY, DEVELOPING ENERGY CONSERVATION PROGRAMS FOR IT

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ABSTRACT

The aim of this article of the issues of environmental sustainability assessment for information technology according to perception of this research .this analysis aimed at building knowledge on these terms authors, articles , journals,& keywords on this subject. sustainability this is a subject of increasing concern to academics ,this review covers the sustainability research points .However, it is general & this is used by other researchers in this other fields.

Keywords: Sustainability, environmental, social, sustainable supply chain management, empirical studies.

INTRODUCTION

Radisson BluKUSHAMBIDelhi NCR which is located on the east side of Delhi, h-3,sector 14, kaushambi 201010 Uttar Pradesh, Ghaziabad .this is five star property ,anyone can easily reach Delhi's businesses & attraction using the near by metro station or new Delhi station. If you are in this hotel then you don't think about food , stay , WIFI , nearby shopping, lust –the bar, transport, service because they provided & also care of its guests.

Radisson Blu, KaushambiNcr

MISSION & VISION OF HOTEL

Mission

Creating Sustainable values for all Stakeholders

Vision

The company of choice for guests, owners is thinking of a trip, or an owner is thinking of a partner, or whenever someone is looking for a job in the hospitality industry ,they will all think of Radisson hotel group first

Values

Integrity, Mutual Respect & Understanding, Excellence, Unity, Responsibility.

Water Management

Overarching Aim

To conserve water through efficient use and management.

Key Implementation

- Monitoring of water consumption data to identifying areas of potential savings.
- Implement a program of water efficiency projects.
- Seek the opportunities for installing water management measures like rainwater harvesting.
- Implement a regular maintenance schedule for water devices, pipes and systems.
- Monitoring the waste water system –recycling & treating the water to be safe used for drinking.
- Irrigation system can help to manage the water not to waste & to avoid unnecessary depleting water supplies.
- Conserving water and caring for natural water supplies methods are very useful for water management system.

Waste Management

Waste management is the collection, transportation and disposal of garbage, sewage and other waste products produced by human activities. It refers to the handling of waste by many methods and processes, utilizing and ensuring to decompose it into useful products

Overarching Aim

To minimize and manage waste through elimination, reduction, reuse and recycle.

Key Implementation

- Choose correct ways of waste management especially industrial waste.
- Throwing garbage in landfills, or eliminate the odors and dangers.
- Reuse or recycling the waste products into a new products to prevent the energy usage, consumption of fresh raw material.
- Determine regulatory waste management requirements.
- Identify unique, local circumstances and issues that may affect waste management
- Proper collection and segregating of all types of waste

Pollution Control

Pollution control is the process of reducing and eliminating the release of pollutants into the environment. A wide varieties of systems, devices have been developed to control pollution in air, water or solid wastes.

Overarching Aim

To control or minimize the limits of discharges of pollutants into the air, water or in land.

AIR POLLUTION

Air pollution is anything that contaminates the air to an extent that makes the air dangerous to breathe.

Key Implementation

- Never use open fires to dispose of wastes.
- Use LPG gas instead of using traditional high contaminant fuel like coal.
- Air Pollution control devices or proper arrangements should be done near the industrial areas.
- Adequate preventive measures should be done to protect the forest.
- Keep automobiles engines in a good condition or maintained to avoid smoke emissions.

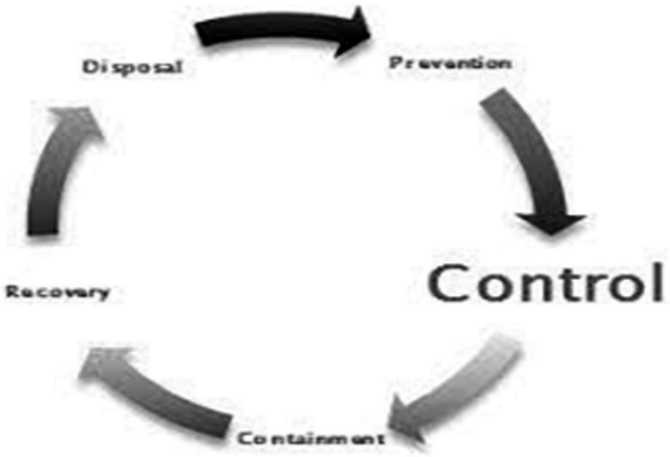
- Proper designed smoke free machines should be use, industrial areas should be located far away from the residential areas.

WATER POLLUTION

A pollutant is anything that contaminates water and make them dangerous, poisonous not suitable for drinking or low in quality.

Key Implementation

- Effective and adequate steps should be taken & ensure proper sewage treatment process should be done, so that water is not get contaminated.
- Proper treatment of wastage or recycled from the water should be done before discharging the water from the factories.
- Proper treatment of drainage water should be done, harmful pollutants or chemicals be removed.
- Ensure that the pond water should be clean or safe not uses for the bathing, washing purpose.
- Proper sanitation or Self hygiene is also very important.
- Use eco-friendly or biodegradable materials instead of plastics.
- Use organic agriculture instead of using chemicals pesticides or fertilizers.



SOIL POLLUTION

Soil pollution is caused by man- made chemicals, heavy materials or solvents get into the soil. It comes from industrial activities or bad waste disposal.

Key Implementation

- Don't use garbage or plastic bags, use reusable or recyclable bags.
- Don't burn trash, plastics, tires because residue will settle and pollute the soil
- Reduce the uses of chemicals, pesticides, fertilizers, manures, insecticides etc.
- Ensure that you don't litter on the ground and do proper disposal of garbage.
- Ensure that you buy biodegradable products and do organic gardening.
- Create dumping ground away from the residential areas.

Techniques &Methods for Ecological Conservation

- **Reduce –** Change the way you clean the house. Use sustainably made items or all natural products that are not made with chemicals. It's better for your health, doesn't pollute the air.
- **Unplug Unused Electronics –** Unplug the unused items when not require or not in use. If an item is unplugged it is not using any power at all.
- **Recycle** – Learn to recycle the items, there are so many crafty ways to reuse things again, like aluminum cans, glass jars etc.
- **Properly dispose of hazardous waste** – Many items contain chemicals or toxic materials that should be properly disposed.

  Donate things that you don't use anymore instead of throwing them away.
- **Conserve by using less energy** – Use compact fluorescent light bulbs instead of incandescent bulb they are more effective and energy saving.

- **Fresh, local organic food** – Use fresh organic food instead of frozen, pesticides, chemically or fertilize items.
- Conserve water – Save water by turning off the faucets when not in use or collecting rain water and use for other household works or gardening.

Activities and Operations

Purpose

This policy sets out the company commitment and approach towards corporate social responsibility based on our legacy of "Giving back to society". The company provide to facilitate livelihood opportunities & socio-cultural development in areas of its operations.

The company aim is to be contributing to CSR initiatives in India by devising and implementing social improvement projects for the benefits of underprivileged communities, towns and villages.

Focus Areas

In the requirement of company CSR programs shall mainly focus on following areas:

- Vocational skill development programs
- Partnerships to preserve & promote heritage, culture, arts and handicrafts.
- Disaster reliefs and rehabilitation programs.
- Income generation and livelihood enhancement programs.
- Civic amenities and community service.
- Provide better health infrastructure for remote rural areas.

Responsibility

- Monitor the implementation of CSR policy time to time.
- Ensuring that the each financial year company spends such amounts for CSR activities.
- Ensuring that the activities as are included in the CSR policy are taken by the company.
- Ensure that the relevant information regarding the key projects should be updated timely.
- Ensure regular health camps and awareness regarding health projects, open health care facilities for employee or non-employee
- Organize sports events for employees and community.
- Conserving nature for sustainable livelihood.
- Employee relations, welfare department setup, higher technical education, family benefits scheme.
- Distributing medical benefits, medicines in promote rural villages or areas.
- Support cultural institution, or promote or preservation tribal or rural art, handicraft culture.

Our Values

Integrity

Conducting business fairly, with honesty & transparency.

Mutual Respect &Understanding

Caring, compassion & humanity for our colleagues & guests around the world.

Excellence

Constantly striving to achieve the highest standards in our day-to –day work.

Unity

Working cohesively with our colleagues, guests, partners, building strong relationship.

Responsibility

Responsible and sensitive to the countries, communities & environments in which we work.

ANALYSIS

Role & Importance of Environment on Tourism

Tourism is dependent on the quality of natural & cultural environment. In other way environment is the base of the economic development of tourism. Tourism and Environment both depends on each other, there is a very close relationship between tourism and environment. Many features of physical environment are an attraction of tourist and also help to increase in tourism.

Tourism benefits in three ways – employment, foreign currency and infrastructure development.

- To promote good environmental practice within the tourism sector to advise on the development of eco-tourism.

- Sustainable tourism policy in the development of environmental plans.
- Providing employment issues such as the production and sale of goods, transport and services.
- The increase of foreign currency and an increase in gross national income and the expansion of accommodation, catering.
- Development of the integration of tourism activities.
- Increasing awareness of the local environment.
- Helping to improve the environmental quality of the area. Because tourists are interested in visiting nice, clean and pollution-free areas.
- Helping to justify the preservation of archaeological and historical areas as tourist attractions.
- Helping to justify the preservation of important natural areas and wildlife, including marine environment, national and regional parks.

IMPACT OF ENVIRONMENT IN TOURISM

Tourism phenomenon itself is a socio-cultural activity refers to the mobility of people.

Travel &Tourism is considered as the biggest and most renowned industry in the world. Many countries refer this dynamic industry as the main source of income, employment, and private sector growth.

Tourism is one of the industry that can help countries to achieve the economic, environmental and social aims.

Types of Tourism Impact on Environment

- Economic Impact
- Socio-cultural Impact
- Environmental Impact

Tourism & its Economic Impacts

Economic Impacts

Contribution to employment, better services and social stability. These impacts also contribute to high living costs within the community, pushing local business, & raising costs.

Positive Effects

- Foreign Exchange Earnings
- Contribution to government revenues
- Generation of employment
- Infrastructure Investment
- Contribution to Local economies

Negative Effects

- Inflation
- Opportunity Costs
- Dependency
- Seasonal Character of Jobs

Tourism & its Socio-cultural Impacts

Socio-cultural Impacts:

Interactions between peoples and cultural background, attitudes and behavior and their relationships to material goods, also contribute to the preservation of culture and cultural sites.

Positive Effects

- Preservation and Restoration of cultural heritage
- Revival of cultural arts and crafts
- Cross cultural exchange

Negative Effects:

- Loss of Cultural Character
- Loss of authenticity of traditional art& crafts
- Commercialization of human relationships

FINDINGS

Tourism & its Environmental Impacts

Environmental Impacts:

The quality of environment both natural and man-made, is essential to tourism. Tourism relationship with the environment is complex. It involves many activities that can have adverse environmental effects.

Positive Effects

- Promoting the environmental culture in the tourist and cultural approach.
- Environmental Awareness and enhancement of local environment.

- Protection & Conservation of Wildlife.
- Retain & increase visitors number by improving value of the local environment.
- Development the integration of tourism activities.

Negative Effects

- The destruction of the natural environment of woodlands, forests, and plants.
- Inappropriate Development.
- The destruction of wildlife and plant species.
- An increase of noise pollution & air pollution caused by traffic or overcrowding.

Environmental/Sustainability Policies Taken by hotel

- Protect & Conserve the natural environment for the benefits of future generations.
- Continuously improving its environmental and social sustainability performance.
- Establishing, implementing, maintaining and continually improving its environmental management system.
- Comply with all applicable legal requirements to which the hotel relate its environmental aspects.
- Energy efficiency, conservation and management of fresh water resources.

Environmental Action Plan (Qualitative Analysis)

- Implementing of 24*7 hours electric supply to reduce carbon foot print.
- Replacing of high energy consuming pumps to energy efficient pumps.
- Replacing of incandescent filament lamps with LED lamps.
- Replacing high energy consuming guest elevators with latest technology energy efficient elevator.
- Optimization of the waste water for gardens.

Waste Management Plan

- Segregating waste on the spot area wise.
- Checked the all water leakage and arrest the all leakages.
- Replacing of high pressure shower to low pressure showers in guest rooms.
- Replacing of single flush system to dual flush system in al guest floor bathrooms.
- Using the STP water in entire garden area.
- Optimization of the waste water for gardens.

Water Management Plan

- Switch to a sustainable source of fresh water.
- Implement a program to ensure water conservation as much as possible.
- Implement a regular maintenance schedule for water devices, pipes and systems.
- Install low/dual flush toilets to reduce your water consumption.
- Install low flow tap/faucets fittings to reduce your water consumption.
- Leaks and water monitoring fact sheets.
- Reducing water consumption fact sheets.
- Considering collecting, storing, and using rain water.

Pollution control Management

Guidelines for noise pollution

- The assessment of the surroundings environment should be considered and incorporated at the planning stage to avoid the noise impact of the surrounding places.
- The noise generated for the loudspeakers which will affect the surroundings residents should be highly concerned, the relevant sound insulation / noise elimination and vibration isolation accessories should be installed.
- Avoid installing outdoor loudspeaker so as not to affect the surrounding residents
- The noise pollution from air conditioners and venting facilities which will affect the residents should be highly concerned.
- The gate of such establishments should not be opened outward the buildings. If gates have to be opened towards the street, appropriate entrance design should be adopted.
- The insulation of glass window, effective and sound isolation effect glass should be considered.

Guidelines of water pollution control

- Suitable control equipment should be installed to ensure the sewage discharged.
- Regular inspection, repair and maintenance of the relevant pollution control equipment should be done to ensure the efficiency of treatment.

- To avoid causing environmental pollution, sewage and waste oil should not be discharged into storm drainage and surrounding environmental to avoid environmental pollution the waste oil should be collected properly and be treated effectively.

Corporate Social Responsibility (CSR)

CSR activities adopted regular operations of hotels

- Vocational skills development programs.
- Disaster relief and rehabilitation programs.
- Income – generation and livelihood enhancement programs.
- Help to promote indigenous heritage, culture, arts & handcrafts.

Some CSR activities taken under hotel

- They also provide them medical benefits, medicines, they also organize medical camps twice a month.
- Hotel also started a program called for their kids they come to the hotel and study, pursuing a diploma course and after completion of course they give them the jobs in the hotel.
- Hotel also constructed some toilets in the village.
- They also provide the handles (hand pumps) in the village.

CONCLUSION

Environment is a complex, variable extensive system, protecting the environment is a hard and enduring task. It is an impossible that all the existing pollution problems in the environment can completely be resolved. It is the responsibility of everyone to protect our environment with the help of continuous planning and strategies and creating a quality of ecological environment.

- By educating the people for good awareness in environmental protection.
- By implementing effective control measures for pollution, to reduce the pollutants produced at source and maintain achievements in nature conservation.
- Being a developing country it concentrate on the socio-economic development but it must be in co-ordination with environmental upgrade .
- The rapid growing population and economic development is leading to a number of environmental issues in India because of the uncontrolled growth of urbanization and industrialization, expansion of agriculture, and the destruction of forests.

  We should measures these issues and monitoring, or planning the strategies to implement the effective control.
- To combat these problems, countries have put their own interests ahead of environmental protection and the future of coming generations.
- Prevention and control of pollution, conservation & survey of, forests and wildlife.
- Creation of environmental awareness among all sectors of the country's population.

  By applying the principles of sustainable development, formulating or implementing mechanism for the execution of the planning on the different environmental elements.

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SAVE THE LAST DROP - AN IMMEDIATE NEED FOR THE CONSERVATION AND CLEANLINESS OF WATER BODIES IN CHENNAI

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ABSTRACT

Water is one of the valuable resources which is a basic need, gifted by our mother nature. Like air in atmosphere, water is a most important thing for the survival of all living being sin earth. Without water the survival on earth is impossible. In our Planet, Earth's surface area is covered by three-fourths of water and only one-fourth has land masses. Now, the world is heading towards water crises due to the immoderate and uneconomical use of water by the huge human population. Over usage of water has led us to feel the decreased supply of water available for human use.

Polluting water bodies, deforestation, overpopulation and over usage has disturbed the water cycle which, in turn the annual rainfall varies in different parts of our country. If efforts are not taken for managing and saving water, we are going to have an acute water crisis. Currently, Chennai is facing a huge level of water crisis and an immediate action for conserving water needs to be taken. Failing, which leads to the worst side of water crisis and people in Chennai will suffer a lot in future than the present.

National Water Mission is one of a National Mission under eight Missions of the National Action Plan on Climate Change (NAPCC). This Mission aims at conserving water, minimizing wastage, and ensuring fair distribution and management of water resources.

This research highlights the reason for the water crisis in Chennai. It tells about the urgent need for the conservation of water so that it makes everyone aware of the present and future threat it possesses on our country. The activities carried out by Tamil Nadu government for the conservation and cleanliness of water bodies is also perceived. Different ways of creating awareness about the conservation of water among the people are noted. The possible ways to clean our water bodies are also noted. The data from the public and students are collected and analyzed for the concept of "Save the last drop."

Keywords: Water crisis, Threat, Awareness, National Mission, Cleanliness.

INTRODUCTION

Water, a simple word to describe the most essential resources needed by every living organism on our Planet Earth, yet the most misused and neglected natural resources.

$$2H_2+O_2 \rightarrow 2H_2O$$

A simple chemical reaction combining two atoms of hydrogen and one atom of oxygen will give water, can be solved by any student studying in class 4 but one of the toughest reaction to satisfy the ever growing need of water in the entire world. The world is made up of 70% of water, but the available clean portable drinking water is less than 2 % at the present situation. The world has touched a population of 7.7 Billion and in which India is holding 17.7% of population and nearly 10.6 Million people are residing in Chennai, that is where the question arises.

Are we really equipped for a country without water to support this ever growing city? One doesn't have to think twice, the answer is a clear NO.

Taking into account, the recent water crisis in Chennai might have a justification for the above answer.

OBJECTIVES

- To identify the sources of over exploitation of water.
- To identify the factors affecting the quality of water
- To ensure the cleanliness of water bodies in Chennai and prevent pollution of stagnant and flowing water resources
- To minimize ecological damage.
- To prevent health deterioration and spread of diseases.
- To suggest ways for improvement of living conditions and minimizing water scarcity.
- To apply modern techniques for water conservation while also keeping traditional practices intact.

METHODOLOGY

The research was carried out based on the data collected from the residents of Chennai. The research were analysed based on the responses.

Primary data was collected from the people who are living in Chennai in the form of questionnaires and interviews.

Secondary data was collected from the magazines, newspapers, e-papers and government publications.

CHENNAI CITY: A BRIEF OVERVIEW

The capital city of Tamil Nadu state, Chennai is a coastal city located on the South Eastern Coast of Indian mainland is the 6th most populous city in India. Informally called the "Health Capital of India", this city attracts about 45% of tourists visiting India for medical treatment. Known for its ever-growing and bustling city life, the city is also facing a lot of Socio-economic and ecological threats due to its urbanisation, depletion of various resources and also a change in lifestyle.

With a population of over 10 million of people, the city is bound to face such problems. Once known for its rich water resources, the city is facing an acute water crisis over last few years and a dearth of water to meet its daily needs. Recent survey shows that the city needs a staggering 830 MLD of water but the Tamil Nadu Government can only able to provide about 525 MLD. This doesn't essentially mean that the water provided is constant; it still stares at a constant and drastic dip in water levels.

City has a natural advantage of a marvellous water drainage system with three rivers, Kosasthalaiyar in North, Adyar in the South and Cooum in the middle and Buckingham canal as buffer cutting across all three rivers.

Chennai has 16 major drainage canals and hundreds of water bodies. Yet poor management, maladministration and Corruption has led to deterioration of our water bodies such as encroachment, silt formation, letting in the sewage without treatment, dumping the garbage and dumping of construction debris. Restoration of these water bodies is essential to not only saving people from floods and drought, but also to access basic amenities such as clean drinking water for the day to day activities and water for Agriculture.

THE CURRENT STATE OF THREE MAJOR RIVERS

KOSATHALAIYAR: This is the lesser-known but the largest river that runs through the Chennai Metropolitan City. Originating in Andhra Pradesh and joins the Bay of Bengal of Ennore creek is currently linked to the Palarriver and does not actually flow through the city but flows for about 16km through the Chennai Metropolitan Area. This river has a catchment area in North Arcot District where it branches near Kesavaram Anicut and this side stream flows to the Chennai city as Coum River, while the main river flows to the Poondi reservoir.

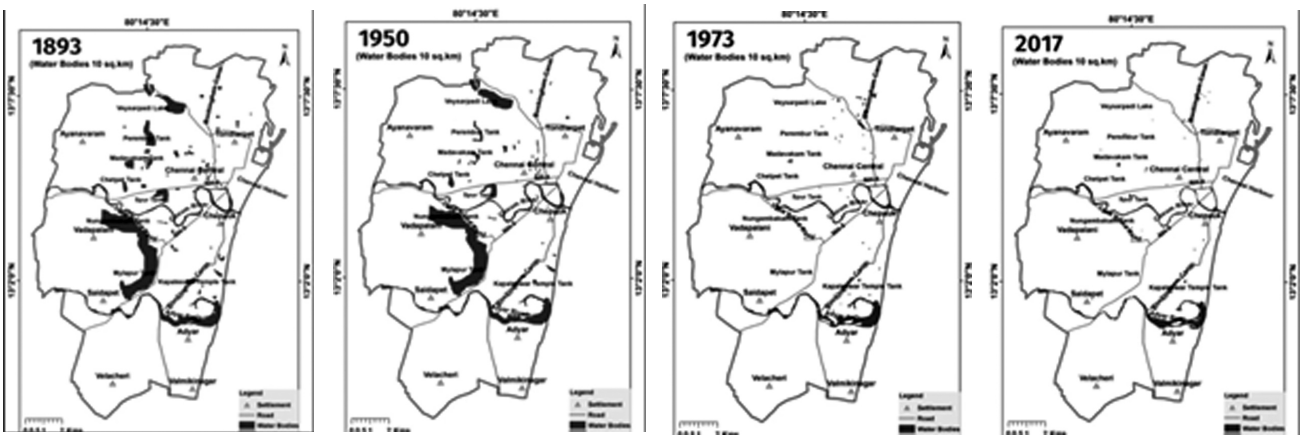
The total catchment area of the river is 3,757 kms and the bed width ranges from 150 to 250 metres. The discharge capacity of the river is 110,000 cubic metres per second. The river helps in draining the flood waters during heavy rainfalls that the city is prone to. Over the years, industrial expansion along its catchment areas have gulped up the size of the 8,000 acre river by at least 1,500 acres. Also, the accumulation of dirt, and with no dredging taking place, the depth of the river has shrunk to two feet from what fishermen claim was 14 feet about a century ago.

ADYAR: This river flows 43 KMs east to drain into the Bay of Bengal at Adyar Estuary in South Chennai is originating at Chembarabakkam Lake in Kanchipuram District. Carrying the surplus from hundreds of tanks, lakes and storm water runoffs it drains a total of

1142 Sq km. Large-scale installations like commercial airport runways, IT companies and city bus terminals have intruded into the watershed of the river, altering its natural flow. Further, Discharge of city waste and resultant has narrowed the river by more than 30%. It's been noted that most of the city waste are dumped into this river and Cooum.

COOUM: The other name is Triplicane river, is one of the shortest classified rivers draining into the Bay of Bengal. This river length is 72 km which is flowing 32 km in the Urban part and the rest in rural part. The river is branched into three in the city and separates Northern Chennai from Central Chennai.

Originating atkesavaramanaicut in Vellore district from its origin in the kesavaram Village to Paruthipattu Anaikat, the river remains unpolluted. Beyond this, till its mouth in the Bay of Bengal the river is highly polluted. The river flows through three corporation zones namely, Kilpauk, Nungambakkam and Triplicane covering a length of about 16 kilometres within the city. In 2018 alone, about 21,665 tonnes of waste has been removed from the river.



Source: Department of Geology, Anna University

COOUM RIVER: THE CAUSE OF CHENNAI'S WOES

As stated above Cooum is one of the most polluted rivers in Chennai. It is the only river that can be termed as Urban River, Since, most of the river flows through the Chennai City only. A few decades ago, people were very much dependent on Cooum River as this was the source of water. Day by day, people started dumping their waste in Cooum knowingly and unknowingly. This is due to over bursting of population and expansion without due plan. As a result, the water is contaminated and even the color of the water is changed.

CAUSES FOR THE DETERIORATION OF THE COOUM RIVER

1. Discharging the untreated municipal sewage and Industrial effluents containing highly toxic heavy metal leads to the deterioration of the river.
2. Slum dwelling across the river and Encroachment along the banks of the river is also one of the reasons for the worsening situation of the river.
3. Formation of the sand bars, and high deposition of slit at the mouth of the river.
4. Non judicial usage of ground water buds has reduced the base flow.
5. Over irrigation.

One of the main reasons for the over pollution of the river is the almost nil flow of the river into the sea leading to more stagnant and highly polluted still water.

HARROWING FACTS ABOUT THE COOUM RIVER

- A recent study conducted by World Bank Funded project concludes by saying that the water is 80% polluted than treated sewer.
- The water has almost zero % of dissolved oxygen and is completely responsible for the loss of valuable aquatic flora and fauna.
- The river water has substantial presence of "Faecal Coliform Bacteria" responsible for various water-borne diseases.
- The presence of heavy metal and pesticides also call for the rise of worry.

- About seven tonnes of municipal solid wastes are dumped into the river every single day in some areas.
- Nearly 30% of the untreated municipal wastes or sewage is dropped into the river daily.
- These facts stand as a testimony for the non-judicial and unmindful misuse of the valuable water resource in the city.

CLEANUP DRIVE: A NEED FOR SWACCHATA

Mahatma Gandhi once said "Sanitation is more important than Independence". This very statement shows the great importance of cleanliness over any other from freedom. Cleanliness ensures a sound mind, a healthy body and aesthetic surrounding and an improved workforce and growth.

Yes, it is indeed true that cleanliness ensures the growth of a nation. Many cleanup drives have been taking place in the Cooum river for many years now, but with limited success.

Many spectacular clean up schemes have taken place over the years but we need more such things to be done in order to bring back the river to its original form.

The impeding water scarcity calls for an immediate need for cleaning up the river. The risks of various water borne diseases are high. As reported by the Tamil Nadu Government on public health, a whooping 1.3 Lakh cases of water borne diseases were reported in 2018 and over a 50,000 more cases were reported till June 2019. This calls for an immediate action as the saying goes "Prevention is better than cure"

"EXPLORE, THINK, INITIATE" – A POSSIBLE SOLUTION FROM THE DATA

How ? Where? And Why? Are the three questions that arise while we think about the sad state of our rivers and the alarming scarcity in the quantity of water we have.

Various reasons for the acute shortage in the water resources as cumulated by the recent survey that we conducted was.

1. Over exploitation of water resources and non-judicial use of water.
2. Over population.
3. Pollution in the water bodies rendering it unsafe for any purpose.
4. Excessive accumulation of silt.
5. Untreated wastes and sewage disposal.
6. Encroachment of land among others.

Now that it answers the How? When? And Why? Lets us into the need for conservation of water.

According to our survey conducted among Chennai Dwelling citizen we found out that a whopping 55% of the people relied upon water tankers for their needs.

The average citizen uses above 40 litres of water daily and in some cases, even more than 50 Litres per day. At this state, the depletion of the water resource seems evident and the need for conservation of water arises.

Climatic change plays an important role in this with the shifting of south-east monsoon and the receding of the clouds without much rain and an irregular pattern of delayed monsoons, we need immediate measures for changes on the way we conserve water.

EFFECTIVE WAYS TO CONSERVE WATER FROM FINDINGS

1. **RAINWATER HARVESTING SYSTEMS AT HOME:** Our research says that only half of the surveyed people has a rainwater harvesting plant at home. Hence, there is a need for improvement in this aspect.
2. **AFFORESTATION:** Though this may take time we need to insist on a green society to make the possible changes to the changing environment and climate.
3. **CLEANLINESS:** Cleanliness starts from home. Segregation of waste from source adds to the proper disposal of wastes. Dumping of solid waste into the rivers should be reduced. Strict law enforcement, and cleanliness drives should motivate the citizen to take a better way of living.
4. **TREATMENT OF SEWAGE AND INDUSTRIAL EFFLUENTS:** Untreated sewage should not be disposed off into the rivers. Once this is done the reviving of the river can be achieved to a great extent.
5. **PROHIBITION OF ILLEGAL ENCROACHMENTS:** The people living on the river banks should be relocated elsewhere in the city and illegal real estate business should be stopped.

SUGGESTIONS

- A massive awareness drive should be setup to make people realise the need for conservation of clean water.
- Voluntary cleanliness drives in the locality such as cleaning up a lake or a pond revenging conservation of the rich flora fauna.
- Corporate companies should enforce more of corporate social responsibility (CSR) initiatives to make it part of their work and responsibility to clean up and conserve water.
- Some malls in other cities have made an effective use of all waste water to be used in the flushes. Such initiatives and model of conservation can be taken up to reduce water wastage and costs in various malls and companies.
- Effective use of social media is the need of the hour to promote social awareness through mass online awareness programmes.

"We have once used our share lets save for future generations to come."

CONCLUSION

Easy to say, but hard to stand in it.

From the above study we came to know the past and present situation of water level in Chennai. Being a Metropolitan city facing a water crisis is not a small thing. We are in the verge of saying 'Save Water' but mere saying so will not give any solution. The Government is helping to overcome this water crisis by implementing many cleanup drives. We being a responsible citizen should know the value of water and we should start to save water. Learning to segregate waste, and stopping of waste disposal in lakes and river areas will yield a good result.

Thus, to conclude this study there is a chance for Chennai people to overcome this water shortage if they wake up from their slumberness and analyse the gravity of the situation, and take a step forward towards conserving water for the generations to come. Sustainable use of water is the key factor in determining the solution of the issue that we stare at today. It's not just the responsibility of the Government, and there should be equal participation from the public and the conservation of the water should start at the grass root level. Many companies and individuals need to take this as a corporate social responsibility and individual social responsibility.

"Stop dreaming that there is enough water for the future. Wake up. Conserve!"

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FACTORS ON ADOPTION AND IMPLEMENTATION OF GREEN AND ENVIRONMENT SUSTAINABLE PRACTICES OF HOTEL INDUSTRY: AN ASSESSMENT THROUGH REGRESSION

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ABSTRACT

Green and energy saving practices are in the increasing trend in order to preserve the natural environment and to meet the expectations and desires of green consumers. The purpose of this study is to assess the role of independent factors on adoption and implementation of environmental sustainability practices in the star hotels of Chennai city. Data was collected from participants representing different hotels from Chennai city. The questionnaire is prepared by using standard questions taken from review of literature. The sample is restricted to star hotels only. The results indicated that the recycling, cleaning and energy saving practices are actively establishing environmental sustainability practices. Similarly, Energy Efficiency and Conservation Practices with the co-efficient value of 0.688; Lighting with the co-efficient value of 0.535; Pest Management with the co-efficient value of 0.377; Hazardous and Toxic Substances with the co-efficient value of 0.154 and Water Efficiency and Conservation with the co-efficient value of 0.120 are acted as prime factors influencing the implementation of green and sustainability environmental practices in the hotel industry. This study clearly indicates that the active participation of hotels in the green and environment sustainability practices in the sector.

Keywords: Energy- Lighting- Toxic substances-Conservation-Efficiency.

INTRODUCTION

Environmental sustainability is the prime focused areas of twentieth century among the developed countries and developing countries in the world. The role of usage of renewable energy and non toxic products and consumables are insisted among the industries in the first stage. Food and beverages industry are focused with the advent of mass production and distribution of food and services to the customers in the cities and tourist places. The wastage coming out of hotels are mounting as huge dump and also damaging the environment through toxic substances. This leads to think about the green and environmental practices adoption and implementation among the hotels where huge amount of tourist population if floating throughout the year and high level of hygiene and life style products are used to satisfy the customers. The process of cleaning, preparation of food, lighting, pest control and other ancillary services creates lot of damage to the environment. This has pressured the need for identification of green and environment sustainability practices of hotels and to implement the same for the environment protection.

OBJECTIVE OF THE STUDY

The purpose of this study was to assess the factors of adoption and implementation of green and environmental sustainability practices in the hotel in Chennai city.

RESEARCH METHODOLOGY

The current study is descriptive in nature. The study is conducted among the selected three star and five star hotels in Chennai city. The sample respondents are the executives working in different departments in the sample hotels and involving in the green and sustainable practices implementation in the hotel. The one observation is the level of awareness exists among the employees but the degree of adoption and implementation depends on the support and attitude of the management. The big savings may come next, what initial cots are matters to the management. This attitude is dragging the hotels from the implementation of green and sustainable practices in an effective manner. For the purpose of sample survey, a structured questionnaire is designed and tested through pilot study and the reliability alpha is found at 0.898. The sample size is fixed at 600 by considering the qualitative data lapses. But the large quantity (850) of questionnaires are distributed to respondents and collected through physical visit during Jan-June 2018. On physical verification, it is found that, there are 623 questionnaires as fully filled and error free. And the same is used for analysis. The analysis is done by using the SPSS statistical package version 29.2. The appropriate statistical tests are selected based on the nature of data.

DATA ANALYSIS AND DISCUSSION

In this study, the dependent variable is Adoption of Green and Energy saving Practices, Independent variables is Waste Control Activities, Recycling Practices, Cleaning Activities, and Energy Efficiency Practices and analysis are discussed as follows:

Dependent variable : Adoption of Green and Energy saving Practices (Y)

Independent variables :
1. Recycling Practices (X1)
2. Cleaning Activities (X2)
3. Energy Efficiency Practices (X3)
4. Waste Control Activities (X4)

Multiple R value : 0.780

R Square value : 0.608

F value : 240.359

P value : <0.001**

Table-I: Coefficients (a) Factors of Adoption of Green Practices in Hotels

		Unstandardized Coefficients		Standardized Coefficients	T value	P value
		B	Std. Error	Beta		
1	(Constant)	119.865	7.061		16.975	0.001**
	Recycling Practices	4.449	.284	.440	15.642	0.001**
	Cleaning Activities	3.614	.309	.332	11.709	0.001**
	Energy Efficiency Practices	2.717	.300	.271	9.067	0.001**
	Waste Control Activities	0.038	.283	.004	-.133	0.894

a Dependent Variable: Overall Adoption of GESP

The multiple correlation coefficient is 0.780 measures the degree of relationship between the actual values and the predicted values of the Adoption of Green and energy saving Practices. Because the predicted values are obtained as a linear combination of Recycling Practices (X_1), Cleaning Activities (X_2), Energy Efficiency Practices (X_3) and Waste Control Activities (X_4), the coefficient value of 0.780 indicates that the relationship between Adoption of Green and energy saving Practices and the four independent variables is quite strong and positive. The Coefficient of Determination R-square measures the goodness-of-fit of the estimated Sample Regression Plane (SRP) in terms of the proportion of the variation in the dependent variables explained by the fitted sample regression equation. Thus, the value of R square is 0.608 simply means that about 60.8% of the variation in Adoption of Green and energy saving Practices is explained by the estimated SRP that uses Recycling Practices (X_1), Cleaning Activities (X_2), Energy Efficiency Practices (X_3) and Waste Control Activities (X_4), as the independent variables and R square value is significant at 1 % level.

The multiple regression equation is

$$Y = 119.865 + 4.449X_1 + 3.614X_2 + 2.717X_3 + 0.038X_4$$

Here the coefficient of $\mathbf{X_1}$ is 4.449 represents the high level of effect of recycling practices on Adoption of Green and energy saving Practices in hotels in the sample area, by holding the other variables as constant. The estimated positive sign implies that such effect is positive that Adoption of Green and energy saving Practices in hotels would increase by 4.449 for every unit increase in Recycling Practices and this coefficient value is significant at 1% level.

Here the coefficient of $\mathbf{X_2}$ is 3.614 represents the significant level of effect of Cleaning activities on Adoption of Green and energy saving Practices in hotels in the sample area, by holding the other variables as constant. The estimated positive sign implies that such effect is positive that Adoption of Green and energy saving Practices in hotels would increase by 3.614 for every unit increase in cleaning activities and this coefficient value is significant at 1% level.

Here the coefficient of $\mathbf{X_3}$ is 2.717 represents the considerable level of effect of energy efficiency Practices on Adoption of Green and energy saving Practices in hotels in the sample area, by holding the other variables as constant. The estimated positive sign implies that such effect is positive that Adoption of Green and energy saving Practices in hotels would increase by 2.717 for every unit increase in Energy efficiency practices and this coefficient value is significant at 1% level.

Here the coefficient of $\mathbf{X_4}$ is 0.038 represents the nominal level of effect of waste control Practices on Adoption of Green and energy saving Practices in hotels in the sample area, by holding the other variables as constant. The estimated positive sign implies that such effect is positive that Adoption of Green and energy saving Practices in hotels would increase by 0.038 for every unit increase in waste control practices and this coefficient value is not significant at 5% level.

Based on standardized coefficient, Recycling Practices (X_1) with the co-efficient value of 0.440 indicates as the highly influencing factor in the Adoption of Green and energy saving Practices in hotels, followed by Cleaning Activities (X_2) with the co-efficient value of 0.332 as significant factor, Energy Efficiency Practices (X_3) with the coefficient value of 0.271 indicating the considerable impact and Waste Control Activities (X_4) with the co-efficient value of 0.004 as nominal factor influencing the Adoption of Green and energy saving Practices in hotels in the ample area. On the basis of the same, it is concluded that, recycling practices, cleaning activities and energy efficiency practices are the prime factors influencing the Adoption of Green and energy saving Practices in hotels in the sample area. The reason could be recycling practices saves lot of energy, resources, and pollution impact in terms of production and usage man power in the activities. Similarly, cleaning activities consumes lot of organic and inorganic chemicals and hazardous powerful chemical and gases, which causes lot of environmental pollution to water, air and soil. It is followed by energy efficiency can be a great saving to the nature and natural resources. One unit savings in energy equals to one unit earned in profit. Energy used in hotels for different purposes, can be extracted from renewable sources like solar and wind naturally wit out any pollution. In addition, design of buildings with eco friendly patterns can help in saving lot of energy, which is used for lighting and fresh air in rooms and lobby areas in the hotel. Hence recycling, cleaning, energy management is the prime dimensions affecting the Adoption of Green and energy saving Practices in hotels in the sample area.

Regression-II: Role of Environmental Practices, Energy Efficiency and Conservation Practices, Pest Management, Landscape, Transportation, Lighting, Recycling and Reuse Practices, Hazardous and Toxic Substances, Water Efficiency and Conservation and Purchasing practices on Overall implementation of Green and Energy saving Practices in Hotels in the sample.

In this study, the dependent variable is Overall implementation of Green and Energy saving Practices in Hotels, Independent variables are Environmental Practices, Energy Efficiency and Conservation Practices, Pest Management, Landscape, Transportation, Lighting, Recycling and Reuse Practices, Hazardous and Toxic Substances, Water Efficiency and Conservation and Purchasing practices and analysis are discussed as follows:

Dependent variable : Implementation of Green and Energy saving Practices in hotels (Y)

Independent variables : 1. Environmental Practices (X_1),

2. Recycling and Reuse Practices (X_2)
3. Energy Efficiency and Conservation Practices (X_3)
4. Lighting (X_4)
5. Water Efficiency and Conservation (X_5)
6. Landscape management (X_6)
7. Pest Management (X_7)
8. Hazardous and Toxic Substances (X_8)
9. Transportation (X_9)
10. Purchasing

Multiple R value : 0.742

R Square value : 0.550

F value : 74.975

P value : <0.001**

The multiple correlation coefficient is 0.742 measures the degree of relationship between the actual values and the predicted values of the Implementation of Green and energy saving Practices in hotels. Because the predicted values are obtained as a linear combination of Environmental Practices(X_1), Recycling and Reuse Practices(X_2), Energy Efficiency and Conservation Practices(X_3), Lighting(X_4), Water Efficiency and Conservation(X_5), Landscape management(X_6), Pest Management(X_7), Hazardous and Toxic Substances (X_8), Transportation (X_9) and Purchasing practices(X_{10}), the coefficient value of 0.742 indicates that the relationship between Implementation of Green and energy saving Practices and the ten independent variables is quite strong and positive. The Coefficient of Determination R-square measures the goodness-of-fit of the estimated Sample Regression Plane (SRP) in terms of the proportion of the variation in the dependent variables explained by the fitted sample regression equation. Thus, the value of R square is 0.550 simply means that about 55% of the variation in Implementation of Green and energy saving Practices is explained by the estimated SRP that uses Environmental Practices (X_1), Recycling and Reuse Practices(X_2), Energy Efficiency and Conservation Practices(X_3), Lighting(X_4), Water Efficiency and Conservation(X_5), Landscape management(X_6), Pest Management(X_7), Hazardous and Toxic Substances(X_8), Transportation(X_9) and Purchasing practices(X_{10}), as the independent variables and R square value is significant at 1 % level.

The multiple regression equation is

$$Y = 4.012 + 0.065X_1 + 0.090X_2 + 0.688X_3 + 0.535X_4 + 0.120X_5 + 0.091X_6 + 0.377X_7 + 0.154X_8 + 0.053X_9 + 0.084X_{10}$$

Table-II Coefficients (a) Factors on Implementation of Green Practices

		Unstandardized Coefficients		Standardized Coefficients	T value	P value
		B	Std. Error	Beta		
1	(Constant)	4.012	2.176		1.844	.066
	Environmental Practices (X1)	0.065	.104	0.021	.631	.529
	Recycling and Reuse Practices(X2)	0.090	.043	0.090	2.104	.036*
	Energy Efficiency and Conservation Practices(X3)	0.688	.051	0.475	13.485	.001**
	Lighting(X4)	0.535	.078	0.258	6.847	.001**
	Water Efficiency and Conservation(X5)	0.120	.073	0.071	1.639	.102
	Landscape management(X6)	0.091	.076	0.048	1.203	.229
	Pest Management(X7)	0.377	.071	0.210	5.278	.001**
	Hazardous and Toxic Substances(X8)	0.154	.063	0.101	2.424	.016*
	Transportation(X9)	0.053	.082	0.025	.647	.518
	Purchasing practices(X10)	0.084	.042	0.072	1.994	.047*

a Dependent Variable: Overall Implementation of GESP

Here the coefficient of $\mathbf{X_1}$ is 0.065 represents the nominal level of effect of environmental practices on Implementation of Green and energy saving Practices in hotels in the sample area, by holding the other variables as constant. The estimated positive sign implies that such effect is positive that implementation of Green and energy saving Practices in hotels would increase by 0.065 for every unit increase in environmental Practices and this coefficient value is not significant at 5% level.

Here the coefficient of $\mathbf{X_2}$ is 0.090 represents the significant level of effect of recycle and reuse practices on Implementation of Green and energy saving Practices in hotels in the sample area, by holding the other variables as constant. The estimated positive sign implies that such effect is positive that implementation of Green and energy saving Practices in hotels would increase by 0.090 for every unit increase in recycle and reuse activities and this coefficient value is significant at 1% level.

Here the coefficient of $\mathbf{X_3}$ is 0.688 represents the highly considerable level of effect of Energy Efficiency and Conservation Practices(X_3) on implementation of Green and energy saving Practices in hotels in the sample area, by holding the other variables as constant. The estimated positive sign implies that such effect is positive that implementation of Green and energy saving Practices in hotels would increase by 0.688 for every unit increase in Energy Efficiency and Conservation Practices(X_3) and this coefficient value is significant at 1% level. Here the coefficient of X_4 is 0.535 represents the nominal level of effect of lighting on implementation of Green and energy saving Practices in hotels in the sample area, by holding the other variables as constant. The estimated positive sign implies that such effect is positive that implementation of Green and energy saving Practices in hotels would increase by 0.535 for every unit increase in lighting and this coefficient value is highly significant at 1 % level.

Here the coefficient of $\mathbf{X_5}$ is 0.120 represents the nominal level of effect of Water Efficiency and Conservation(X_5) on implementation of Green and energy saving Practices in hotels in the sample area, by holding the other variables as constant. The estimated positive sign implies that such effect is positive that implementation of Green and energy saving Practices in hotels would increase by 0.120 for every unit increase in Water Efficiency and Conservation(X_5) and this coefficient value is not significant at 5 % level. Here the coefficient of X_6 is 0.091 represents the nominal level of effect of Landscape management(X_6) on implementation of Green and energy saving Practices in hotels in the sample area, by holding the other variables as constant. The estimated positive sign implies that such effect is positive that implementation of Green and energy

saving Practices in hotels would increase by 0.091 for every unit increase in Landscape management(X_6) and this coefficient value is not significant at 5 % level.

Here the coefficient of $\mathbf{X_7}$ is 0.377 represents the considerable level of effect of Pest Management(X_7) on implementation of Green and energy saving Practices in hotels in the sample area, by holding the other variables as constant. The estimated positive sign implies that such effect is positive that implementation of Green and energy saving Practices in hotels would increase by 0.377 for every unit increase in Pest Management(X_7) and this coefficient value is highly significant at 1% level.

Here the coefficient of $\mathbf{X_8}$ is 0.154 represents the considerable level of effect of Hazardous and Toxic Substances(X_8) on implementation of Green and energy saving Practices in hotels in the sample area, by holding the other variables as constant. The estimated positive sign implies that such effect is positive that implementation of Green and energy saving Practices in hotels would increase by 0.154 for every unit increase in Hazardous and Toxic Substances(X_8) and this coefficient value is significant at 5 % level.

Here the coefficient of $\mathbf{X_9}$ is 0.053 represents the nominal level of effect of Transportation(X_9) on implementation of Green and energy saving Practices in hotels in the sample area, by holding the other variables as constant. The estimated positive sign implies that such effect is positive that implementation of Green and energy saving Practices in hotels would increase by 0.053 for every unit increase in Transportation(X_9) and this coefficient value is not significant at 5 % level.

Here the coefficient of $\mathbf{X_{10}}$ is 0.084 represents the nominal level of effect of Purchasing practices(X_{10}) on implementation of Green and energy saving Practices in hotels in the sample area, by holding the other variables as constant. The estimated positive sign implies that such effect is positive that implementation of Green and energy saving Practices in hotels would increase by 0.084 for every unit increase in purchasing practices(X_{10}) and this coefficient value is significant at 5 % level.

Summary and Conclusion

Based on the analysis it is noted that, Energy Efficiency and Conservation Practices with the co-efficient value of 0.688; Lighting with the co-efficient value of 0.535; Pest Management with the co-efficient value of 0.377; Hazardous and Toxic Substances with the co-efficient value of 0.154 and Water Efficiency and Conservation with the co-efficient value of 0.120 are acted as prime factors influencing the implementation of green and sustainability environmental practices in the hotel industry in the sample area. Hence, it is necessary to create more awareness on energy efficiency, nominal level of usage of pest control chemicals and avoiding hazardous chemicals in cleaning processes and to design the building with natural ventilation and lighting can help to improve the green practices. The role of technology in improving the green practices is enhancing day by day and hence, technology adoption could be the second option to improve the green and sustainable practices in hotels. Similarly, the secondary factors influencing green and sustainability environmental practices in the hotel industry are notified as Transportation with the co-efficient value of 0.053; Purchasing practices with the co-efficient value of 0.084; Environmental Practices with the co-efficient value of 0.065; Recycling and Reuse Practices with the co-efficient value of 0.090; Landscape management with the co-efficient value of 0.091 are acting as secondary factors influencing in implementation of green and sustainability environmental practices in the hotel industry in the sample area.

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ROLE OF SWACHH BHARAT IN WATER CONSERVATION THROUGH SOCIAL MEDIA

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ABSTRACT

The main role of Swachh Bharat in water conservation is to conserve water and other water bodies with implementation of different schemes, like "JAL SHAKTI ABHIYAN" which mainly concentrates on major five aspects – water conservation and rainwater harvesting, renovation of traditional and other water bodies, reuse of water and recharging of structures, watershed development, and intensive afforestation. This campaign is mainly focuses on youngsters participation during monsoon which is from July 1 – September 15 in all states and additionally the second phase will take part during October 1 –November 30 in the northeast states retreating monsoon. In this we are heading towards how social media helped swachh bharat in water conservation by letting every youngsters and other via social media and the additional benefits of swachh bharat in water conservation.

Keywords: Jal Sakthi, Schemes, Abhiyan, Youngsters participation.

INTRODUCTION

Jal Shakti Abhiyan, a campaign for water conservation and water security. The campaign will run through citizen participation during the monsoon season, from 1st July, 2019 to 15th September, 2019. An additional Phase 2 will be run from 1st October, 2019 to 30th November, 2019 for States receiving the North East retreating monsoons. The focus of the campaign will be on water stressed districts and blocks.

The Prime Minister discovered ideas, traditional ancient knowledge, initiatives undertaken on a regular basis, successful stories and films made on water conservation from common citizens, celebrities and NGOs for creating awareness on Jal Shakti Abhiyan. while Addressing the media the Jal Shakti Minister in New Delhi, said that the government aims at providing drinking water to every household on priority basis and in a sustainable manner. The Jal Shakti Abhiyan Minister said that the Jal Shakti Abhiyan should bring positive change among people for water conservation. Mentioning the impact of Prime Miniter's recent letter to more than 2.3 lakh Sarpanches, the Minister said that it will help people to work for rain water harvesting, maintenance and upkeep of ponds, village tanks and conservation of water. The Union Minister invited the media to actively participate in these efforts.

A large-scale communications campaign has also been planned alongside the Jal Shakti Abhiyan involving mass mobilisation of different groups including school

students, college students, swachhagrahis, Self Help Groups, Panchayati Raj Institution members, youth groups (NSS National Service Scheme /NYKS Nehru Yuva Kendra Sangathan /NCC National Cadet Corps), defence personnel, ex-servicemen and pensioners, among various others with the help of social media, word of mouth, news ,and much more.

Social media helps a person to interacts with messages, posts , videos to their social network friends, in other ways it is possible through the reportage and articles of other traditional media. Through direct interaction, one gets to know things which media persons cannot report. In reference to the campaign, Shri Narendra Modi has said that he is very happy to see huge number of articles, TV features, and social media write-ups about Jal Shakti Abhiyan, giving the mission a wide publicity so that it has a worldwide reach through networking." Media has converted its pen into a broom.

Social media has motivated people to take part in the campaign, says Shri Modi. Several of the young journalists who had joined him had taken selfies with our Honorable Prime Minister and posted them on social media, so that the youngsters may get to know about the campaign which is going across the nation for better future for their upcoming generations. This helps to save water bodies, rain water harvesting, reuse of water and intensive afforestation.

OBJECTIVES

- To explain the role of Swachh Bharat in water conservation
- How social media helps Swachh Bharat in water conservation
- To create an awareness on water conservation through social media and other communicating methods

Research Methodology

In this research, we use descriptive methodology for finding and collecting the data as well.

FINDINGS

On 24th June 2019 Jal Shakti Abhiyan Minister, Shri Gajendra Singh Shekhawat, today stressed the need to launch a huge janandolan for water conservation along lines of the Swachh Bharat Mission to address agricultural, industrial and domestic water issues for both rural and area people. The Minister said, “Years before today, nobody would have believed that the sanitation coverage of India would reach the 100% mark by 2019. Today, within 4 1/2 years from the launch of Swachh Bharat Mission, this figure has rapidly increased from 39% to 99%. I express mysincere gratitude to each one of you who have contributed to this janandolan and have made India a role model for the rest of the world.”

During our childhood days we have heard that there was no means of fast communication in earlier times so the happenings or the news of a place would not reach everyone. But, over time, the means of communication has become easier and faster, with a wider reach. The current & upcoming genration is commonly referred to as the computer age, where there is a lot means of communication like the Televisions, internet, newspapers, radio, mobile phones, ipads, tablets, workpad, etc. We vagely hear the news from far-off places almost instantaneously. Further, social media allows each person to share the messages within their social circles instantly for e.g: a viral reach that conventional media could never achieve like wise water crisis in many states in India. In this situation social media helps to grab everyones attention by sharing this information in the social media and it becomes a viral among the youngsters so that, there will be an awareness program among people both in rural and urban areas.

According to rapid growth of technology now-a-days everything has become easy and anything can done with short span of time, for e.g: a group of people invented an application called “SOLVE NINJA” which is useful for government for cleaning the city by just clicking a picture and sharing that in the issues reported column in that application , so that the concern people from government will make sure that place is cleaned with in a span of time given ,and also this application helps to create awareness campaigns and programs also, likewise there are application which helps you out for share such useful information and other social medias like facebook, twitter, whatsapp and much more…

Preparation and execution of public awareness campaigns requires a multidisciplinary team, including water experts, and social marketing, communication and outreach and education professionals.

A thorough analysis of local public water systems and consumer habits is typically undertaken (often using household surveys) to identify potential water savings and primary targets for consumer behaviour patterns. This includes identification of main target groups for awareness campaigns, for example local water utility companies, households, workplaces, large businesses,

etc. Campaigns can also establish water conservation goals to facilitate tracking of progress and achievement of objectives. Critical components of planning and executing a campaign include communication protocols and materials organization and production, and establishment of partnerships with media, schools, local NGOs, etc., for effective dissemination.

Environmental Benefits

- Reduces end water-use, in turn reducing pressures on water utilities, local freshwater sources and the environment.
- Requires less energy for abstraction, transport and treatment, mitigating greenhouse gas emissions.
- Socioeconomic Benefits.
- Reduces water costs for utilities and end users.

The upgradation of new application softwares proves that technology and social media can be effectively leveraged to spread awareness and help implement a campaign of the enormous scale of Swachh Bharat action plan like(JalShakthiabhiyan) a specialized campaign for water conservation.

This statistic displays the results of a survey regarding the public opinion on the improvement of cleanliness of cities due to the Swachh Bharat Mission following the 2014 general elections as of May 2018. During the measured time, around 43 percent of respondents stated that they believed their city had become cleaner due to the Swachh Bharat Mission as of the fourth year of the Modi ministry being in power

	Yes	No	Can't say
2015	61%	39%	0%
2016	35%	57%	8%
2017	43%	51%	6%

Steps to make awareness campaign for water conservation for future

The following are the list of items which we need to prepare for water conservation.

For future

- With the help of social media and other media everyone should get to know about the JalShakthiabhiyan
- Like wise we have to do more number of campaigns among the country like state wise
- Proper storage of water storage system
- Write an executive summary
- Do a social media audit
- Zero in on social media objectives

CONCLUSION

As far I have seen from the starting social media and swachhbharat has played important role in development and exploring the SwachhbharatJalshakthiabhiyan and its plans and its execution. The social media is a key component for swachhbharat which allowed the information to every corner of the world in less than a second. This study is all about how swachhbharat helped water conservation with the help of social media and how it has helped Swachh BharatJalShakthiAbhiyan by spreading information and inspiration among youngsters, to urge them to join the campaign to conserve water for now as well as future also for rural areas and urban areas of India.

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GREEN MARKETING - GASSING ON CONSUMER CONFINEMENT IN GREEN PRODUCTS

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ABSTRACT

Environmental issue is a sizzling nowadays as almost every country's government and society has started to be more aware about these issues. This leads to a trend of green marketing used by the firm. The consumers' concerns about the environmental protection have led to the diversification in consumer purchasing approach towards green products. According to the American Marketing Association, green marketing is the marketing of products that are presumed to be environmentally safe. Green marketing and green product development are useful techniques that are used by organization to increase competitive advantages and stand a chance of gaining the satisfaction of consumers in order to achieve the firm's objective. Green marketing and green product consumer confinement have various benefits to firms in terms of increasing the sustainable environmental benefits and consumer confinement and to increase the awareness of brand image of the firm to consider about the bio-degrable products. This study focuses about the concept of green marketing and green product consumer confinement, the different consumer consumption in regards to green marketing and green product consuming, and finally examines the problems that firms have faced when they have failed to implement green marketing and green product consumer confinement.

Keywords: Green marketing, Green product consumer confinement, Environment.

INTRODUCTION

The beginning of the 1980s, there have been ecological issues such as global warming, the greenhouse effect, pollution, and climate changes which are directly related to industrial manufacturing and this will continue to affect human's activities. Due to the increase of environmentalism which has dominated the world, there has been a raise in consumer concern with regards to environmental protection and great demand for green products. Hence, most firms have begun to use the green marketing and green product development strategies that can preserve the environment while satisfying consumers' preferences in order to make long term profits in businesses. Before such ideas came in to use, many firms were using green marketing as a sub form of their marketing structure as well as trying to develop green products that could help with the growing environmental problems. There are organizations implementing strategies which aim to solve ecological issues and build up the long term interest toward consumers. The advantages of green marketing and green product development, the relationship between green marketing and green product development towards the consumers buying approach and the problems are included in this research paper.

Characteristics of Green Products

- Products those are originally grown.
- Products those are recyclable, reusable and biodegradable.
- Products with natural ingredients.
- Products containing recycled contents and nontoxic chemical.
- Products contents under approved chemicals.
- Products that do not harm or pollute the environment.
- Products that will not be tested on animals.
- Products that have eco-friendly packaging i.e., reusable, refillable containers, etc.

Green Product Development The efficient green product development played an important role in the green marketing strategy. It can help the firms and economies move swiftly towards a sustainable environment. Green product development emphasizes "end of pipe technology" where the firms are aware of ecological issues through process of production and product design (Chen, 1994). In particular, Chen (2001) discovered that the product designed to minimize the use of non-renewable resource, avoiding toxic materials, and renewable resource during its whole life-cycle would be the most effective manner to display green technological development. Most firms acknowledged integrating environmental laws and regulations such as Registration, Evaluation and Limitation of chemical substances into the process of green product development; hence it can reduce the hazardous risk to the environment while satisfying the consumers' expectation on green consumption

Green Consumer

The green consumer is typically known as one who support eco-friendly attitudes and/or who purchases green products over the standard alternatives (Boztepe, 2012).

Green Marketing and Sustainable Development

The American Marketing Association (AMA) defines green marketing as marketing of products that are believed to be environment-friendly, which organizes into various activities such as product adjustment, modification of production processes, packaging, labelling, advertising strategies as well as increases awareness on compliance marketing amongst industries (Yazdanifard, 2011).

The Relationship between Green Marketing and Consumer Purchasing Behaviour

There are 30% of consumers stated that green products must be energy-efficient, aid in water conservation, be safe in regards to the environment during the process of manufacture, use and disposal. The hazardous content of a product may affect the consumers' purchasing decisions; hence the manufacturers tend to produce the products which are eco-friendly to satisfy the demand of green consumers. There are international firms that use green marketing to produced hybrid cars that purposely aim to balance the demand of the firm's revenues with the firm' responsibility to reduce the environmental impacts of pollution. For instance, Toyota produces Prius which offers several desirable benefits for consumers and the natural environment (Halbright & Dunn, 2010).

The Relationship between Green Product Development and Consumer Purchasing Behaviour

Fujitsu Group established recycling technology that used biodegradable plastic integrated in notebook computers. Fujitsu's notebook computers promote energy-efficiency and it has fulfilled the consumers' needs and wants by supplying a computer that covers all aspects of consumer criteria ("Green Products", 2014).

Problems While Going Green

There are firms who apply green marketing to achieve their mission and vision, but there are a number of firms who fail to implement green marketing successfully, whereby the marketers did not structure the green marketing strategy appropriately that caused potential problems to arise. Therefore, the firms should obey the laws and regulation according to FTC's guidelines in order to not mislead any consumers or industry members (Chowdhury & Dasani, 2013).

Objectives of the Study

- To know the evaluation of green marketing
- To know Relationship between Green Marketing and Consumer Purchasing Behaviour
- To know Relationship between Green Product Development and Consumer Purchasing Behaviour

Research Methodology /Design: researcher has used descriptive research design, from the total population the sample size has taken as 45 respondents. Convenience sampling technique has been used, for the data collection the questionnaire has used as the primary data and the secondary data has been observed from books and journals.

Review of Literature

Merilanen, S. ,Moisander, J. & Personen, S. (2000), The Masculine Mindset of Environmental Management and Green Marketing. Business Strategy and the Environment, 9(3), pp. 151-162. Environmental management systems and green marketing programmes have gained increasing popularity in western market economies. They are viewed as cost-efficient, effective and just means of tackling problems associated with the impact of economic activity on the environment. It is argued in this article, however, that these optimistic views are based on a number of ideas, images and metaphors that retain many and centric and inadequate assumptions about self, society and nature that may be incompatible with long-term environmental protection goals.

Sammer & Wustenhagen, (2006), One of the important elements of green product development is the promotion of eco-labels on the products. Eco labeling is an effective tool which can provide the information on two main functions which is the information function that addresses the quality characteristics of the tangible product and the value function which provides the corporate environmental image of the firm .

Chandra, (2009), the price of a product must be varies to the personal income of the consumer. Most of the firms are using low price strategies to encourage the consumers to buy eco-friendly products. In this situation, the firms create a competitive advantage in the marketplace in order to increase the business growth. If the price of a product is higher; the firms have to differentiate the value of the premium product in the terms of quality, specification and appearance Starbucks is a global firm that is selling at a premium and ethically sources its products which shows they are committed to being environmentally responsible, as well as minimizing the environmental footprints by reducing material waste and building green and energy-efficient stores ("Global", 2014).

Rajeshkumar, (2012), Green Marketing is the most latest and popular trend market which facilitated for the environment-friendly in individual, animal and planet. Due to increase in climate change and global warming, the public concern for environmental problems is continuously increased over the past decades. The businesses and consumers have started to challenge eco-friendly products as they become more concerned on the environment, health and wealth in order to protect the earth's resources and the environment.

Analysis of Primary Data

PROFILE OF THE RESPONDENTS			
Particulars		**No. of the Respondent**	**% of the respondent**
Age of the respondent	Up to 25yrs	3	7
	25 - 35yrs	10	22
	35 - 45yrs	12	26
	45 - 55yrs	11	25
	Above 55 years	9	20
	Total	**45**	**100**
Monthly income of the respondent	Below Rs.10000	2	4
	10001 - 20000	7	16
	20001 - 30000	5	11
	Above30000	31	69
	Total	**45**	**100**

PROFILE OF THE RESPONDENTS			
Particulars		**No. of the Respondent**	**% of the respondent**
Awareness about the green Market	Yes	13	29
	No	32	71
	Total	**45**	**100**
Sources of information about the green products	Friends and Relatives	13	29
	Newspaper and Magazines	17	38
	Television and Radio	9	20
	others sources	6	13
	Total	**45**	**100**
Amount spend for a month for purchasing the green products	Below 500	11	24
	500 -750	13	29
	750 - 1000	6	13
	1000 - 1250	3	7
	above 1250	12	27
	Total	**45**	**100**
Nature of green products purchased in a month	Organic Food items like Vegetables, Rice, Fruits etc.	16	36
	Cosmetics (Soap, Shampoo, etc.)	19	42
	Toiletries	5	11
	Electrical/Paints	3	7
	Others	2	4
	Total	**45**	**100**

Testing of Hypotheses

- There is no significant relationship between the Age group and Awareness about the green products.
- There is no significant relationship between the age group and purchasing of green products.
- There is no significant relationship between the Income and amount spend for a month for purchasing the green products.

Factors		**Method**	**Calculated value**	**Table value(5% level significance)**	**Result**
Age group	Awareness about the green products	Chi-Square	2.34	5.991	H0:Rejected
Age group	Purchasing of green products.	correlation	0.8	Positively correlated	H0:Rejected
Income	Amount spend for a month for purchasing the green products	Correlation	0.9	Highly positively correlated	H0:Rejected

Findings

The findings of the study were summarizes and presented.

- There is a significant relationship between the Age group and Awareness about the green products
- There is a significant relationship between the Age group and purchasing of green products.
- There is a significant relationship between the Income and amount spend for a month for purchasing the green products

CONCLUSION

The current low levels of consumer awareness about global warming, environmental pollution the Government of India, manufacturers, and retailers need to help raise consumer consciousness. Indian manufacturers have yet to find a market for green products, even as consumers have a low awareness of them because of the insufficient efforts made by the marketers. The opinion of the retailers is green products are liked by consumers but because of poor awareness and high prices have not been fully adopted by them. As far as consumers are concerned the awareness level is increasing and has started implementing them in their normal life. Therefore, green marketing is a tool now used by many companies to increase their competitive advantage as people is presently very concerned about environmental issues. In the time applying green marketing, the companies have to comply with the consumers' needs and wants. Consumers want to recognize themselves with companies that are green compliant and are willing to pay more for a greener life style.

SUGGESTIONS

- More green products should be offered to the retailer, and then they can sell green products to the consumers.
- Retail store has to create the database of the regular purchaser of the green products and maintain good consumer relationship to confine the customer.
- Word of mouth and internet source like (social networks face book, what's app) play a vital role in promoting the awareness about the green products and the advantages of green products. The advertisement should be modified and explain in detail about the green products and then it will reach the consumers.
- Government can made necessary steps for creating the awareness about the benefit of green products.

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THE ROLE OF GOVERNMENT POLICIES IN SWACHH BHARAT

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ABSTRACT

Role of government policies have been really a boon for our country and this initiative has inspired a lot of people in our country. Swachh Bharat campaign has been a significant cleanliness campaign by government of India as it has left an impact on the crowd and successfully made it a mass movement. Mr. Modi led a cleanliness pledge at India Gate, which about thirty lakh government employees across the country joined. He also flagged off a walkathon at Rajpath and surprised people by joining in not just for a token few steps, but marching with the participants for a long way. This program also includes elimination of open defecation, conversion of unsanitary toilets to pour flush toilets, eradication of manual scavenging, etc.

Keywords: Government Policies, Swachh bharat, Social, economical, Political.

INTRODUCTION

The history of India reveals that before independence, India was ruled by many external forces, which worsens the condition of the country; since they ruled here merely for their benefits and plundered the country to make themselves more powerful. They not only plundered it but also tried to ruin the splendor and culture of the country.

After winning its independence in 1947, the ruling governments and the people living in the country have not given any attention to cleanliness. You must have noticed the littering of garbage here and there in every nook and corner of the country. This not only has hampered the development but also has given a decrease in the number of tourists to visit in the country that promotes the economy of the country. Many great men had dreamt and tried to make the country neat and clean but they could not succeed in their mission.

This mission aims to cover 2 crore homes , provide 2.7 crore community toilets, and a solid management facility in each town. The prime minister himself has come ahead to lead this movement and helped spread the message of swachh bharat by requesting people to make the most out of it. he was consolidated by a large no of people who cooperated in the swachh bharat abhiyan. Stating the significance of cleanliness also addressed the health and sanitation problems that people have to face without proper facilities

Objective

The objective of this paper is to look upon the government policies regarding SWCHH BHARAT ABHIYAN and effects offset policies on the country and its citizens on social, economic, and political factors. It also looks after the living conditions in the nation and the ranking it holds on the international level.

METHODOLOGY

The sources referenced for this paper are the various official publications by the government of India on the Swachh Bharat campaign. The paper also looks at various other studies in the field for statistics and numerals suggest best magazines and news outlets , Global reporting initiative, as well as publicly disclosed information online.

REVIEW OF LITERATURE

"A clean India would be the best tribute India could pay to Mahatma Gandhi on his 150 birth anniversary in 2019," (Modi, 2019)

"Gandhiji believed cleanliness next only to Godliness, let's pledge today 2 convert cleanliness into a national passion." (Mukherjee, 2014)

"The central government can assist to take further steps on grass root development in the rural sector and focus on appropriate measures to accommodate the needs of the poor in rural areas" (Bellampalli, 2017)

FINDINGS

"We reached Mars. No PM or Minister went. It was the people who did it, our scientists who did it. So can't we create a Clean India?" (Modi, 2014)

SWACHH BAHRAT ABHIYAN which was kicked off by prime minister himself at memorial of the father of our nation late Mr. Mohan Das Karamchand Gandhi on 2nd of October 2014. It was basically a 5 year campaign which is scheduled to be complete on the 2nd of October 2019 on 150th birth anniversary of Gandhiji.

Swachh Bharat Mission in urban areas is focused on building individual toilets, community toilets and solid waste management. In rural areas, the emphasis is on behavioral change intervention including interpersonal communication, strengthening implementation and delivery mechanisms down to the Gram Panchayat level, and giving States flexibility to design delivery mechanisms that take into account local cultures, practices, sensibilities and demands. The incentive for building toilet has been increased by Rs.2000 from Rs.10000 to Rs.12000. Funds are also provided for Solid and Liquid Waste Management (SLWM) in Gram Panchayats.

In the 5 year plan of swachh bharat abhiyan the main objective were

1) The major objective of this campaign is that each and every corner of the country should be clean and tidy.
2) People should be prevented from defecating in the open.
3) Toilets should be constructed in every city and rural areas of India.
4) Every lane and street in the town and village should be clean.
5) At least one garbage vessel must be installed in every street and disposal of waste from them at a regular interval.
6) Construction of about 11 crore 11 lakh individual, group toilets, which will cost 1 lakh 34 thousand crores.
7) Changing the mindset of the people by teaching proper hygiene benefits.
8) To promote toilet use and initiate public awareness.
9) By ensuring water supply in all houses, pipelines should be installed in villages by 2019 so that cleanliness is maintained.
10) Ensuring good management of solid and liquid waste through Gram Panchayat and municipalities.
11) Keeping roads, pavements and settlements clean.
12) To create awareness about tidiness through cleanliness.

As we can see the main motive of these objectives are to make india an open defecation free country (ODF) and rural development like ensuring basic utilities such as clean water supply, solid and liquid waste management in each and every individual households. For this the government distributed the tasks to different ministries and other government and non-governmental organisations..

1) Ministry of Urban Development

- Construction of 66.42 Lakh individual household toilets (IHHL);
- Construction of 2.52 lakh community toilet (CT) seats;
- Construction of 2.56 lakh public toilet (PT) seats; and
- Achieving 100% door-to-door collection and scientific management of municipal solid waste (MSW).

To ensure a continuous engagement and higher awareness among the citizens, a participatory approach for implementation of the Swachh Bharat Mission is being planned in form of theme-based

Cleanliness drives on regular intervals, which are specific to a sector. Theme-based interventions are conducted, targeting core city spaces and areas. Depending upon the specific theme, relevant government departments and entities are engaged to facilitate the implementation of the drives and participation by relevant stakeholders.

2) State Governments

Every state has worked efficiently in guidance of central government and has ensured their liabilities towards the people of their respective states.

3) Ministry of Rural Development

The Department of rural development manages the rural component of the mission – Swachh Bharat Mission Grameen (SBM-G), and is the coordinating department for the overall SBM. Since the launch of the SBM, India's rural sanitation coverage has increased from 39% in 2014 to over 99% as of June 2019, and the Mission is on track to achieve its goal of an ODF India by 2019. Going forward, the SBM will focus on moving from ODF to ODF Plus, through a focus on ODF sustainability and Solid Liquid Waste Management under four major verticals: Greywater management, plastic waste management, bio-degradable solid waste management and faecal sludge management.

4) Ministry of Drinking Water and Sanitation

The Department of Drinking Water and Sanitation provides technical and financial assistance to the States to provide safe and adequate drinking water to rural India. The Department's Centrally Sponsored Scheme, the National Rural Drinking Water Programme (NRDWP), currently focuses on providing access to drinking water to India's rural population. The Department is committed to providing household piped water supply to all rural households by 2024 with a focus on small scale, community managed schemes groundwater schemes wherever possible, with emphasis on source sustainability through groundwater recharge and wastewater reuse.

5) NGOs

Various non government organisations have ensured the participation of the people in Swachh Bharat Abhiyan and can put pressure on the urban local bodies to act accordingly. They have made regular visits to schools to teach the children the basic importance of cleanliness in their life. By door to door campaign, the members of NGOs have conveyed the message of the government on cleanliness in very simple and can convince the people to keep their surroundings clean that will increase the health condition of the people.

CONCLUSION

Swachh Bharat Abhiyan has become a 'Jan Andolan' receiving tremendous support from the people. Citizens too have turned out in large numbers and pledged for a neat and cleaner India. Taking the broom to sweep the streets, cleaning up the garbage, focussing on sanitation and maintaining a hygienic environment have become a practice after the launch of the Swachh Bharat Abhiyan. People have started to take part and are helping spread the message of 'Cleanliness is next to Godliness.

It has seen tremendous support from the public as well as celebrities and that too with a great participation which inspired common populous to take part in this mission to not only complete the objectives but achieve the previously set goals.

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RECOURSE OF TECHNOLOGY BY OPTIMUM UTILIZATION OF WASTE IN THE MISSION OF SWACHH BHARAT

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ABSTRACT

The evolution of technology is driving forces for increased profitability and improving the efficiency of the waste accumulated in the process of cleaning. From generating less waste, introducing green practices and awareness through the various technological platforms helps to derive the potential of two segments i.e., technology and cleaner India. This research paper focuses on the study of the application of available technology in the right places to potentially use the waste generated and collected to the maximum in the existing processes followed in India. The study is conducted correlational methodology consisting of exploratory research in aspects of Swachh Bharat and descriptive research in aspects of the technological point of view. The limitation of the research is that the waste collection and the processes are studied concerning Chennai, Tamil Nadu as different states in India have different collection centers and processes which are similar in nature but different in aspects of ergonomics.

Keywords: Technology, Cleaner India, Cleanliness, Optimum Usage.

INTRODUCTION

With fast urbanisation, our country is facing massive waste management task. Over 377 million city people live in 4,000 cities and towns and generate 62 million tonnes of municipal stable waste in line with annum. Only forty-three million tonnes (MT) of the waste is accumulated, eleven.9 MT is handled, and 31 MT is dumped in landfill websites. Solid Waste Management (SWM) is one among the simple essential offerings provided by using municipal authorities inside the use of a to hold urban centres easy. However, nearly all municipal authorities deposit stable waste at a dump yard within or outside the metropolis haphazardly. Experts agree with that India is following an improper machine of waste disposal and control (Badra, S Sharma Management, 2015)

There has been technological spread for processing, treatment and disposal of solid waste management. Energy-from-waste is a crucial element of SWM as it reduces the quantity of waste from disposal also allows in converting the waste into renewable power and organic manure. Ideally, it falls within the drift chart after segregation, series, recycling and earlier than attending to the land fill. But many wastes to energy flora in India are not working to their full potential (Dash, Dipak, 2016)

To attain the goal of cleanliness, the technologies to deal with the waste fabric should additionally be developed together with creating focus. There are many technologies which are used to deal with waste material. They are generally very luxurious, very complex to be understood and feasible best for huge length devices. At the same time, indigenous technologies are low

price capital and clean to apply and that they also can be utilized by distinct size devices. In India, they are especially suitable for the small and medium units (OneIndia, 2014)

REFUSE DERIVED FUEL: AN DEVELOPING PROCESSING TECHNOLOGY IN MSWM

Refuse Derived Fuel (RDF) is a processed form of Municipal Solid Waste (MSW) and it is expected to be the right substitute to coal energy. The process of conversion of garbage into fuel pellets involves a series of task process such as drying, separation of incombustible, size reduction and palletisation. The Bhabha Atomic Research Centre (BARC) is playing a pivotal role in the development of these technologies. Some of these technologies are as follows:

Indigenous Water Purification Technologies

This technology can improve the consuming water excellent of smaller villages in addition to larger towns. It uses the Pressure Driven Membrane Processes that are suitable for all capacity units e.g. they are adaptable from domestic unit or community level unit to large scale unit. Water purification technologies can be effectively used of the nuclear energy and solar energy also (PIB, 2015)

Environment Friendly Plasma Technologies

Solid waste dumping or landfill sites usually are in greater quantity of land which is not available inside the city limits. Incineration of waste pollutes the surroundings if the incinerators are not designed or operated properly. Thermal Plasma Technology is perfectly suited for waste treatment. By plasma technology hazardous & toxic compounds are broken down to elemental ingredients at excessive temperatures. Inorganic substances are converted to vitrified mass; and Organic substances are Pyrolyzed or Gasified, transformed to flue gases (H2 & CO) & Lower hydrocarbon gases whilst operated at low temperature (500 – 600OC). Disposal of carcass is also being notion of the usage of plasma pyrolysis (PIB, 2015)

Unique Multi Stage Biological Treatment Solution

Multi Stage Biological Treatment Solution (MSBT) can be implemented on already operation sewage treatment plants which may be operational or not able to process sewage to optimum efficiency. Multi Stage Biological sewage treatment solution can be executed as a modular or container on the banks of water bodies which discharge waste water to the river. It can also be implanted in communities and societies in urban area as well as in the housing complexes for efficient water management (Dash, Dipak, 2016)

Benefits of MSBT are:

- No excess of organic sludge
- Minimizing electromechanical component
- No odour problem
- Reduction of electrical power usage thereby
- Reducing operating costs
- No need for return sludge pumping which ultimately
- Reduces operating cost

Role of Environmental Isotope Techniques

There are two form of isotopes, solid isotopes and radioactive isotopes. Isotope techniques are used to discover the type of infection in surface water and ground water, the resources and origin of contamination, pollutant dispersion in floor water bodies, to assess the ground water salinity, to assess the modifications due to long-term exploitation of groundwater, for hydro-chemical research and to perform geochemical evolution of ground water. (ENVIS, 2016)

The BARC UF Membrane Technology for Domestic Water Purifiers

Water filters manufactured through Sondhka primarily based on membrane based totally water Purification Technology has been evolved with the aid of BARC. Benefits of BARC Polysulfone Membrane are high tech 0.02micron or 20nm, easy shape thing, rugged (lifestyles of extra than 1 yr.) and low preservation (about Rs.500 according to yr.). It is very clean to apply and low-price answer for the water contamination (ENVIS, 2016)

Deployment of Domestic Water Purifier in Rural Area

Rural Human & Resource Development Facility is distributing BARC technologies, particularly Nisargruna Biogas, Soil Organic Carbon Testing Kit, Seed Bank, Domestic Water Purifier, Weather Forecasting, LLL, RIA, FSD, VTD; under the AKRUTI (Advance Knowledge of Rural Technology Implementation)

Program. There are several activities done below the AKRUTI software are surveys for safe ingesting water, Interaction with the villagers, Entrepreneurship improvement for domestic water cleaner production and Awareness programs for benefits of the usage of purified water. RHRDF has additionally released a scheme for safe consuming water for village under CSR (PIBS, 2015)

Radiation Hygienization of Municipal Sewage Sludge

The Sewage is the waste water generated from domestic premises and consists specially of human waste. It usually incorporates 99.9% water and approximately 0.1% solid. The solid waste in sewage is typically natural in nature and is broken down within the sewage remedy plant life ensuing in sewage sludge as a by-product. In Radiation Hygienization method dry sludge generated at STP's is hygienized using radiation generation using preferred Gamma facility at a Dose of 10 kgs. Such radiation plant life is operating in India for sterilizing medical merchandise (ENVIS, 2016)

Waste Collection and Disposal in Chennai

Primary Collection

- Sweeping, collecting, and storing the collected waste from different locations in the specified bins.
- Door-step collection of garbage
- Source separated waste collection is done from the households by Tricycles or Light Motor Vehicles
- The bio degradable waste is being sent to dispersed waste processing facilities for further processing
- Dry waste is being collected every Wednesday for recycle purpose and remaining waste to transfer Stations/dump sites.(Chennai Corporation)

Secondary Collection: (Transportation)

- Street collection to disposal site.
- Transportation to disposal site from transfer station.
- Assigned Route schedules for each and every vehicle for each trip.
- No. of Trips
- Heavy Vehicles 2 trips per day.
- Light Vehicles 4 trips per day. (Chennai Municipal Corporation)

Generation	
Per capita Generation per day	650 gms
Estimated Generation of Solid Waste Per day	Garbage 5400 MTs. Construction and Demolition Waste - 700 MTs

Table 1 : Waste Generation in Chennai

Source: Chennai Corpo

OBJECTIVES

This research paper focuses on the following objectives

- To relate the existing use of technology in various cleaning and waste usage processes
- To illustrate the amount of waste generated and post collection processes in Chennai
- To identify the potential areas of waste utilization to the maximum in the mission Swachh Bharat

METHODOLOGY

The research was conducted in the correlational method based on two variables technology, waste management and utilization. The existing availability of the technology was assessed by the exploratory method and the descriptive method was used to study the waste management and the processes used by the corporations after the collection at different places.

REVIEW OF LITERATURE

India generates close to 60 million tonnes of garbage every day and of this, around 45 to 50 million tonnes is left untreated. The metros themselves generate 10 million tonnes of waste daily. By 2040, urban India alone would be generating close to 170 million tonnes of garbage daily. India's sewerage system is among the poorest in the world. Throwing of household garbage on the streets is not unusual. Open defecation remains a part of rural life in India, as millions of houses are yet to build toilets. Spitting and urinating in the open, unmindful of the defacement it causes, is ordinary practice for millions. Much of these actions add to growing filthiness, cause illness and make the country sicker. Avoidance of these actions can make India a clean place to live, decrease diseases and hugely reduce the treatment burden on the economy (Dr. Pitabas Pradhan, 2017)

In regard for proper waste management through the waste collected during Swachh Bharat, a National workshop on Indigenous water, Wastewater and Solid

Waste Treatment Technologies was organised via the Department of Atomic Energy (DAE) in January 2015 at Gujarat Technological University (GTU) in Ahmadabad. The main core objective of the workshop aims at becoming to distribute available technology of water, wastewater and strong waste remedy developed through the Bhabha Atomic Research Centre (BARC) under "Swachh Bharat Abhiyan" and to bridge gap between the studies at the studies centres and the functional software of the technology.(ISRO, 2019)

Initiatives like Swastha Bharat, Digital India, Smart Cities and Swachh Bharat Abhiyan were addressed by. Dr Krishnaswamy Vijay Raghavan, Secretary Department of Bio-Technology said that role of science and technology in the conference about technology and the Clean India campaign has strengthened Prime Minister Narendra Modi's initiative for open defecation free India, Swachh Bharat Abhiyan. Also, Mr. Vijay Raghavan focussed on the need of having waste-to-energy plants and mentioned that many companies have started to reuse their waste to generate energy. Not to miss, that many oil manufacturing companies are taking up the waste-to-energy projects in collaboration with the government. (Economic Times, 2015)

DATA COLLECTION

For the purposes of this research, in primary and secondary data collection were used.

a) Primary Data Sources: Government Publications and websites

b) Secondary Data Sources: Newspapers, Magazines, Online Publication and blogging website

FINDINGS

1. *Spreading Swachhagrahi Through Swachhta App*

This application is developed by Ministry of Urban Development is user friendly with simple GUI Graphical User Interface, to register a complaint, every user needs to do is capture the image, mention the location with complete address and near landmark or share location and submit the complaint. All the complaints received are addressed and a set timeline for the authorities to act on. A local body is already allotted to attend any issue like arrival of garbage vehicle within 12 hours, dead animals within time limit of 48 hours and garbage dumping in 12 hours. Apart from this national application, many cities and civic authorities have come out with their own App within their area of reach to address the civic issues on priority (NDTV, 2017).

2. *The Swachhta Helpline*

This helpline basically focuses to address the popular problems faced in almost every city in India such as

- Garbage collection vehicles show up in the location at the right time
- Waste bins in your locality cleaned regularly
- All this Swachh Bharat related complaints can now be addressed

All these issues can be addressed through just one simple number and is termed as Swachhta Helpline: 1969. This helpline is reachable by all the citizens of the country either from urban or rural part of the country (NDTV, 2017).

3. *Locate A Toilet Through Apps*

Google toilet locator and Find X Toilet are few of the applications that help the user locate the nearby loo. Google toilet locator data is live in capital of the country, New Delhi and Madhya Pradesh whereas Find X Toilet is exclusively for the people of New Delhi. But either otherwise also, the google maps enables to locate the nearest restrooms available (NDTV, 2017).

4. *Real Time Monitoring for Toilet Construction and its Usage*

A process conducted by the local bodies or local non-governmental organisations in order to monitor the progress of construction of toilets and keep a track of the usage in an area. This is real-time monitoring and the conductors are asked to record the updates real-time on the Swachh dashboard via Mobile Phones, Tablets or iPads and upload the progress report. This enables to check if the citizens are constructing toilets or using them and in case of any discrepancy with the data available on the Ministry's Website with online Citizen Monitoring, then look for proper rectifications. This whole process and monitoring were launched by the Ministry of Drinking Water and Sanitation to check real-time the progress of toilets made and used under Swachh Bharat Abhiyan (NDTV, 2017).

CONCLUSION

The existing technologies can be of extremely good assist inside the treatment of water and solid waste control. This shows that strong waste that's commonly handled as the cause of issue, if handled properly it can grow to be a sustainable source of power.

The intention ought to be to promote studies portray in these technologies. After the studies is carried out, the gap among research and its implementation at ground stage need to be bridged. All stakeholders such as diverse departments, urban nearby bodies, specialists and contractors need to be worried so that these technologies may be utilised by means of small, medium and big devices, for you to make contributions to the Swachh Bharat Abhiyaan by making India easy.

SUGGESTIONS

1. *Changes in product design*

This may lead to a few items getting invalid thus far because the final product is involved. Hence, the whole inventory of such gadgets as surplus out of date.

2. *Rationalization*

Sometimes uncooked substances or the raw materials are renationalized with a purpose to minimize range and simplify procurement. The explanation system renders a few gadgets as surplus or obsolete.

3. *Cannibalization*

When a system breakdown happens, occasionally it's far rectified the usage of components of an identical machine which is not functioning because of diverse reasons. This method of 'cannibalization' is not unusual in many undertaking-based industries. When endured unchecked, this effects in obsolete and scrap gadgets.

4. *Faulty planning and forecasting*

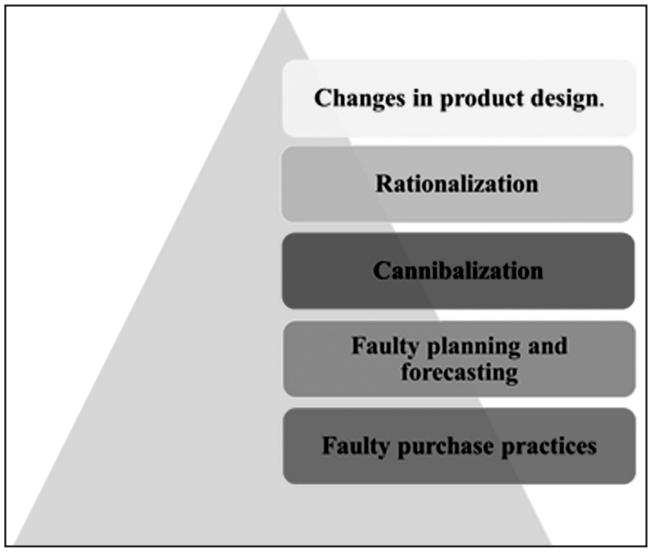
The advertising branch may also have projected a sales forecast which might be on the better aspect. Any cloth planning must be primarily based on sales forecasts and this may bring about surplus objects. Wrong indenting via the user departments additionally results in accumulation.

5. *Faulty purchase practices*

Sub-optimizing choices like shopping for in bulk to take care of discounts and transportation economic system without contemplating factors together with, shelf life, garage area requirements and technological modifications all over again result in the accumulation of surplus and out of date shares.

6. *Other causes*

Many gadgets are held as insurable spares for many years with none intake. Faulty keep-preserving techniques, without ok protection, cause spoilage. Inferior materials coping with, mistaken codification and poor manufacturing methods additionally result in obsolete, surplus and scrap gadgets. Poor upkeep of machine gear can also bring about immoderate tools wear and more manner scrap.



Pic 2: Strategies for Accumulation of Obsolete and Surplus Waste

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ADVANCEMENT OF CHANDIGARH TOWARDS A GREENER CITY

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ABSTRACT

On the eve of Gandhi Jayanti (2nd October, 2014), the Swachh Bharat Abhiyan was launched. Swachh Bharat Abhiyan is a mass movement to realize Gandhiji's dream of a cleaner and greener India.

In pursuant of this, Chandigarh Municipal Corporation has initiated Swachh Chandigarh Campaign with the objective of generating mass awareness about the importance of cleanliness. It appeals to its Citizens to come forward to make its campaign a grand success by participating in this campaign to keep up to the vision of Gandhiji.

This Paper discusses Chandigarh's efforts in attaining the title of the Greenest City of India.

Keywords: Swachh Bharat, Chandigarh, Municipal Corporation ,Green India, Mass Awareness.

INTRODUCTION

The Swachh Survekshan is a central government initiative which provides rankings to cities on the basis of its cleanliness. The cities were surveyed, on the basis of feedback from local population and tourist visiting the cities.

The cities were ranked on the basis of:

- Self-declarations made by cities on where they stand.
- Direct observation and surveys conducted by independent agency.
- Citizen's feedback.

The urban affair ministry of India analyzes the Swachh survekshan report every year to measure the progress of SwachhBharat Abhiyan launched by our honourable Prime Minister Narendra Modi in November 2014.

Chandigarh is the capital of two states Punjab and Haryana respectively, and it is also a Union Territory of India. It is also known as Green City of India. Chandigarh is the first planned city of India, with architecture, environment and clearing. Chandigarh is also known as one of the most beautiful city in terms of its Eco-friendly Environment. One of the main attractions in Chandigarh is its roads, as it is surrounded

by green trees. Tree plantation and landscaping has been an integral part of the master plan in the development of the city. Twenty six different types of flowering and twenty two species of evergreen trees and plants have been planted along the roads, in parking areas, shopping complexes, residential areas and in the city parks, etc. There are more than 15 parks in the city of Chandigarh and some of the famous parks in the city are Sukhna Lake, Rock Garden, Government Museum and Art Gallery.

NEED FOR THE STUDY

A healthy environment is necessary if an individual wants to live healthy and fit. If one's surroundings can be directly related to a happy and a fresh mind. Maintaining cleanliness be it personal hygiene or environmental cleanliness is the prime duty of each and every individual. The government has undertaken several initiatives to promote and appraise the cleaning activities across various cities of our country. Under the Swachh Sarvekshan Chandigarh is declared as the "GREEN CITY" of India, which is a result of the combined efforts of both citizens and the government.

It is a motivation for the entire nation to be proud and put their hands together to create a clean environment.

OBJECTIVES

- To study the ongoing practices of handling garbage.
- To find enhanced methods and procedures of garbage disposals in Chandigarh
- To find the role and efforts of society in accelerating the cleaning campaigns in Chandigarh

METHODOLOGY

The data was collected from various sources of qualitative research. It helped in understanding the procedures and methods to deal with garbage. This was quite helpful in finding various efforts put in by the government as well as the people there in spreading awareness about cleanliness.

The data depends on the following sources:

- Books, official reports, surveys.
- Interview with local people, municipal officers, tourists, etc.
- Photos and videos related to the topic.

FINDINGS

According to the latest findings of the Forest Department, Chandigarh has become the greenest city in the country. The joint capital of Punjab and Haryana has a forest and tree cover of 35.5 per cent in its 114-sq km area, says the Forest Department. An agriculturist-bureaucrat, MS Randhawa, is credited with the large variety of trees that were planted when the city was in its infancy. The tree cover saved Chandigarh from becoming an all-concrete jungle, a fate that has overcome many Indian towns. The Chandigarh administration's Forest and wildlife department and the local municipal corporation's horticulture wing say that over 2.2 million tree saplings of various varieties were planted in the last 15 years. Of these, the forest department alone planted over 1.93 million saplings.

"Chandigarh has become a national leader in green cover," says a forest official. The forest department and other agencies have been distributing free saplings and also selling them at subsidised rates to encourage the spread of green. The forest department alone distributed over 370,000 free tree saplings. NGOs, educational institutions, resident welfare associations and common people were involved in the plantation programme. With Chandigarh becoming the latest IT destination, permission has been given in the last three decades to fell trees. Nearly 14,000 trees were felled in the last 15 years. But over 50,000 new saplings were planted to compensate the loss.

The Concept of Green Town

According to the Inter State Regional Plan –all the three stakeholders, that is- Punjab, Haryana and Chandigarh have initiated coordination and are collaborating to form the vision for the sustainability and balanced development of the region.

In keeping with one of the intents of the Capital of Punjab Periphery Act, 1952 to maintain the environmental concerns around urban agglomerations, it is once again recommended that in addition to Chandigarh's endeavour to be a Green Town, the neighbouring states should also ensure through the Inter-State Regional Plan that all existing and proposed new towns in the region are 'Green Towns'.

Long term regional and city level measures for green city development and its Growth

The Chandigarh Master Plan with a vision for 2031 is being prepared for the city and its immediate periphery, wherein the challenges and the problems affecting the cleanliness and greenery of the city are being attempted to be addressed holistically in this plan. Directions for future development and growth of the city as enunciated are in line with the above vision.

Integrated Urban Planning Approach

An integrated planning approach is proposed to be adopted encompassing various facets of the city's development in terms of the following.

- Sensitive site selection and Eco-sensitive Planning.
- Chandigarh to be declared Solar City.
- Environmental friendly management of city level services.
- Concepts of REDUCE, RECYCLE AND REUSE of water, solid waste, sewerage.
- Creating Self Sustaining Neighbourhood units in terms of Power, Water and Sewage Disposal.
- City's Green -- High percentage of land dedicated to open spaces, city greens and water bodies.
- Increasing the Green Cover by Mandatory Plantation.
- Comprehensive Mobility Plan for Chandigarh and the Region.
- Efficient Transportation System.
- Eco-friendly transport system within sites Promote Bicycle as a Mode of Transportation in the City.
- Construction of Green Buildings/Campuses.
- All future developments in & around the City sensitive to its environs.

Water Harvesting

Water harvesting is an important part in developing a green city. Proper management of water can lead to a proper development of the city in terms of promoting greenery in the city. It can also; help the city maintain its greenery or the concept of green city during water scarcity. Therefore water harvesting plays an important role in the idea of green city.

- The demand for water is growing in direct proportion to the city's growth. Rain Water Harvesting is one of the ways to protect and sustain its water resources. The Ministry of Urban Development had appointed CSE (Centre for Science and Environment) to prepare a plan for rainwater harvesting at city level for Chandigarh. A report has been submitted titled **"Capturing Rainwater: A way to augment Chandigarh's water resources."**

Key findings of the project

- The city taps groundwater from the deep confined aquifers, which do not get naturally recharged. Hence recharging these aquifers is a must.
- Tube wells are located all across the city. Harvesting rainwater from the storm water drain network to recharge confined aquifers through structures all along the network is a simple solution to access the city's endowment of rainwater.

Areas suitable for rainwater harvesting in the city are as follows:

1) Roads and Roundabouts: Recharge along storm water drains to both recharge rainwater as well as prevent flooding. And also help to water trees, without wasting the rainwater.
2) All green areas: Recharge where suitable and store where hydrogeology is not suitable. Stored water can be used for horticulture. Ponds can be constructed to harvest and use rainwater as in Botanical Garden.
3) Institutional areas such as Punjab University, Capitol Complex: Recharge where suitable and store where hydrogeology is not suitable. Stored water can be used for horticulture.
4) Commercial areas: Store in underground tanks for non- potable use.
5) School, colleges and religious places: Store and recharge stored water can be used for horticulture and other non-potable uses.

Mandatory Plantation Plan in large Campuses/Sites & Houses

It is recommended each large campus and large house shall have mandatory tree plantation plan, duly approved to augment the city with one of the highest Green Cover in an urban area, as found out by the Ministry of Environment and Forests, Government of India.

This shall help sustain the air quality and provide the protection to local flora and fauna to attain higher environmental considerations. All these campuses and large residential units have independent STP's & Solar Photo-Voltaic of modern technology and provide zero dependence of water and power on city levels infrastructure because of increasing population.

The overall principles of Reduce, Reuse & Recycle in all aspects of development needs to be adopted both at Macro & Micro level.

This entire endeavour should complement the 'Green Action Plan' prepared by the Department of Environment and Forests, Chandigarh Administration.

Adoption of Green Building Concepts in the Building Designs of the City

- Sensitive Site Selection.
- Orientation.
- Reduction of paving on the un-built site area.
- Green roof concepts.
- Mandating rain water harvesting.
- Zero drainage of storm water for large development sites (>30 acre).
- Adaptation of low energy, locally adaptive materials, labour & technology.

Other measures as:

- Energy Audit of Buildings.
- Proposed Road Map to make ECBC mandatory in Chandigarh.
- Retrofitting existing government buildings to make them more energy efficient.
- Annual waste audit report ofacommercial building.
- Reduce carbon footprint due to waster to reduce waste resource to 0.4 kg/person /day.
- Encourage small capacity Biomethonization Plants near source of waste.
- Grain Mandis /Hotels etc.
- Reduce dependence on ground water by 50% and consumption of potable water.
- Promote eco park concepts across the city.
- Promoting bike tourism.
- Ban on burning of leaves.
- Chandigarh as a Smoke Free City.
- Controlling noise pollution.
- Modernisation of dhobi Ghats.

These concepts have been elaborated in the **'GREEN CODE OF CHANDIGARH'** proposed by the Chandigarh Administration.

Eco Friendly Transport System Within the Sites

- All large campuses, housing complex sites shall provide eco-friendly modes of intra-site transportation.
- The new construction must have footpath for the streets longer than 100 m and bicycling tracks for the streets longer than 200 m.
- Public mode of electric driven vehicles within the site for the elderly people and people with disability should be provided.

CONCLUSION

Swachh Bharat Abhiyan was mission/initiative taken up by the PM of India, Mr. Narendra Modi. This mission was to clean India and remove its dust and dirt. India at that time became very much unhygienic and garbage was thrown here and there by people. So, this mission was a need for this country. In conclusion was this that due to this people understood the importance of hygiene. Now it's quite better and I hope that it will become much better in the coming days. It's a really good theme and now we can see so many posters and pamphlets for this. Awareness campaigns are taking place and people understand this importance. Campaign is more popular among the youth of the nation. Social media is the main source of awareness. Other sources are TV, Advertisements, and Newspapers etc.

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GREEN PRODUCTION OF FOODS IN HOSPITALITY SECTOR, A PERFECT DREAM FOR THE MANAGEMENT AND ITS EMPLOYEES

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ABSTRACT

Finding a great control and balance between food supply and food demand in hotels and restaurant's buffet is a manner that is sustainable and which ensures the long-term survival of the management, employee's in future coming days. Green production is a must business initiative and strategy that focuses on excelling through eco-friendly operation module. This conceptualized study shares how restaurant buffet is produced and supplied against the demand. In this chapter, it will shed light on the multiple, complex facets of food waste at consumption level. The study also suggests overcoming from the hurdles and shows a perfect way to control and dilute food waste and enhances green production. This study also share, review and control measure to be taken in order to possess green in production and showcase a perfect dream for the management and its employees.

Keywords: Green Production, Food Waste, Employees, Eco-friendly, Control, Management, Hospitality.

INTRODUCTION

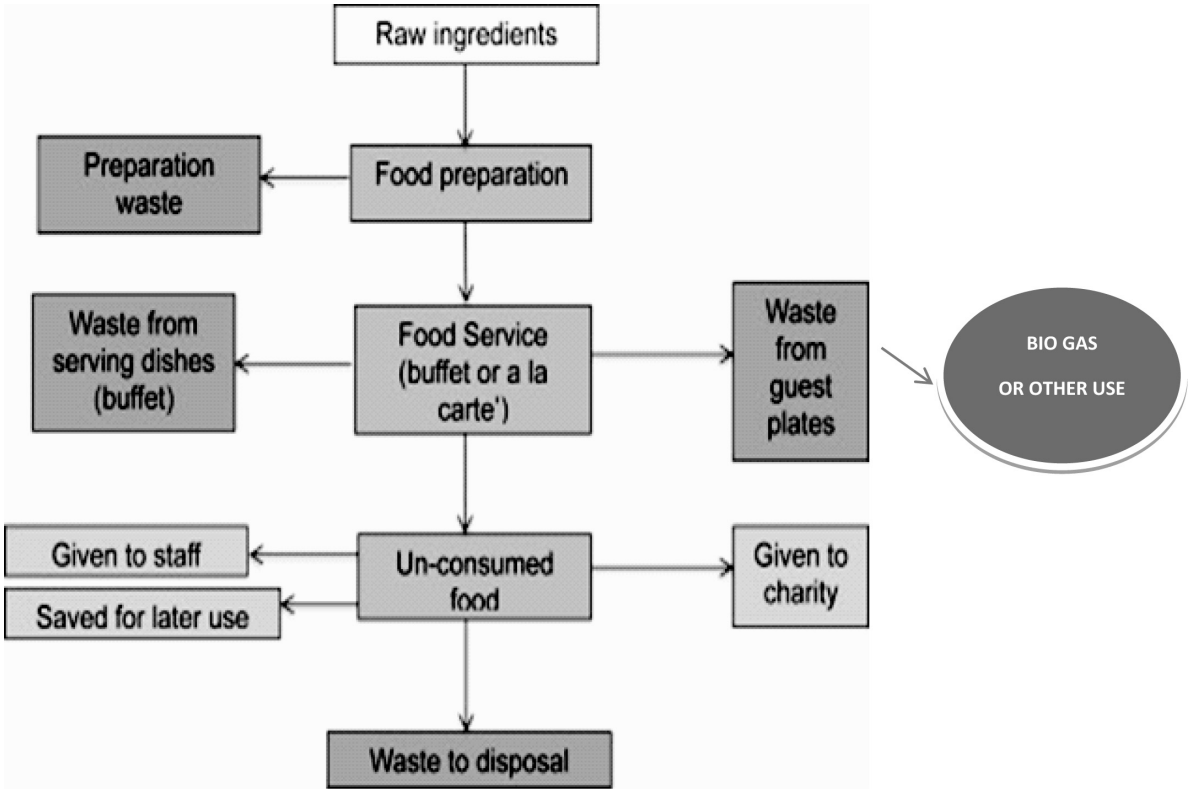
Green production is a must business initiative and strategy that focuses on excelling through eco-friendly operation module. Green production in restaurant is a society based business strategy that focuses on profitability through environmentally and social friendly operating processes. Proponents of this management philosophy contend that green production is a sensible course to follow not only because of the benefits that it bestows on the natural and social environment, but also because of its fundamental strategic soundness.

We understand that there are many factors and hurdles to implementing food waste reduction practices in hospitality and food and beverage operations. Perhaps implementing such changes are too expensive, or there is a lack of space; perhaps the infrastructure in your property or municipality is not conducive to reducing food waste to landfill, or perhaps you simply don't know where to start. There are indeed many ways to tackle reduce food waste in hospitality F&B operations – go with what works for you. Indeed, some food waste is inevitable. For example, bones are an inevitable consequence of eating meat and while they can be utilised for a second purpose such as making stock, the bones themselves will eventually need to be composted. Food waste of this type is categorised as unavoidable. Unavoidable food waste is estimated to account for approximately 25% of all food waste that arises from hospitality, food service and food retail. This means that the remaining 75% of food waste is avoidable.

OBJECTIVE

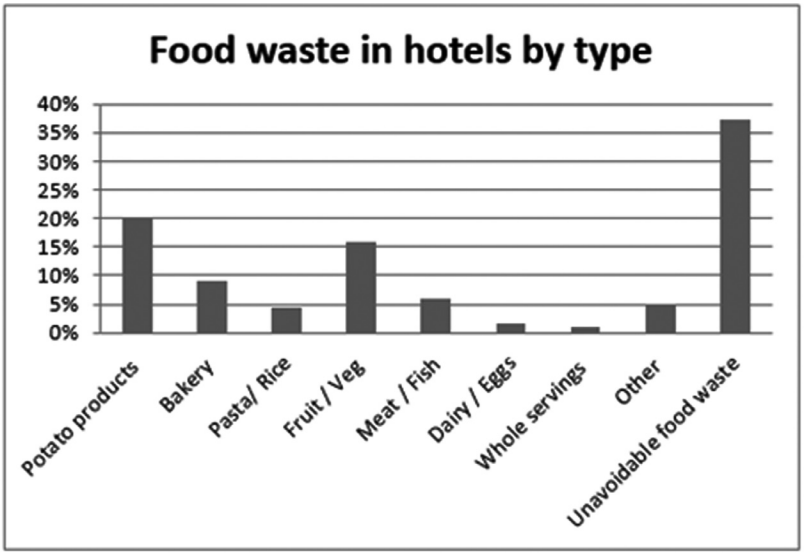
Share, review and control measure to be taken in order to possess green in production and showcase a perfect dream for the management and its employees.

ROAD MAP OF FOOD WASTE AND SAVE



Each stage of the above process is to be analysed properly. The raw ingredints plays a vital roles followed by how much the yield perctnage gives. The food to prepared totally from the yield of the ingredients, and served according to the type of service. The wastage from guest plate to be analysed why the food is wastaed by the guest and what was the reason behind the food waste

FOOD WASTE IN HOTELS BY TYPE

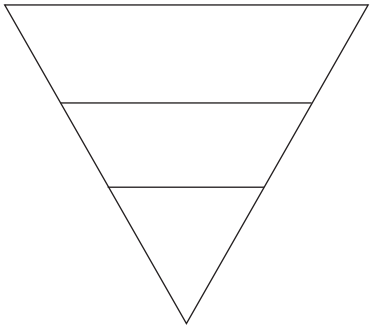


BENEFITS OF EFFECTIVE FOOD WASTE MANAGEMENT SYSTEM

- An improved business image
- Reduced carbon emissions from the decreased transportation of waste
- Reduced costs due to smaller and more streamlined order requirements
- Reduced waste disposal costs leading to increased profits
- Possibility for tax deductions and other fiscal incentives
- Re-use of non-edible food waste can sometimes be monetised when used for secondary purposes (e.g. animal feed)
- Improved relations with stakeholders, including the local community through the concrete demonstration of CSR practices
- Reduced risks and labilities
- Health and safety benefits (e.g., pest reduction, reduced odour emissions from garbage, more sanitary streets in your community)
- Increased employee morale

FOOD RECOVERY HIERACHY

1. **PREVENTION**
2. **RECOVERY**
3. **RECYCLE**



Reducing the amount of food that goes unsold and donate the surplus food to feed the hungry, and divert food waste from land hills through use as animal feed, composting or anaerobic digestion

MEASURE TO BE TAKEN TO POSSESS GREEN PRODUCTION OF FOODS

A PERFECT DREAM TO MANAGEMENT AND ITS EMPLOYEES AND CONCLUSION

A perfect dream to the management and its employees is received when a green production of foods is carried out. Its increase employyee satisfaction and morale and It enchances management confidence as well. There is no magic ingredient to reducing food waste and change to green production, the recipe to success is to be sure to measure your waste, and to plan your ingredients carefully and work on suitability and sustainability and assurance.

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VISION AND OBJECTIVES OF SWACHH BHARAT A STATE-OF-THE-ART REVIEW

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ABSTRACT

Swachh Bharat the dream of and for Mahatma Gandhi with core aim to create a clean India as a tribute on 150th birth Anniversary of Mahatma Gandhi in 2019.This clean India mission aims at cleaning the garbage's in the urban area and ODF (open defecation free) by building toilets in rural areas to have a World Class city. Garbage's include all non-functional items whose use is no longer needed like waste food, broken household items, etc. The main motive is to clean the streets, roads, infrastructures in the cities and rural areas of India. India has a diverse tourism products , but lack of hygiene and sanitation spoils the charm of visiting country. The visions and objective of Swachh bharat are very important for India's growth and many youngsters should take part in this program.

Keywords: Cleaning, garbage, urban area , roads, infrastructures, vision, objectives, important, youngsters.

INTRODUCTION

India is the seventh largest and second most populated country in this world. The big fraction of rural people are unaware of the benefits of cleanliness and sanitation. So The Indian Government has started the mission called "SWACHH BHARAT". The Honourable Prime Minister of India , Shri Narendra Modi, launched this mission on 2nd October, 2014. The mission coordinator shall be a secretary, Department of drinking water and sanitation (DDWS),Ministry of jalshakti with two Sub missions-The Swachh Bharat mission (gramin) and the Swachh Bharat Mission (urban). The mission aims to achieve a Swachh Bharat by 2019, as a fitting tribute to Mahatma Gandhi on his 150th anniversary.

This helps the peoples to get awareness of cleanliness and sanitation. Most of the peoples in rural areas in India don't have toilets, so that they do open defecation. This mission provides public toilets to those peoples. Totally 9,98,37,425 household toilets, 699 open defecation free districts, 35 open defecation free states, 63.3% of rural population practicing SLWM (ODF plus) has been done by this mission. This mission have some vision and objectives with it.

VISION

The aim of Swachh Bharat Mission is to achieve a clean and open defecation India by 2nd October 2019.

OBJECTIVES

- To bring about an betterment in the general quality of life in the rural areas, by developing cleanliness, hygiene and eliminating open defecation.
- To accelerate the sanitation coverage in rural areas to attain the vision of Swachh Bharat by 2nd October 2019.
- To motivate communities to maintain continuous sanitation practices and facilities through creation of awareness and health education.
- To boost cost effective and appropriate technologies for ecologically safe and continuous sanitation.
- To develop, whenever required, community managed sanitation systems focusing on scientific solid and liquid waste management systems for overall cleanliness in the rural areas.
- To create powerful positive impact on gender and promote social inclusion by developing sanitation specially in marginalized communities.

STRATEGY

The focus of the strategy is to move towards a 'Swachh bharat' by providing Flexibility to state governments, as sanitation is a state subject, to decide on their ipolicy .use of funds and mechanisms, taking into account state scientific requirements. The government of India role is essentially to compliment the efforts of the state governments through the focused programme being given the status of a mission, recognizing its dire need for the country.

The key elements of the strategy include

- Augmenting the institutional capacity of districts for undertaking intensive behaviour change activities of the grassroot level.
- Strengthening the capacities of implanting agencies to roll out the programme in a time bound manner and to measure collective out comes.
- Incentivizing (the ½ the half of twenty-two the half) surety bond of situation utmost establishments to a quarter instrumental activity amendment activities of different communities.

FOCUS ON BEHAVIOUR CHANGE

- Behaviour change has been the key differentiator of Swachh Bharat Mission and therefore emphasis is place on Behaviour Change Communication (BCC). BCC is not a 'stand alone' separate activity to be done as a 'component' of SBM-G, but about nudging communities into adopting safe and sustainable sanitation practices through effective BCC.
- Emphasis is placed on awareness generation, triggering mindsets leading to community behaviour change and demand generation for sanitary facilities in houses, schools, anganwadis, places of community congregation, and for solid and Liquid Waste Management activities. Since open Defecation Free villages cannot be achieved without all the household and individuals conforming to the desired behaviour of toilet se everyday and every time, community action and generation of peer pressure on the outliers are key.

FOOT SOLIDERS OF SWACHH BHARAT

There is a requirement for an obsessive , trained and properly incentivized sanitation hands at the GP level. An army of "foot soliders" or 'Swachhagrahis' , earlier called as 'swachhata doots' is developed and engaged through existing arrangements like Panchayati rule / institutions , co-operatives ASHAs, Anganwadi workers, women groups, Community Based Organisations, Self-help Groups, water lineman/pump operators etc. who are already working in the GPs , or through engaging Swachhagrahis specifically for the purpose. In case existing empoloyees of line departments are utilised, their original line departments are in clear agreement to the expansion of their roles to include activities under the Swachh Bharat Mission.

SANITATION TECHNOLOGIES

Appropriate participation of the beneficiary/ communities, financially or otherwise in the setting up of the toilets is advised to promote ownership and sustained use, both at the household and community levels. The integral flexibility within the menu of choices is to administer the poor and therefore the deprived families chance for subsequent upgrading of their necessities and monetary position and to ensure that sanitary toilets are constructions, which ensure safe

confinement and disposal of faeces .An illustrative list of technology choices, with cost implications is provided to meet the user preferences and location specific needs. While the Government provides flexibility in choosing the toilet technology considering areas topography, soil conditions, etc., properly constructed Twin-pit is considered the most preferred technology.

FLEXIBILITY TO STATES

States have flexibility regarding the utilization of the IHHL incentive .The provision of incentives for IHHLs for rural households is offered to states (from the IHHL component).

This is conjointly want to maximize coverage therefore on to attain community outcomes.

MONITORING MECHANISMS

A robust monitoring arrangement has been put in place to monitor Open Defecation Free status of a village, the implement of solid and liquid waste management project as well as the construction and use of household toilets, schools, anganwadi toilets, and community sanitary complexes . The monitoring also uses a robust community led system, like social audit, Community-based monitoring and vigilance will help in creating peer pressure. States decide the delivery mechanisms to be adopted to meet the community needs.

SUSTAINING ODF COMMUNITIES

The achievement of ODF involves working on behaviour change to great extent, sustenance of which requires concerted efforts by the community. Many district and states have evolved parameters to maintain sustainability of ODF.

MAKING SWACHHATA EVERYONE'S BUSINESS

MDWS is the nodal ministry for all activities and initiatives towards achievements od a SwachhBharath , sides its allocated charge of SBM-gramin in fulfilling this responsibility, the ministry constantly works with all other ministries of the government, the State governments, local institutions, Non-Government and semi-government agencies, corporate, NGOs, faith organisations, media and the rest of the stakeholders. This approach is based on the Prime Minister's call that Swachhata has to be everyone's business and not only that of the sanitary departments. A host of special initiatives and projects have start up in quick time in this process. The reponse of organisation echo do not have sanitation as their core work, to the call of Swachh Bharat has been extremely encouraging.

The cross cutting programes can be divided into two key categories

- Inter-ministerial collaboration (IMC)
- Inter-sectoral collaboration (ISC)

NAMAMI GANGE

- Namami gange programme is an intiative of ministry of water resources (MOWR), comprising of making villages on the bank of river Ganga ODF and interventions dealing with solid and liquid waste management are being implemented by MDWS.
- A convention of Gram Panchayats was organized in Allahabad on 20th august 2016 to provide impetus to the intiative . Over 2000 GP representatives from across five states participated in this event which was attended by union minister, Shri Narendra Singh Tomar, and union minister of water Resources, Sushri Uma bharti.
- All villages located across 52 districts of uttarkhand, uttarpradesh, Bihar, Jharkhand and west Bengal has since been made ODF by MDWS with active help of state government.
- Verification of the quality of ODF status in these villages has been taken uo and complete verification is expected to be completed by august 07,2017.

SWACHHTA ACTION PLAN (SAP)

- SAP, a first of its kind inter-ministerial programme for Swachhta, is a concrete realization of the Prime Minister's vision that swachhta is everyone's business.
- All union ministries / Departments have started to work for its realization in a significant manner with appropriate budget provisions. A separate budget head has been created for this by the Ministry of Finance.
- During financial year 2017-18,77 Ministries / Departments have committed funds worth of Rs.12468.62cr for their SAPs.
- SAP implementation started on 1stapril 2017 is to reviewed quarterly.

SWACHHTA PAKHWADA

- Swachhta Pakhwada started apirl 2016 with the objective of bringing the fortnight of intense focus on the issues and practices of Swachhta by engaging GOI Ministries / departments in their jurisdictions.

  An annual calendar is pre-calculated among the Ministries to help the plan for the pakhwada activities.
- The Ministries oabserving Swachhhta pakhwada are monitoring closely using online monitoring system of Swachhta Samiksha where actions plans, images, videos related to swachhta activities are uploaded and shared.
- After observing Swachhta Pakhwada Ministries / Departments announce their
- For the Pakhwada fortnight, observing ministries are considered as swachhta Ministries and are expected to bring qualitative Swachhta improvements in their jurisdictions.

SWACHH SWASTH SARVATA (SSS)

- Joint intiative between the MDWS and the Ministry of health and family Welfare (MoHRW).
- Obejective: To build on and leverage the achievements of two complementary programme - SBM and Kayakalp (MoHFW).
- The intiative involves focusing on WASH parameters in selected hospitals , priority ODF action in areas around identified health centres , and advanced sanitation training for doctors and health workers.
- MoHFW has indentified and shared 532 Kayakalp Award wining PHCs list with MDWS.
- MDWS has mapped those GPs where these PHCs are situated to complete ODF on priority basis.
- MDWS has finalized a training module to train 700+ Health workers of kayakalp Award winning CHCs/PHCs on WASH parameters , training will be conducted by UNICEF.

SWACHHTA AT PETROL PUMPS

- The Ministry of Petroleum and Natural Gas has developed a mobile app namely Swachh@ PetrolPump.
- This will help to monitor and maintain the cleanliness of the toilets and can be downloaded from all app stores.
- Provision of construction of toilet clusters close to petrol pumps.

RASHTRIYA SWACHHTA KENDRA (RSK)

- This was proclaimed by the Honourable PM on 10 April,2017, during the centenary celebrations of Champaran Satyagraha.
- To be placed to Bapu's Samadhi at Rajghar, RSK is planned to circularise all information on sanitation matters and advanced bathroom technology among individuals. It will conjointly showcase ongoing SBM efforts across the country furthermore history of sanitation in India, Interministerial coordination initiatives, interactive programme and a Swachhta learning centre.

SWACHH ICONIC PLACES (SIP)

- Under the administration of Honourable Prime Minister, the ministry has taken up a multi-stakeholder initiative that specialise in cleaning up one hundred places across India that are "iconic" due to their heritage, spiritual and/or cultural significance.
- The goal of the initiative is to enhance the cleanliness conditions at these places to a distinctly higher level.
- This initiative is in partnership with Ministries of Urban Development, Tourism and Culture with MDWS being the nodal ministry.
- All iconic sites have selected PSUs for financial and technical support.

SWACHH BHARAT KOSH (SBK)

- MDWS has been pro-actively mobilising funds for Swachh Bharat Kosh. It had been started in Oct, 2014 and includes both individuals contributions furthermore as corporates.
- The ministry has organized two detailed meetings with the corporate sectors and has taken part in several other interactions with both public and private sector corporate, following that the contributions to the Kosh have gone up.
- The donations to the SBK yearwise are Rs.156.6 cr (2014-15), Rs.253.23 cr (2015-2016), Rs.245.04 cr (2016-17) and Rs.3.78 cr (till July 13 in 2017-18). Funds of around Rs.332.64 cr has been released from SBK until currently to numerous states.

INTER-FAITH COOPERATION

- The Ministry is functioning with GIWA and different faith-based organisations to require forward the goals of Swachh Bharat mission.
- The inter-faith co-operation is completed across several villages and rural area and even in the banks of rivers.
- Faith organisations helps the River Ganga bank villages 'Ganga Grams' to make it developed .

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TECHNOLOGY IMPLEMENTATION IN GREEN HRM

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ABSTRACT

Green Environment is most important asset to live in this world. Environment sustainability is ultimate responsibility to live. We must protect environment in everywhere and every angle. Human resources are working in every-where and they are most important value for every organisation. Organisation must combine these two as Green Human Resource for environment sustainability, to create awareness towards environment and for energy conservation. They can use technology to protect environment in organisation for energy conservation and waste management etc., combination of green environment and technology is the strategy for eco-friendly environment for employees, energy conservation, improves economic well-being, maximises profit and provides positive energy. Technology implementation in hr known as e-hr. a letter e indicates electronic. So it makes technology based human resource working process to help green environment conservation.

Keywords: Green environment, technology, asset, responsibility, strategy, e-HR

INTRODUCTION

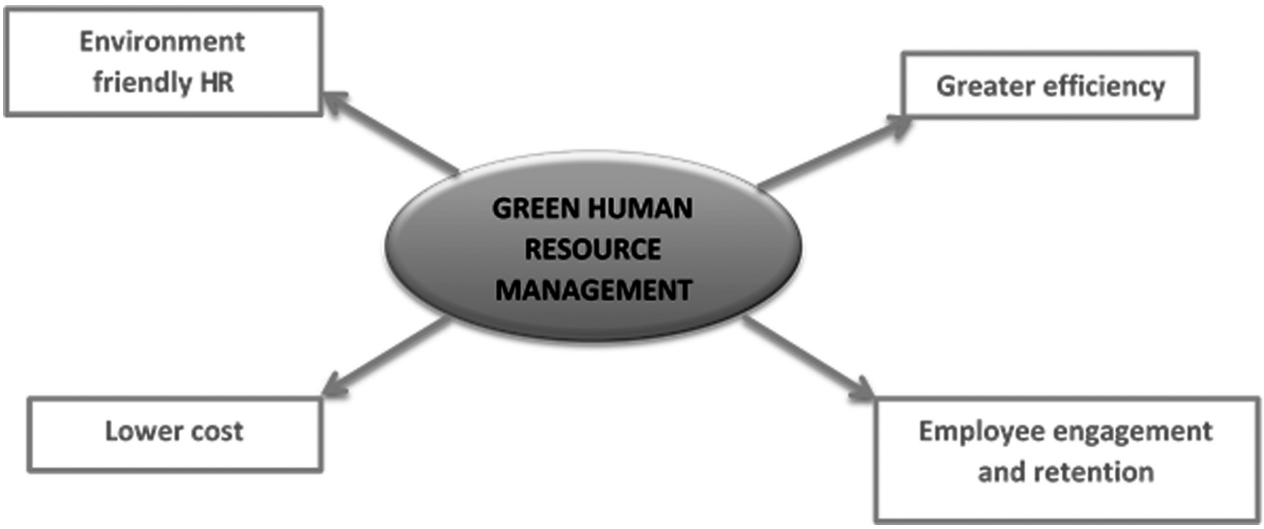
Human resource management is the strategic approach to manage employees in organisation or company effectively. HRM was developed to maximise employees potential to enhance organisational productivity. Green HRM was mainly developed for to create awareness on environment management and sustainability development. It improves the economic well-being of a company. It refers to the policies, practices, and systems that make employees of the organization green for the benefit of the individual, society, natural environment, and the business.

Transformation of HRM activities towards automatic by technology based is mainly for to control waste management. Implementation of technology in HRM is known as e- HRM. The automation of HRM Process helps in reducing environmental waste Like paper, staples, files, social waste like process' time for searching documents and decision making, and economical waste like cost related with preparing documents, labours' salary due to extra time of working of conducting HR's task. The sustainability outcome brought to idea that E-HRM should be appreciated as one of the initiatives of Greening HRM in organization.

DISCUSSION

Green HRM

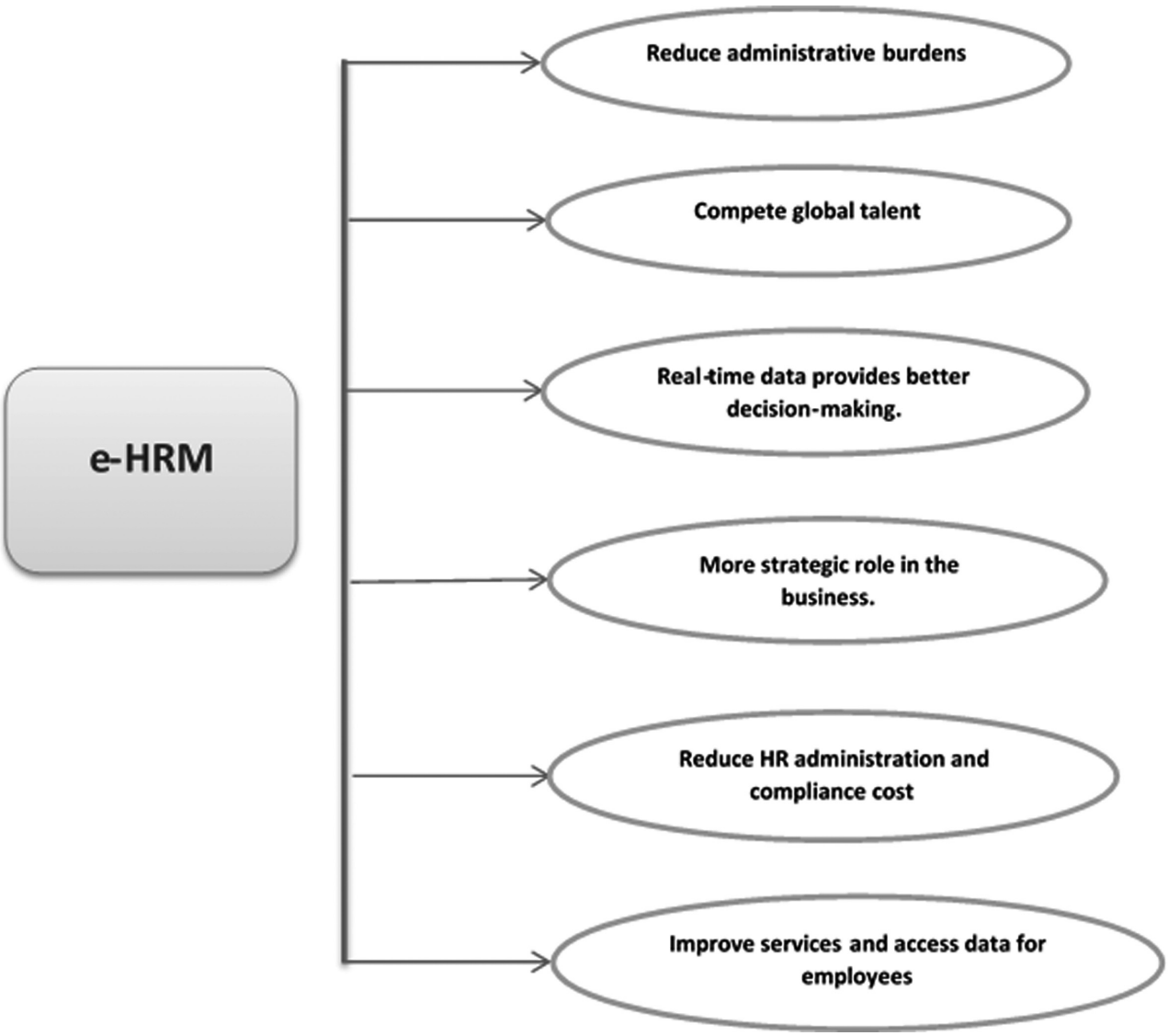
Green Human Resource Management is engaged in managing the environment within an organization. The main purpose of going green is to reduce the potential negative impact that energy consumption and pollution can have on the environment. The term green HRM is mostly used to refer to the contribution of HRM policies and practices towards the broader corporate environmental agenda. It refers to using every employee to support sustainable practices and increase employee awareness and commitments on the issue of sustainability. AnjanaNath defines" Green HR as environment-friendly HR initiatives leading to better efficiencies, less cost and heightened employee engagement levels". For example green activities are performed through video recruiting or the use of online and video interviews. environment-friendly HR initiatives resulting in greater efficiencies, lower costs and better employee engagement and retention



Green HR initiatives help companies find alternative ways to cut costs without losing their top talent. Focus on Green HRM as a strategic initiative promotes sustainable business practices. Organizations must formulate HR policies and practices, train people to increase awareness about the environment, and implement laws related to environmental protection. Organizational culture, thinking about waste management, pollution and helping the society and its own people, those are getting affected by pollution. It will also make employees and society members aware of the utilization of natural resources, eliminates some resources which affects environment, more economically and encourage eco-friendly products.

E- HRM

Integration of technology and human resource is known as e-HRM. This transformation of HR service delivery can be named as "e-HR". Human Resource processes in the organizations are currently focusing on technology –oriented processes, reason being, it will help to streamline the processes and henceforth reduce the paperwork. Other reasons include the reduction of the Compliance and Administrative costs and therefore increase the accessibility of data to the employees and managers. The technological orientation helps HR to create more impact by playing a crucial role in the business. This leads to not only the transformation of the HR Practices but also increase the speed, efficiency and accuracy of the functions across the organizations. Most organizations already have automated basic HR administration



Implementing e-HR requires a fundamental change in the way HR professionals view their roles. Now HR professionals must not only master traditional HR skills and knowledge, but also have the ability to apply that knowledge via technology. For example, electronic filing, teleconferencing, virtual interviews, recycling, telecommuting, online training, energy-efficient office spaces, etc.

Why Need Integration?

Firm chooses this strategy to work in one platform that incorporates multiple HR functions. Often these platforms are part of an enterprise-wide information system that includes a variety of business functions such as a general ledger, customer relationship management, recruitment, training, and financial operations. And this conversion conserves energy, improve performance, reduce on-going cost, removes negative impact, controls pollution reduce carbon footprint and favourable environment.

E-HRM IN G-HRM

HR activities are automated to simplify work and workforce. Lot of Human resource software are automating HR functions While recruiting and hiring efforts are already a major component of the standard HR department's responsibilities. So for this activity some software are playing recruiters role. Those software are:1.) Ideal is a software it screens and shortlist the candidates from the existing applications. This automated work reduces Paper work, eliminates negative potential, removes carbon footprint, transportation, work burden

of interviewer etc., 2.) Bamboo HR is software it offers Performance management of employees. So all the work integrated with the software so it helps to track, manage and review employee performance. Mainly helps for performance appraisal process. This process is also more favourable to the environment, reduces paper work, easy access of employee data, reduces work burden of HR manager. Not only for the HR department all the department like finance department have FinTech, Quicken, Mint, Ynab, etc., sales department have Unomy, Fresh sales, pipedrive, tradegecko, production have automation process etc are having software for to help the people and environment. Mainly in Production department to control the waste management and pollution from the industry recycling robotics were developed. Recycling activities are run by the robotics for effective management. AMP robotics and Zen robotics are the companies who are producing recycling robotics for waste management.

This technology ultimately helps for environment to control the pollution, emissions, waste management, and it conserves lot of energy Supports green environment

CONCLUSION

Combination of technology and green environment provides effective HR management processes. E-hris the powerful way to implement HR strategy. this automated HR task provides better decision making with effective HR management are likely to be more productive, more profitable, conserves energy, eliminates negative potential impact, eco-friendly processes Green HRM is evident for potential benefits for both organizations and employees. GHRM plays in improving not only the environmental performance but also the financial performance of the organization. GHRM and E-HRM practices analyses here are likely to improve employee well-being in the workplace, eliminating ecological wastage and refurbishing HR products, tools and procedures. This integration is the challenge to maximise the benefits and minimise the pitfalls. Small and medium business can also benefit from this integration. Develop more solutions for environmental issues.

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ROLE OF GOVERNMENT POLICIES IN SWACHH BHARAT

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ABSTRACT

A national-level cleaning drive launched throughout the length and breadth of the country by the government of India on October 2, 2014 "Swachh Bharat Abhiyan" also known as the Clean India Mission or Clean India Drive. The Campaign intends to achieve the status of Clean India by October 2, 2019. It is the most significant cleanliness campaign by the government of India. Millions of people across the country have been day after day joining the cleanliness initiative of the government department. The mission has two thrusts:- Swachh Bharat Abhiyan (Garmin or Rural), which operates under the Ministry of Drinking water and Sanitation and the Swachh Bharat Abhiyan (Urban), which operates under the Ministry of Housing and Urban Affairs.

The research intends to present the major impacts of the government policies on the SwachhBharat Abhiyan and to highlight the practices adopted by the local authorities in parts of rural and urban India respectively.

The government has legislated several policies towards the construction and maintenance of domestic as well as public toilets and aims to eliminate open defecation through these.

The research will be based on several reports and statistics published on various media platforms such as magazines, articles, online portals, etc.

Keywords: Government policies, sanitation, Open Defecation Free (ODF), Toilets.

INTRODUCTION

Swachh bharat campaign, Swachh Bharat Abhiyan is the nationwide campaign started by the government of India for 5 years ranging from 2014-2019 that aims to clean up the streets, roads, and infrastructure of India's cities, towns, urban and rural areas. The Clean India Campaign aims to eliminate open defecation in the country through the construction of household-owned and community-owned toilets and establishing a responsible means of monitoring toilet use. The mission started by the Honorable Prime Minister of India Shri. Narendra Modi aims to achieve an "open defecation free" (ODF) India by 2nd October 2019 by constructing 100 million toilets in rural India at a projected cost of Rs.1.96 lakh crore.

For urban areas

This program includes

- Elimination of open defecation
- Conversion to toilets with flush system
- Eradication of manual scavenging
- Municipal solid waste management
- Bringing about a behavioral change in people regarding healthy sanitation practices. (2)

For rural areas

The Nirmal Bharat Abhiyan has been reconstructed into the Swachh Bharat Mission (Gramin). The mission aims to make India an open defecation free country in 5 years. It aims at improving the system of solid and liquid waste management activities carried out in gram panchayats and other rural villages and to make it Open Defecation Free (ODF), cleaned and sanitized villages.

Role of governments**,** the history of India uncovers the fact that before independence, India was ruled by many external forces, which had worsened the condition of the country; since several external powers ruled here merely for their benefits and plundered the country to make themselves more powerful. They not only pillaged it but also tried to ruin the splendor and culture of the country.

After winning its independence in 1947, the governments and the citizens of the country have not given any attention to cleanliness and it is commonly noticed, the littering of garbage here and there in every corner of the country. This has not only hampered the development but also has given a decrease in the number of tourists to visit in the country that promotes the economy of the country. Many great men had dreamt and tried to make the country neat and clean, but they could not succeed in their mission.

Initiatives Taken by Previous Governments, The drive had been running officially since 2000. Earlier it was called Rural Sanitation Campaign, but on 1st April 2012, then Prime Minister Manmohan Singh changed the name of the scheme as Nirmal Bharat Abhiyan from Total Sanitation Campaign. But after announcing, there was disregard on these schemes by the leaders and bureaucrat as well as the people and therefore the challenge remained as it was and neither awareness could be ignited by then ruling government among the people nor the Government had made strong guidelines.

Launching of Swachh Bharat Abhiyan

After coming into power, the Swachh Bharat Abhiyan was inaugurated by Hon'ble Prime Minister Sri Narendra Modi on 2nd October 2014 on the 145th birth anniversary of Mahatma Gandhi. Addressing the public from Rajghat, Narendra Modi demanded the nationalists and all the citizen to participate in the Swachh Bharat Abhiyan and make it a grand success. Mr. Modi had selected Rajghat to declare the mission because Gandhiji had a dream that our country should look as healthy and serene like the foreign countries.

To achieve success for the Swachh Bharat Mission, Prime Minister Narendra Modi had swept the streets in Valmiki township of Delhi and educated his other ministers to spread awareness about cleanliness among the people. So that the people of the country should become informed that if the Prime Minister of our country and his cabinet-ministers can sweep the road to clean the country, then the others also must keep cleanliness in their environments to keep the country clean. To make this campaign successful, the government demanded all the people to give only 100 hours of cleanliness in their surroundings and other places per year. (4)

OBJECTIVES OF THE STUDY

1. To study the role of the government policies in Swachh Bharat Abhiyan.
2. To examine the impact of the existing government policies.
3. To feature the paybacks of Government policies under Swachh Bharat.

METHODOLOGY

The researcher adopted a descriptive research design for this study. The data was collected by using primary and secondary sources like Government websites, journal publications, magazines, newspapers, and other miscellaneous websites. The researcher has focused on major government policies introduced all over the country.

REVIEW OF LITERATURE

1. Individual Household Latrine (IHHL)

Application is an application filed by the individuals of the region/area/state who wish to have a latrine in their home and may require financial assistance from the government. The details of the application goes directly to the ministry of Housing and Urban affairs. Uttar Pradesh leads the list of states with the highest number of applicants with a massive 3150965 application as of 08/10/2019. Uttar Pradesh is followed by Maharashtra which has 1023135 applications filed. Madhya Pradesh, Assam, and Gujrat follow Maharashtra in the list of top 5 states with the highest IHHL Application.

2. Swachhta Sandesh June 2019 page 8

On being asked about the journey of Amdavad City being the first city in Gujrat to achieve the status of ODF Shri Vijay Nehra IAS, Municipal Commissioner, Amdavad Municipal Corporation replied "The journey up to ODF+ was quite arduous as it involved upgrade of all the public as well as community toilets not only in terms of the 20 most basic conditions as prescribed related to cleanliness, infrastructure, etc., but also to the 11 additional conditions that add to aesthetics and the additional amenities to 10% of public toilets. The most difficult task here was to teach and train the regular users as well as the users from the floating population, the sense of ownership of the facilities to counter the problems of theft and vandalism of small things like water-taps or light bulbs. This was only possible through constant monitoring by the dedicated supervisory staff of AMC and agencies which maintain the facilities. We also introduced a penalty on open urination".

3. Public perception of Swachh Bharat

This table below describes best how the general people feel about the Swachh Bharat Abhiyan

Statement	Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree
Swachh Bharat Campaign helps in the development of the country	39.13	36.95	8.69	8.69	6.52
Swachh Bharat campaign has brought changes on the ground level	6.52	47.82	17.39	21.73	6.52
Participation of celebrities increase public participation in the mission	4.34	43.47	19.56	26.08	6.52
Municipal corporation is not much helpful in sanitation, hygiene and waste management	39.13	36.95	8.69	8.69	6.52
Respondents are motivated towards SBA	17.39	56.52	4.34	13.04	8.69
Respondents feel positive about SBA	6.52	26.08	19.56	34.78	13.04
Sanitation facilities have improved in the area after SBA	8.69	34.78	10.86	26.08	6.52
Respondents satisfied with the waste disposal system	13.04	32.6	15.21	26.08	6.52
Attitude of public has changed towards cleanliness after SBA	19.56	43.47	10.86	19.56	6.52
Cleanliness in the area has improved after SBA	6.52	39.13	6.52	36.95	6.52

This table very well puts into view about how the public views the Swacch Bharat Abhiyan and its policies. The major role has been played by the Media in creating awareness and spreading the information about the works carried out and the effects of it on the development of the country.

DATA COLLECTION

The researchers have used both primary sources as well as the secondary source for collecting data. Primary sources include government websites and Government magazines. The secondary sources include newspaper and magazine articles and other research papers.

DATA ANALYSIS

Swachh Bharat Mission or Clean India campaign – the flagship sanitation program of the Indian government – aims to realize the dream of a 'Clean India' by 2nd October 2019, the 150th birth anniversary of Mahatma Gandhi. The target of 2022 for achieving total sanitation under the NBA has been preponed to 2019 to coincide with the 150th birth anniversary of Mahatma Gandhi. Some of the points looked upon by the government for the successful completion of Swachh Bharat Abhiyan are:

- Behavior changes in citizens
- Specialized project management agency
- Incentivizing state and local governments
- Tracking toilet use

The Government of India with the involvement of several individual ministries like the ministry of drinking water and sanitation, Ministry of HRD (Human Resource Development), Ministry of Tourism etc., has enacted several initiatives under the Swachh Bharat Abhiyan to ensure its credibility in all major sections of the country including the rural and urban areas, schools, tourist destinations, historical and archeological monuments etc.

- Swachh Bharat Abhiyan- Urban
- Swachh Bharat Abhiyan- Gramin
- Rashtriya Swachhtakosh
- Swachh Bharat Swachh Smarak
- Swachh Bharat Swachh Vyanjan
- Swachh Vidyalaya Abhiyan

The major objectives of Swachh Bharat Abhiyan (Urban) operated under the Ministry of Housing and Urban Affairs are:

- Elimination of open defecation
- Eradication of Manual Scavenging
- Modern and Scientific Municipal Solid Waste Management
- To change the behavior of people regarding healthy sanitation practices
- Generate understanding about sanitation and its relationship with public health
- Capacity growth for ULBs to create an enabling environment for private sector participation in Capex (capital expenditure) and Opex (operation and maintenance)

Household toilets, including renovation of unsanitary latrines into pour-flush latrines, Capacity building and Administrative & Office Expenses (A&OE), Community toilets, Public toilets and urinals, Solid waste management, IEC, are some of the mission mechanism to be strengthened.

Based on the unit and per capita costs for its various components, the estimated cost of implementation of SBM (Urban) is Rs.62,009 Crore. The Government of India share as per permitted funding model amounts to Rs.14,623 Crore. The Government of India share as per permitted funding model amounts to Rs.14,623 Crore. Besides, An least additional amount equivalent to 25% of GOI funding, amounting to Rs.4,874 Crore shall be contributed by the States as State/ULB share.

Swachh Bharat Abhiyan (Gramin) is operated under the Ministry of Drinking water and sanitation. To achieve "Swachh Bharat" by October 2, 2019, the main objectives of the SBM(G) are as under:

- Improving general quality of life in the rural areas, by promoting cleanliness, hygiene and eliminating open defecation.
- Accelerate sanitation coverage in rural areas.
- To adopt sustainable sanitation practices and facilities through awareness creation and health education by motivating communities and Panchayati Raj Institutions.
- To support cost-effective and appropriate technologies for ecologically safe and sustainable sanitation.
- Focusing on scientific Solid & Liquid Waste Management systems for overall cleanliness in the rural areas by developing community managed sanitation systems.

- By improving sanitation in marginalized communities Swacch Bharat wishes to promote Social Inclusion.

To popularize the National Campaign and to encourage more and more citizens to take part in Swachh Bharat Abhiyan, PM Narendra Modi invited nine people to be a part of this great clean India campaign through social media. PM initiated a cleaning mission chain by inviting the nine reputed personalities like cricket icon Sachin Tendulkar, Goa Governor Mridula Sinha, industrialist Anil Ambani, Congress leader Shashi Tharoor, film actors Aamir Khan, Salman Khan, Priyanka Chopra and Kamal Hassan, yoga guru Ramdev and the entire team of popular TV serial "Tarak Mehta KaooltahChashmah". PM's main drive was to make this movement an people's movement on a really large scale through viral marketing so that the nine invitees nominated by PM will nominate nine more people to join the Clean India Campaign and in this way, the chain would continue and become bigger and bigger. With the further nominations, several celebrities from various fields got involved making SBA a great Public Movement. Also, the term "Swachagrahis" was coined to address each and every individual involved in the movement. This led to the mass involvement of citizens from all sections of the society from industrialists, actors, corporates to school and college students.

For the functioning of Swachh Bharat Abhiyan funds are collected from various sources like Corporate Social Responsibility (CSR), individuals and philanthropists. In the 2016 union budget, 90billion (US$1.3billion) was allocated for this. The world bank provided a loan of US $1.5 billion-plus $25 million in technical assistance. Apart from the money spent for "Corporate Social Responsibility" all donations made to the "Swachh Bharat Kosh" under sub-section (5) of Section 135 of the Companies Act, 2013 are eligible for 100% deduction under section 80G of the Income-tax Act, 1961 and are applicable to the assessment year 2015-16 and subsequent years

Foreign tourists are very strict about hygiene and cleanliness standards. Cleanliness is one of the biggest limitations in promoting tourism. Swachh Bharat aims to eliminate this and increase the traffic of foreign tourists thus bringing in foreign currencies and it helps in increasing the GDP of our country. Employment opportunities are also created due to these practices.

Swachh Bharat: Swachh Vidyalaya which literally translates to clean India: clean school. The main function of the campaign to make sure that every school has at least one set of functioning, well-maintained water, sanitation, and hygiene facilities.

Hygiene practices in schools refer to a technic and human development component and also helps in creating a healthy school environment. In technical development, all the hygiene practices and habits of drinking water are considered. All the activities which promote cleaning and maintaining hygiene standard are considered under technical development. It's the role of policy maker, government representatives, parents and citizen to make sure that a child goes to a school with a toilet.

Many initiatives taken by the citizens of India has changed the face hygiene and sanitation practices. The government initiatives were successful in inculcating the values of cleanliness and sanitation. Some of the popular citizen's driven initiatives are:

- Over five million kilograms of trash was removed from Mumbai's Versova Beach over a period of 85 weeks, resulting in a public cleanliness drive. Accompanied by over 150 volunteers Afroz Shah, a 33-year-old lawyer at the Bombay High Court at the beach underwent a major makeover. The beach on the north-west part of Mumbai was transformed into one of the cleanest in the city by the collective efforts of the citizens.
- Union Sanitation Secretary Parameswaran Iyer entered a public toilet pit and cleaned it himself during a visit to a village in February this year.
- In Bihar's Jehanabad district's village named Makhdumpur 22 panchayats, nearly 14,000 women have become the harbingers of social change. They operate in different villages of the region by organizing themselves into 1,000 self-help groups (SHGs), these women have taken charge of cleaning the area up and convincing people to build toilets and end open defecation.
- The 127-year-old dabbawalas of Mumbai known for their efficiency conducted a seven-day drive to deliver soaps and hand wash to around one lakh people in the city of Mumbai to promote hygienic practices among the residents of the city on August 2015.

Haryana has a campaign called 'No Toilet, No Bride' it began as a citizen initiative and gained popularity on social media. In a state with a sex ratio of such drastic state against women, girls and their families pronouncing their rights to sanitation and proper hygiene hold special meaning to the campaign as well as the females in Haryana. The success of the campaign can be gauged

by the fact that private sanitation coverage in Haryana increased by 21 percent, specifically among households where men were active in the marriage market.

After the debated success of Swachh Bharat Abhiyan after the completion of its designated duration till October 2019, the government of India has continued the schemes that are yet to attain their maximum results and other initiatives like the ban on single-use plastics, complete abolition of manual scavenging by replacing all the old fashioned toilets in trains with the bio-toilets, also several activities are continued under CSR and other initiatives to maintain the achieved standard of cleanliness and sanitation as cleanliness is a constant process and not a program to be ended in a particular duration.

FINDINGS

The Partial Success of Swachh Bharat Abhiyan was started as a nation-wide drive on October 2nd, 2014 to attain several objectives listed towards the 'Swachh Bharat' or "Clean India" till the year 2019. According to the current reports, the success of Swachh Bharat Abhiyan is debated on a large platform as it has successfully inculcated the ideas and sense of cleanliness and the citizens' responsibilities towards sanitation and has also the government initiatives and policies has improved the level of sanitation in both rural as well as urban India.

As per the 2014 reports India had about 60% of the world's population indulged in open defecation due to various reasons either lack of toilets, poor supply of water, misconceptions and taboos about toilets in the household premises, etc. But according to recent reports dated February 2019, as per the GOI, India will claim to be an open defecation free nation as 76% of India's villages have been declared ODF with the construction of about 83.8 million toilets.

Another important aim of Swachh Bharat Abhiyan was to abolish the practice of manual scavenging that has been banned by law in the year 1993 under the "The,Prohibition,of,Manual,Scavengers,and,Construction,of,Dry, Latrines,(Prohibition), Act,1993" but is still prevailing in parts of the country due to the lack of proper sewage system or safe fecal sludge management practices. According to the official data by the GOI dated September 2018, the government has identified about 12000 manual scavengers in India. The major violator of the law has been the Indian Railways where the toilets in train coaches have been dropping excreta from trains on paths and employ scavengers to clean the tracks manually. The situation is improved in 2018 by the addition of bio-toilets or on train treatment systems for toilet waste. It has been controlled but is still isn't eradicated from the Indian Society.

The National Sanitation coverage rose to 65% in 2017 and 90% in 2018 from 38.7% in 2014. In the urban wards which have attained 100 percent door-to-door, solid waste collection ODF stood at 50 percent whereas the cities and towns which have been announced ODF stood at 22 percent.

The count of Swachagrahis volunteers working across the urban local bodies rose to 20000, and those working in rural India rose to more than 100000. The count of schools with separate toilet facilities for girls rose from 0.4 million (37 percent) to almost one million (91 percent).

CONCLUSION

The Government of India has successfully run several policies under the Swachh Bharat Abhiyan and has been successful in attaining several milestones of cleanliness and has also ensured that all the citizens should take up the responsibility of maintaining their surroundings. All the government policies have shown outstanding results according to the recent surveys but few areas like manual scavenging (abolition), maintenance of public toilets, etc requires continuous monitoring to ensure its effective implementation. Policies implemented should be continued effectively in the future as maintaining cleanliness is a continuous task and could not be restricted for a while.

SUGGESTIONS

According to the aim and objectives of the Swachh Bharat Mission, GOI has aimed at the root cause of lack of cleanliness and sanitation in the country, right from lack of toilets to citizen's mindset to the lack of space to dispose of domestic waste. It had been a successful mission in the documents recorded and has attained many milestones but the practical scenario of many cities, towns or villages hasn't changed much. It is important for the GOI to take serious steps to ensure the practical implementation of all the government policies enacted.

The government has started many effective policies under the Swachh Bharat Abhiyan and had been implemented for a period and then fade away due to lack of effective follow-ups by the concerned department. Therefore, it is very important to conduct periodic follow-up sessions to ensure success aimed at the policies.

Swachh Bharat Abhiyan is called a "Jan Andolan" or "a people movement" and there had been great heroes of Swachh Bharat taking great initiatives but there had been a group of individuals participating due to the trends on social media and their activities has not resulted in any productive co-operation towards the Swachh Bharat Mission. There must be a sense of responsibility among citizens to fulfill the aims of SBM.

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THE MEDIA'S ROLE: THROUGH THE LENS OF SWACHH BHARAT

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ABSTRACT

Every Indian's dream is India to be tidy and cleaned nation, this desire exists even before our current prime minister took as a charge. In fact, many individuals, SHGs, corporate companies worked towards the cleaning mission. But as a citizen we didn't get motivation from a leader. Once Modi has become as a prime minister in 2014 since then he starts motivating people through promoting "Swachh Bharat". The central government has formed Swachh Bharat Mission and doing a commendable work for the society. Many film actors & sports personality joined in this mission and contributed towards the NDA government mission. But without media coverage (Print media, Broadcast media, OOH media & Internet based mass media) this much of an impact would not happen in the society. The objective of this paper is to see how media influence and impacts to this campaign. Authors use descriptive research design for this paper.

Keywords: Swachh Bharath Mission, Media, Connecting people.

INTRODUCTION

India generates 6 crores tons of wastage every day and of this around 4.5crores to 5crores tons are left untreated. The Metropolitan cities alone generate 1crore tons of waste in everyday. Research says by 2040, urban India alone may generate roughly around to 1.7croroes tons of waste in everyday Pradhan, P. (2017). In India only 56.4% of the urban wards have a sewer network. About 80% of the sewage in India flows into rivers, lakes and ponds. Indians are still throwing of household garbage on the street Karnik, M. (2016). If you take rural India, open defecation is an issue and millions of houses are not yet build their toilets. After NDA government took charge, Over 100 million toilets have been built in India since the launch of Swachh Bharat Mission in 2014. According to the Bill & Melinda Gates foundation, sanitation- related diseases kill nearly 5lakhs children under the age of five every year across the globe. The same foundation has appreciated Swachh Bharat Mission for transformed lives of millions across the country IANS (2019).

MISSION OF SWACHH BHARAT

Mahatma Gandhi said "Sanitation is more important than Independence". Because he knew without cleanliness we cannot make anything worthwhile in the society and he also aware of the pathetic situation of rural India at that time. After 72 years of independence, we 77% rural households had access to toilets, of which 93.4% used them regularly Johari, A. (2019). NDA government claims that since the missions started in Oct 2014, 50 crore people have stopped defecating in the public. Over 5.5 lakh villages and 615 districts have been declared ODF (Open Defecation Free), along with 30 ODF States and Union Territories, as per the government Sharma, A. (2019).

MEDIA SUPPORT FOR THE MISSION – MR. MODI VIEWS

In Oct 24, 2014 Mr.Modi twitted "I saw several TV channels showing dirt left behind after crackers. I congratulate them for spreading awareness on importance of cleanliness" This clearly shows how media helps the mission from day one. In the beginning days of the Swachh Bharat Mission campaign, Modi said that NDA government alone cannot do everything. He added, without media support we cannot touch millions for the public cause Gargi Parsai (2014).

In 2015, Mr.Modi said "Media supported the Swachh Bharat Mission a lot; they came out to clean the filth on the roads. They devoted their advertisement slots to this initiative; they have made people aware about the programme". Modi also praised the opposition by saying when the government announces the policy, including the opposition and other parties oppose it, but for this mission everyone is supporting. Through this mission the government was aimed to achieve the vision of a clean India by Oct 2, 2019. The main objectives of the vision of Clean India are a. Elimination of open defecation b. Eradication of manual scavenging c. Through the awareness the government wants to see behavioral change in people regarding health sanitation practices ANI (2015).

In 2017, Mr.Modi said "The nation has seen the positive role played by the media in making a mission in grand success" SNS Web (2017).

ACTIVITIES HAVE TAKEN PLACE THROUGH SWACCH BHARATH MISSION

- Table 1 shows how much the central government allocated the funds every year towards the mission.

Table 1: Details of Fund Allocated and the Funds Released for SBM (2015 - 19)

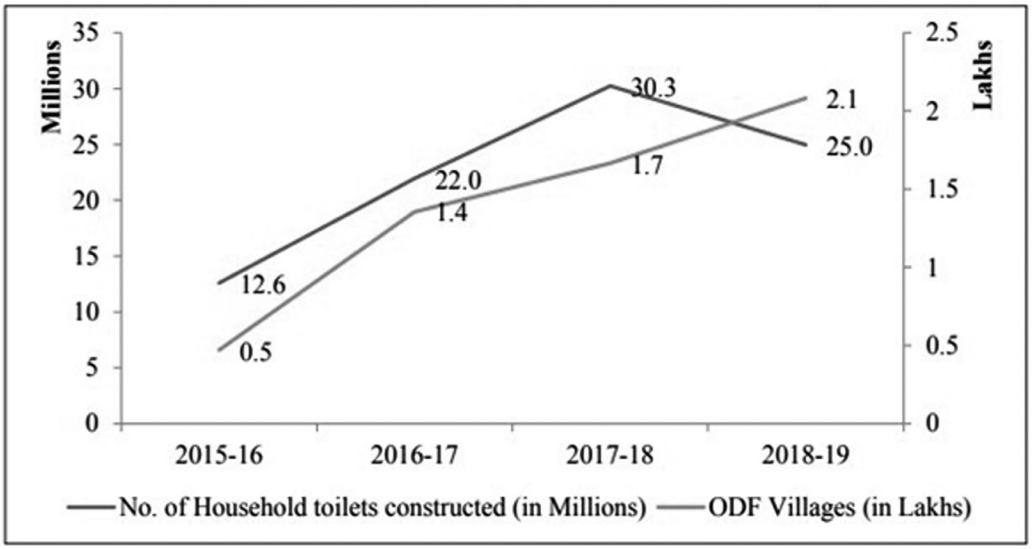
Years	₹ (in Crore)		
	Funds Allocated	Funds Released	Fund Utilization (per cent)
2014-15	2850.0	2730.3	95.8
2015-16	6525.0	6363.0	97.51
2016-17	10513.0	10272.0	97.70
2017-18	16948.27	16610.9	98.0
2018-19 (RE) *	14478.1	12932.96	89.3

* (up to31.03.2019)

Source: Ministry of Drinking Water and Sanitation

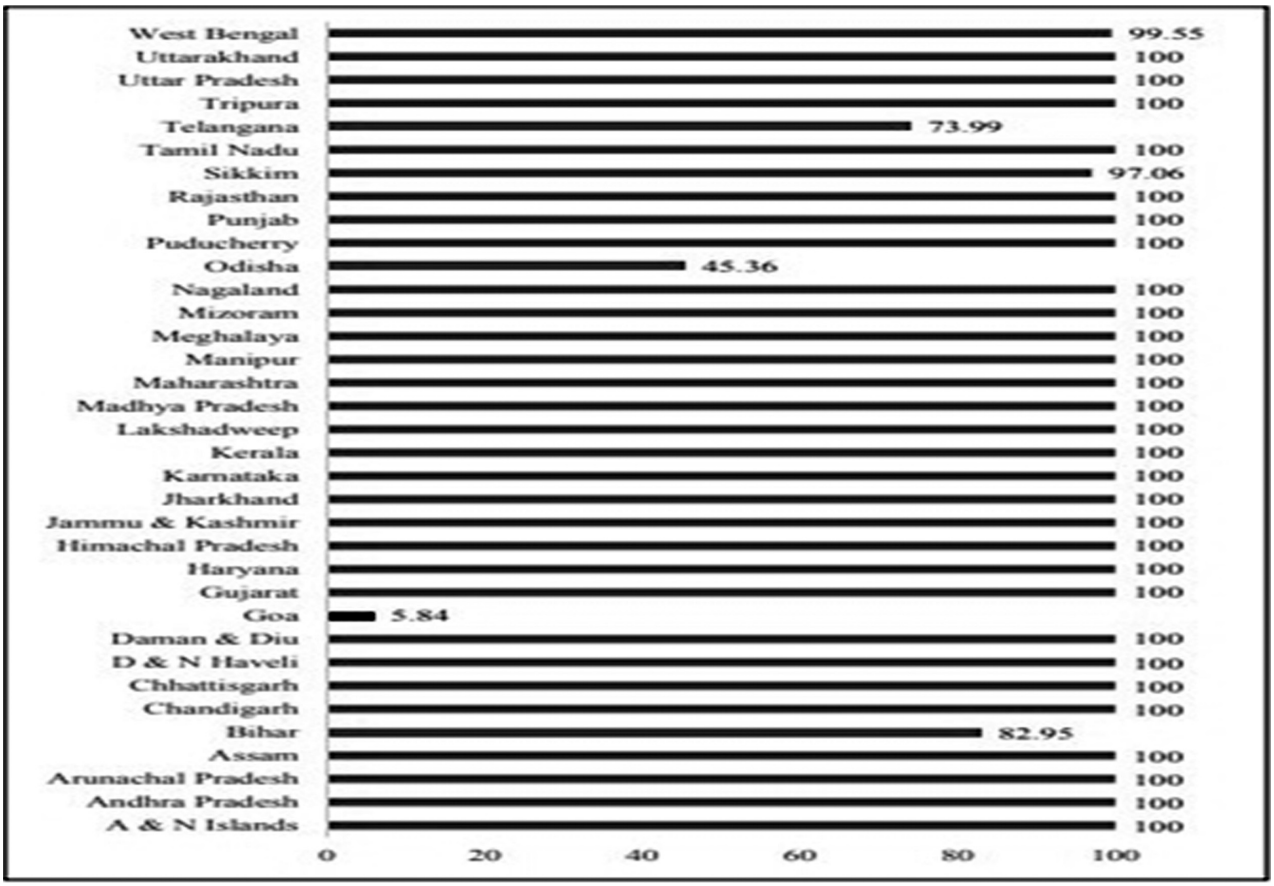
- Fig: 1 helps you understand the no of household toilets constructed every year and ODF villages.

Figure 1: Number of Household Toilets Constructed Every Year and ODF



Source: Ministry of Drinking Water and Sanitation

Figure.2 Shows the Status of Open Defecation Free (ODF) Across States in Percentage



Source: Swachh Bharat Mission dashboard as on 14th June 2019

All the given data shows that since from the inception of the mission, there is a rapid growth towards the attainment of Clean India.

IMPACT OF MEDIA ON SWACHH BHARAT MISSION

Since the mission stated, the NDA government had used all types of media for this mission. Nowadays, it is very important because everyone is using smart phones to update them, especially youngsters. Social media plays a major role on this generation. Social media are defined as a group of Internet-based applications that allow for the creation and exchange of user-generated content (Kaplan & Haenlein, 2010). Authors believe that the major success of SBM is because of "Connecting people". So all type of media helps common people to get aware of the mission and media helps to increase the volunteer's numbers.

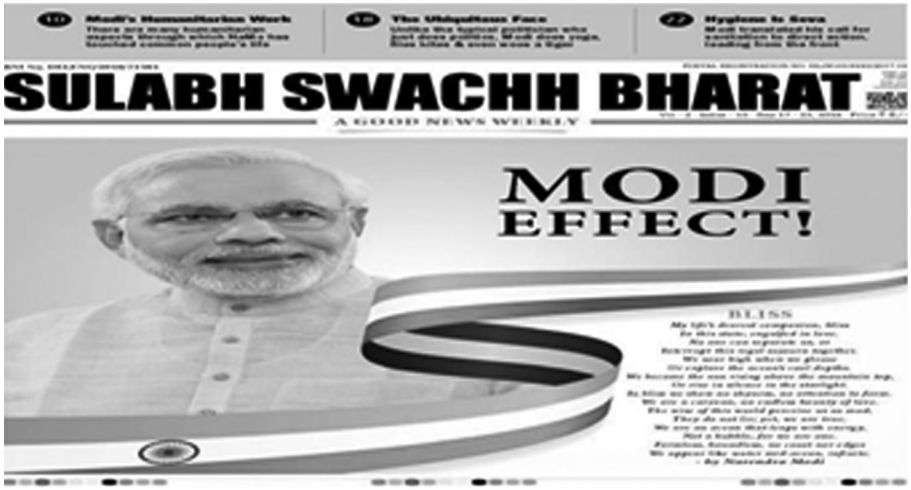
SOCIAL MEDIA

Figure 3 Shows How Swachh Bharat Twitter Account Helps to Reach Out People

Source: Twitter

PRINT MEDIA

Figure 4 Shows How Print Media Helps for the Campaign



Source: Internet

BROADCAST MEDIA

Figure: 5 Shows How Broadcast Media Helps for Promoting the Swachh Bharat Mission

Source: ISH News

OUTDOOR MEDIA

Figure: 6 Shows How Outdoor Media Helps for the Mission

Source: The Hindu

CONCLUSION

Clean India vision is an every Indian's dream. Many Corporate, Industries, NGO's, Institutions, Media and Individuals working for this mission. Surveys indicate that "61% of consumers would buy a product from a socially responsible company or would switch retailers if cost and quality were equal" S. (Ed.). (2015, May 27). This indicates that somehow we are contribution indirectly to this mission. The Central government plays a major role for this mission. Without Mr.Modi this much of wave would not happened in the society. Authors believe if every citizen is willing to change their environment, this Swachh Bharath Mission comes to end very soon. First citizens need to realize, if we want to live healthy, we need to live in a tidy and cleaned environment. If a citizen starts feel "I am part of this society" then he/she would not be a disaster to the planet. So first we need to change our behavior. Authors believe media playing a major role for this noble cause. It is every Indian's responsibility to take it forward.

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GREEN MANIA – A DIFFERENT THINKING TOWARDS SWACHH INDIA (MISSION 2020)

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ABSTRACT

The Swachh Bharat in India is playing a vital role in making India more cleaner and hygienic. India being second largest populated country in the world needs to be made aware about the deterioration of our planet 'Earth'. The general objective of this paper presentation is to implement environmental friendly techniques in households in India in relation with Swachh Bharat Abhiyan which could help them to live in a clean, green and hygienic environment leading to a suitable place to live in with less diseases and a pollution free nation. This will also lead to awareness among people especially the youth of our nation to go Green eventually leading our nation as well as our globe clean. The Earth's atmosphere consists of several thin layers of gases protecting our environment from unwanted natural gasses. The air in the atmosphere consists of 78% Nitrogen, 21% Oxygen, 1% Argon. Our Environment also consist of some other gases like Carbon dioxide, Methane, Nitrous Oxide, Ozone and Water vapour which is also termed as Greenhouse Gases. A shield that protects the Earth's surface from Ultraviolet rays from sun is known as Ozone Layer. The main reason of Ecological Imbalance is due to deforestation. Deforestation is referred to as a process of cutting all the trees or in other words clearing off the natural habitat of all the other living beings except humans for the human needs. It is one of the cause of the current climatic as well as Geographical change in the Ecosystem. The deforestation dates back to the advent of Urbanization in the World. It is also one of the causes of Global warming in our planet 'Earth'.

Keywords: Cleanliness, Waste Disposal, Environment, Hardships, Awareness, Urbanisation, Pollution.

OBJECTIVE

The general objective of the study is to implement some strategies to preserve our environment, it leading in preserving our Eco-system in relation with Swachh Bharat Abhiyan which could help the people to live in a clean, green and hygienic environment with less disease.

The specific objectives are as follows:

- To create awareness about Ozone layer depletion and its causes.
- Suggestions & Practices for a Clean and Green City.
- To seek alternatives & RE-USE from various day to day materials.

METHODOLOGY

This research paper mainly focuses on the changes in the environment due to the extreme carelessness of human leading our planet Earth in a vulnerable condition and an inappropriate place to live in for both humans as well as animals. This research paper puts light on how the people and especially the youth of our nation can be targeted for making our society clean and hygienic in relation with Swachh Bharat Abhiyan leading to a Clean and Green City as well as Clean and Green India. As youth are the backbone of a nation and thus are considered as the future of the nation.

REVIEW OF LITERATURE

According to the Census Bureau's International Database we live on a planet with a population of 7.5 billion. India being the second largest populated nation in the world with a population of 1.3 billion, it contributes 17.71% of total world population. According to a data from the U.N Food and Agriculture Organization, deforestation rate was at its peak in the 1900 due to which there was a loss of 16 million hectare of forest which contributes only 4 billion hectares of forest cover from initial 5.9 billion hectares on Earth. This has lead to a dramatic climatic change in the world disturbing the ecosystem. According to a report in the Times of India in February 2018, the total forest cover in India is 21.54% of the total geographical area of the country and the forest and tree cover is 24.39% of the total geographical area. There is a lot of geographical, physical, climatic change which can be seen due to rapid urbanization in the nation due to which the natural habitat is unheard and unseen.

India is one of the 12 mega diversity countries having a vast variety of flora and fauna. It commands 7% of world's biodiversity and support 16 major forest types, varying from alpine pastures in the Himalayas to temperate, sub-tropical and tropical forests, mangroves of the coastal regions. The country's forest cover is 67.71 million ha. (21.81%). Its expulsion through deforestation would permit a progressively uncommon temperature variety from day to night, much like a desert, which could demonstrate deadly for current occupants. The absence of trees additionally permits a more noteworthy measure of ozone depleting substances to be discharged into the environment. By, the tropical rainforests of South America are answerable for 20% of Earth's oxygen and they are vanishing at a pace of 4 hectares per decade. On the off chance that these rates are not halted and turned around, the outcomes will turn out to be significantly increasingly extreme.

The trees additionally help control the degree of water in the environment by directing the water cycle. With less trees left, because of deforestation, there is less water noticeable all around to be come back to the dirt. Thus, this causes dryer soil and the powerlessness to develop crops, an unexpected turn when considered against the way that 80% of deforestation originates from little scale horticulture and steers farming. There is an urgent need to move to more sustainable and environment friendly techniques for a better tomorrow. As all the beings are interrelated and interdependent to one another.

The Swachh Bharat Abhiyan is India's biggest cleanliness drive ever. The campaign covers as many as 4041 towns and aims at cleaning streets, roads, and infrastructure. It was officially launched on October 2, 2014 at Rajghat, New Delhi. This paper presentation studies how youth plays a vital role in Swachh Bharat Abhiyan. The mission of this Abhiyan is to make people aware about green practices to be followed by each individual in rural and urban population in India to make it a clean and Green Nation.

NEED FOR THE STUDY

India being second biggest populated nation on the planet wherein the 70% of the all out populace is the Youth in this manner they should be focused on first for the tidiness just as manor and sparing our the unstoppable force of life as adolescents are the fate of the country which will prompt a perfect and green India, which will influence the life of the individuals as the future of an individual increments with a spotless and sterile environment and condition. This will likewise help in the raise of the outside just as local the travel industry which will help in the expansion of the Gross Development Product (GDP) of the country.

Prevention is Better Than Cure

The acknowledgment of the perils exhibited by chlorine and bromine to the ozone layer brought forth a universal exertion to confine the generation and the utilization of CFCs and different halocarbons. The normal increments in ozone would be progressive essentially in view of the long living arrangement times of CFCs and different halocarbons in the environment. All out ozone levels, just as the appropriation of ozone in the troposphere and stratosphere, would likewise rely upon different changes in environmental arrangement—for instance, changes in levels of carbon dioxide (which influences temperatures in both the troposphere and the stratosphere), methane (which influences the degrees

of receptive hydrogen oxides in the troposphere and stratosphere that can respond with ozone), and nitrous oxide (which influences levels of nitrogen oxides in the stratosphere that can respond with ozone).

Need for Change

Environmental change, brought about by discharges from ventures and other human action, is making the world hotter, upsetting precipitation designs and expanding the recurrence of extraordinary climate occasions. No nation is invulnerable to these powers, yet India is especially vulnerable. In 2018-19, upwards of 2,400 Indians lost their lives to extraordinary climate occasions, for example, floods and typhoons, as per the earth ministry .The World Bank gauges that, on the off chance that environmental change proceeds with unhindered, at that point normal temperatures in India could reach as high as 29.1° C before the century's over (up from 25.1° C right now). Looking at the normal temperature in 2009-18 to the that in 1950-80 uncovers that a few pockets have just turned out to be a lot more sultry. In parts of Rajasthan, Gujarat, Tamil Nadu, Kerala and the North-East, normal temperature in the course of the most recent decade has ascended by about 1° C contrasted with the verifiable normal in the 1950-80 time frame. A locale's powerlessness to temperature changes relies upon a few factors, for example, access to foundation (power, streets and water associations) and reliance on farming. As indicated by the World Bank, focal locale in India are the most powerless against environmental change since they come up short on the foundation and are to a great extent agrarian.

As per the International Labor Organization, the misfortune in efficiency by 2030 in view of warmth stress could be what could be compared to India losing 34 million all day occupations (up from 15 million of every 1995)— the most noteworthy among the world's most crowded nations.

Rising temperatures, particularly joined with dampness, can even be deadly. In his new book, Air: Pollution, Climate Change and India's Choice Between Policy and Pretense, Dean Spears proposes that an infant presented to seven days of hot and damp condition is significantly less liable to endure contrasted with one looked with a less unfriendly condition. Climate change is additionally showing itself in the ascent in outrageous hot days (temperatures surpassing 35°C) crosswise over Indian urban areas. For example, in Delhi, the quantity of days where temperatures have crossed 35°C has expanded to 1,613 in this decade (2009-18) from 1,009 out of 1959-68.While a lot of India's environmental change emergency is an aftereffect of outside powers, there are household drivers also. For example, the nation still overwhelmingly depends on coal for power, the discharges from which contribute altogether to environmental change (68% of India's outflows originate from producing vitality). In addition to the fact that this adds to environmental change, it additionally exasperates another major ecological issue: Air contamination. Correspondingly, wasteful farming arrangement empowers over the top water use, which compounds any environmental change-incited rainstorm varieties. Hence, environmental change is inseparably connected with India's other ecological emergencies, which presents a defense for a far reaching intend to handle it basic for our future.

Four types of fauna and 18 types of vegetation have become wiped out in India in the previous couple of hundreds of years, as per untamed life study organisations. India is home to 11.5% of all greenery on the planet. As per the International Union for Conservation Of Nature, another investigation has demonstrated that since 1750, more than twofold the quantity of plants have vanished from the wild than winged animals, warm blooded creatures and creatures of land and water combined. Among well evolved creatures, the cheetah (Acionyx jubatus) and the Sumatran rhinoceros are viewed as wiped out in India. The pink-headed is dreaded wiped out since 1950 and the Himalayan quail was last announced in 1876. India has about 6.49% of all the fauna species on the planet.

India has seen quick deforestation lately, essentially because of its attention on monetary improvement. As indicated by government information, 14,000sq km of timberlands were cleared to oblige 23,716 mechanical undertakings crosswise over India in the course of the most recent 30 years. India has been attempting to accomplish its objective of keeping 33 percent of its geological region under woodland spread for quite a long time, however the 2017 State of Forest report demonstrates that it is as yet attempting to get over 22 percent. Nearly 275 million destitute individuals in India (in excess of a fifth of the populace), particularly ancestral networks, rely upon timberlands for subsistence and livelihoods. Many of these networks as of now experience the ill effects of constrained access to wellbeing and instructive administrations and advantage little from the administration's financial improvement programmes. Study by the Center for Global Development demonstrates that if the loss of vegetation proceeds with unabated in light of current circumstances, backwoods covering a territory almost the size of India will be wrecked by 2050.

A study on Sustainable and Eco-friendly Living

Example of a pune based couple

Mumbai-conceived engineer Priyanka Gunjikar and Pune's Dhruvang Hingmire are attempting fabricate bond free breathable homes that doesn't require any sorts of fan or air conditioning, to battle with warmth during summer. The couple utilizes blend of lime and mud, close by stone and blocks, that enables the structure to breathe. Building a concrete house (basically most houses in urban communities) expects 80 to 90 percent consumable water, which can be effectively maintained a strategic distance from by supplanting bond with limestone or mud. their effective developments in eco-accommodating lodging incorporates bond free mud homes that require zero cooling and eco-toilets that likewise produce compost for ranches.

Over the most recent three years, the couple has constructed six homes crosswise over Maharashtra and every one of them guarantee to have utilized more than 50 percent less water (than concrete houses) and at the same time cut down the general support cost (without cooling) by 80 for every cent. The couple use lime and mud, stone and blocks, customary work and reasonable, locally accessible assets to fabricate homes. They utilized stone workmanship (dark stone with mud mortar) for the ground floor which he says keeps the establishment solid and ensures the structure during monsoons .The house had a little storage room on top, worked from mud, blocks and wood. Rather than the costly and ordinary teak wood, the rooftop was produced using a neighborhood timber called 'ain'.

"The tragedy is that limestone is the raw material used to make cement. To make 100 kg of cement, you require 130 kg of limestone. In our country, cement is a subsidized but lime isn't. The cost and wastage involved in building cement houses is too much and mostly avoidable. But sadly, the cement and sand mining lobby in our country is so strong that it becomes difficult to convince people what is really good for them and the environment," Dhruvang Hingmire. (In an Article by Divya Nair).

Example of a botanist from Pune living with no electricity

A PhD holder in Botany from Savitribai Phule University, and a previous teacher at Garware College, Hema lives in little house in Budhwar Peth, Pune. Hema doesn't utilize any power whatsoever. It is a direct result of her affection for nature and the earth.

In a conversation with India Today, she said, “Food, shelter, and clothing are the basic needs. Once upon a time, there was no electricity. It came much later I can manage without it.” Her consumption of electricity is zero units in this era of social networking sites and television. Whereas the average consumption of electricity per month by an Indian family is 50 units. Whereas an average Indian consumes electricity of 800 kwh per year. Whereas she uses candles, oil lamps, soil lamps as a source of light in the evening. On an Average Water Consumption in India per person per day is a minimum of 80 gallons, that is 302 liters of water.

Where Savitri Phule is setting an example of minimalism among every individual.

Example of a couple from Kerala

Asha is a piece of a network that enables ranchers to rehearse regular cultivating and Hari is a representative of the neighborhood water expert in Kannur. The 960 square feet house sits in the midst of 34 pennies of land in a little town in Kannur District, Kerala. They chose to construct a house, Hari and Asha needed it to be vitality effective, profoundly associated with nature and reasonable. Its walls are made of mud. The dividers let the glow of the sun into the house gradually during the day. The top of the house is produced using a mix of concrete and ridged tiles.

The use of power is negligible and there are not many light focuses in the house. It gets sufficient regular light., so as to make some sort of cool stockpiling zone, they delved up a square space in the kitchen, fixed it with blocks and put a mud pot inside. By filling sand around the pot and keeping it sodden, the mud pot remains cool and keeps things crisp for an at any rate a week. They likewise utilize sun based boards and their kitchen keeps running on biogas. All waste created from the house, including restroom squander, is changed over to biogas. Their capacity utilization from the network is as low as 4 units for every month, They have a TV, blender processor, PC, and different apparatuses like numerous typical urban families – they've quite recently made sense of more astute approaches to create and utilize vitality.

Suggestions to Conserve Our Environment

- ***Knowing the nature***

  The first and foremost thing to conserve our environment is to know our nature and its resources. If nature is being disturbed or hindered then it is eventually going to affect all the living beings as well as human beings.

  For example: Mud can be used instead of cement for building houses at least in rural areas than in urban areas, which is cost efficient as well as environment friendly too.

- ***Efficient use of our resources***

  The nature have resources in abundance, it is up to us; that is human beings to know our resources along with the needs so as to efficiently use them saving them for future generations.

  For example: a general scenario now a days is to use plastic which is non bio-degradable material and will emit harmful gases while burning thus harming our environment. So as a wise and responsible human we should use its substitutes like glass bottle, or cloth bags.

- ***Awareness among the people***

  The Government need to take responsibility to aware people about the depletion and worse condition of our eco-system among the common people to make them aware about their environment and its causes.

- ***Target school kids***

  The school kinds being the upcoming youth of the nation should be included and be educated about the environment and its worsening condition and awareness camps should be arranged for them about the same.

CONCLUSION

"Look profound into the nature and you will comprehend everything" Albert Einstein. The response to every basic need of living creatures just as people (garments, nourishment, and safe house) everything lies in our the unstoppable force of life. It is up to us to protect and moderate the excellent coffer where everybody and everything is bury reliant on one another for satisfying their essential requirements for presence. There are a great deal of guide to place in to make an individual mindful about his/her social obligation yet it is up to us to respond to the call and do our little. In the event that we look at the climatic condition and climate of most recent 10 years and now we can see a great deal of progress in that, the main reason of that is urbanization. India being an Agrarian culture need to concentrate on its regular living space and biology rather annihilating them in such a case that we proceed with this training then our endurance would turn out to be progressively troublesome, all these climatic change and deforestation are prompting extraordinary states of flood, dry season, exhaustion of ground water level, and so forth. Accordingly we should look for assistance from nature than disappearing it totally.

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HARNESSING SOCIAL MEDIA AND INFLUENCERS IN ACHIEVING THE VISION AND MISSION SWACHH BHARAT

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ABSTRACT

Social media has given a new facet to the people of this current generation. Social Media has become the new age method of social interaction. The generation X would not even suspect that kind of influence of social media on the lifestyle and decision making. Social Media cannot be categorized as spare time task and has taken a bigger leap post the industrialization period. The research focuses to understand the role played by various social media platforms in the various social issues. To comprehend the role of social media in different social media in terms of influence in Swachh Bharath Abhiyan. The research also aims to establish the various aspects from the view of layman, strategists and specialists. The research methodology adopted in fundamental research and exploratory in nature and the sample is collected from different social media influencers around the country with different walks of life in order to bring secular fact into consideration. Like every new technology has its two sides of the coin and social media comes with its own set of pro and cons.

Keywords: Social Media, Technology, Influence, Aspects

INTRODUCTION

The current generations of people live in period and era where information is just a button press away and are swayed by information all around us. The millennial expects to know, read, understand and then speak the minds only after hearing different views about a issue. This point is highly steered by the social media comes into play and cannot be ignored (Bimber, 2014)

Social media is the comprehension of websites, applications and other platforms that enable the users to share or create content and also helps us to participate in networking with people. Social media is not limited to blogging, content sharing and sharing pictures; there are plenty of tools also that social media provides for decision making. The impact of social media is very towering and far reaching. It can make or break images in various perspectives. (Ahemed W, 2017)

SOCIAL MEDIA IN INDIA

For the social media to reach the its optimum usage considering the population of India, it is not hard to miss the fact that only 200 million of 1.25 billion are netizens of India. The playbook for the Clean India campaign is based on the ALS ice bucket challenge, which proved to be a social media blockbuster. (Colesman, 2018)

Our Prime Minister Mr. Narendra Modi leans towards mnemonics of viral showcasing standards utilizing 3Ms (Medium, Message, Messengers) and an evaluation of whether the Clean India battle in its present symbol can viably misuse them. (ANI, 2016)

An extensive blogger campaign was launched to amplify the message and 4 lucky bloggers were given a chance to experience the efforts live by travelling on the Swachh Express and capture their experiences. One

of the bloggers, selected from the campaign was invited for the Cleanathon and was presented with a cheque of INR 250,000 by Mr. Amitabh Bachchan which she gladly returned to aid the cause. (ANI, 2016)

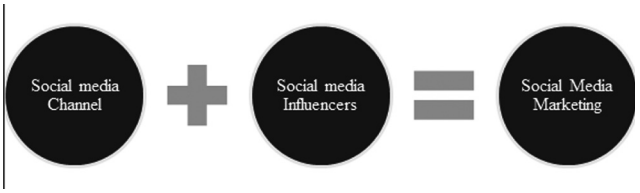

Figure 1: Social Media Marketing

SOCIAL MEDIA CHANNELS

Before a marketing campaign, reap a baseline degree of your targeted metric so changes can be tracked and can make modifications in overall performance in the course of the campaign and beyond. Goals are formed via the means, the message and messenger Different demographics additionally have varying preferences for social media platforms, so suitable channel and influencers plays a vital role (Blondel et al V. D., Guillaume et al J., Lambiotte, R. et al Lefebvre, E., 2008).

- Medium
- Messenger
- Message

MEDIUM

For a marketing campaign or an idea to unfold swiftly, communication networks is a critical area and a lot of possible things can be expected. Think of medium as "phrase of mouth" but on virtual steroids.

MESSENGERS

The seed group of influencers for Clean India is drawn from various fields—entertainment (Priyanka Chopra, Salman Khan, the group of the TV collection Taarak Mehta Ka Ooltah Chashmah and Kamal Haasan), politics (Shashi Tharoor, Goa governor and ex-BJP women's wing president Mridula Sinha), sports (Sachin Tendulkar), business (Anil Ambani) and spirituality (Baba Ramdev).

MESSAGE

People are more likely to share or forward messages that have these characteristics—emotionally attractive, cause them to feel top, are thrilling or fun and boom their social standing. When questioned on the ice bucket mission flooded Facebook timelines, the whole scenario of the importance of the message can be understood and why—it checks off these kinds of standards. (Blondel et al V. D., Guillaume et al J., Lambiotte, R. et al Lefebvre, E., 2008).

SOCIAL MEDIA INFLUENCERS AND TYPES

Before choosing an influence for a campaign or a task, the following compatibility checks must be done such as first is

1. If the influencer's personal message aligns well will the campaign or the issue and is applicable to the same target audience.
2. The second is how engaging the influencer is with their followers or trust created amongst the followers.
3. Lastly is to consider the influencer's reach or follower count as this can help predict TAT time (Basu N, 2016)

- ***Celebrity influencers***

These are the maximum famous influencers as they have got received their following from their celebrity reputation. Since positive celebrities entice precise demographics and target audiences, businesses that desire to attain the ones target audience can hire the celebrity influencer for their campaign

- ***Consumer influencers***

These are normal human beings that have won a following because of their personality and relatability. They are typically active on their social media thru text posting, running a blog or photograph sharing. Because their target market considers them "real" or "relatable" they have a tendency to take their advice critically, such as after they vouch for a service.

- ***Microinfluencers***

Also called professional or expert influencers, those are ordinary human beings that have won a following and topical authority due to their knowledge and expertise in a specific area. When they recommend or reward a product, their target market is possibly to trust their opinion.

- ***Content creators***

These include expert bloggers, vloggers and photographers. Their function includes growing new content material that readers are interested in keeping

up with frequently. Part of a campaign's marketing strategy might be to ship merchandise to a content material author inside the hopes they may evaluate and speak undoubtedly about it to their target audience. Another option is to jot down subsidized posts for their platform.

OBJECTIVES

1. To state the role of social media in creating awareness about current issues
2. To illustrate the role played by various social media influencers in Swachh Bharath Abhiyan
3. To interpret the influences of social media on various fronts between the citizens of the country

METHODOLOGY

The research methodology used is fundamental research and exploratory in nature. The Clean India Mission considers that every citizen of the country is responsible and has a role to be played. So, the sample is collected from respondents is convenience sampling from the twitter platform across the country with different walks of life in order to bring secular fact into consideration.

The data was collected from the sources are mentioned below

1. Primary Sources: Government publications and data from social media
2. Secondary Sources: Newspapers, Swachh Bharath Influencers, Magazines

REVIEW OF LITERATURE

In the past, scholars have theorized about political actors' (inside and outside the political decision-making arena) interest in raising public support for their causes as agenda-building models. Cobb, Ross, and Ross (1976) wrote that "the process by which demands of various groups in the population are translated into items vying for the serious attention of public officials can appropriately be called agenda building". They propose three models of agenda building: The outside initiative model accounts for the process through which issues arise in nongovernmental groups, which then become part of the public agenda; the inside initiative model describes issues that arise within the governmental sphere and whose supporters do not try to expand them to the public; and the mobilization model accounts for the ways decision makers attempt to implement a policy by expanding an issue from the formal to the public agenda. In the past, traditional mass media occupied a key position in the public communication process as a precondition for political agenda building (Denham, 2010). However, the Internet and social media technologies have offered an alternative avenue for civil society and political leaders to draw attention to their causes, as shown by the use of social media technologies by the civil society in the Arab Spring and anticorruption movement in India in 2011 (Howardetal.,2011; Rodrigues,2015).

Chadwick (2013) argues that the "technologies, genres, norms, behavior and organizational forms" of traditional mass media and online communication in agenda building produce a new, hybrid media system. This new hybrid media system has been changing the relative power of actors in political and media systems, as well as the nature of political communication fundamentally. As a result, as has been the case during election campaigns and the postelection period, political leaders in recent years have been using social communication platforms such as Twitter to launch agenda-building campaigns. In the process, the political leaders either bypass the mainstream media or coerce the mainstream media to follow their lead in agenda building on issues of importance to them and their public. Parmelee (2014) refers to this phenomenon of politicians using social media messages as creating "information subsidies" (p. 434) for journalists in traditional media.

However, Pfetsch, Miltner, and Maier (2015) note that a important consequence of agenda building in the light of the hybrid media system is that the "interface" between the media and political agenda has become porous and is not open to mutual "interpenetration" (p. 53).

DATA ANALYSIS

In this research, we used a grounded research approach to collect data related to social media messages from the Twitter platform and analyzed it for patterns of conversation around the Clean India campaign.

Between November 3 and 6, 2015, Twitter provided 15,822 unique tweets that contained the following (non-case dependent) terms, including as hashtags, clean India, clean AND India, my clean india, swachhbharat, swachhandbharat, swachhbharatabhiyan, swachhbharat challenge, and swachhbharat mission. Using this API, Twitter provided matching public tweets published in the previous six to nine days, with the earliest tweet being from October 27, 2015 (Twitter.com, 2016b).

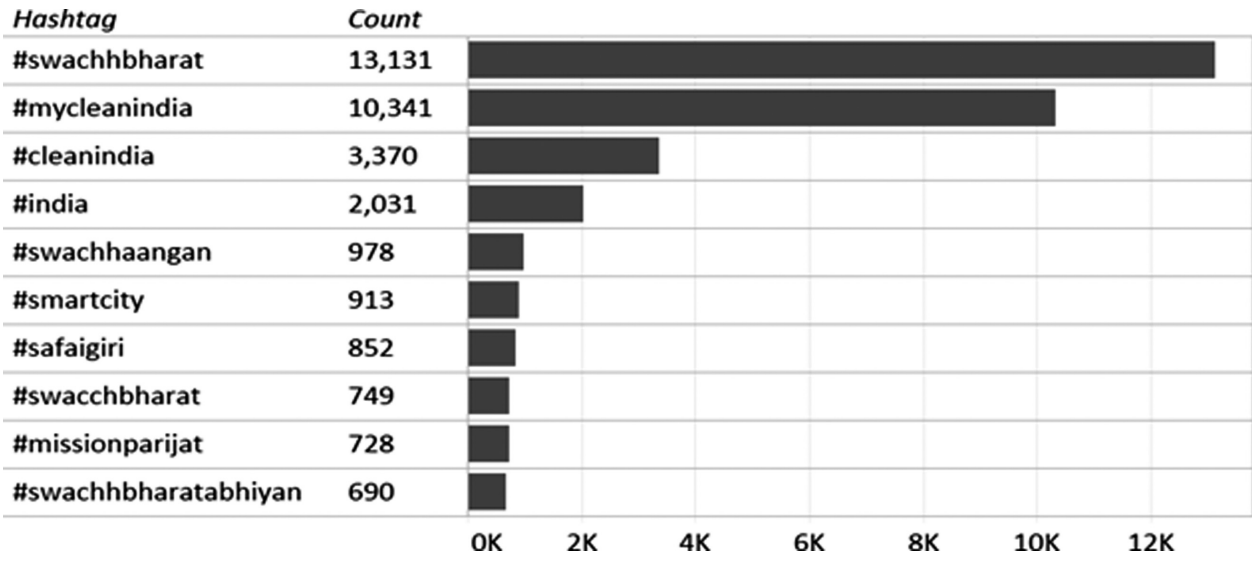

Table 1: Ten most popular hashtags in Clean India tweets (October 2014–November

FINDINGS

Variable	Measure
Number of accounts in data	8,578
Number of tweets in data collected	19,088,016
Time period	October 2, 2014–November 13, 2015
Number of Clean India tweets	62,448
Number of tweets from @narendramodi or @PMOIndia	2,188
Number of Clean India tweets from @narendramodi or @PMOIndia	99

However, the significant level of traffic created around the Clean India campaign on Twitter indicates that there is a community of individuals who engaged with the movement, not just Modi or his government. These individuals or twitterati included former IT graduate Mahek Shah with his @swachhbharatapp account, the @sbmvns account operated by a group of party supporters, and a filmmaker and a group of volunteers associated with a project called "mission parijat" that encouraged communities to clean up their locales. These individuals and groups posted photos of cleanliness events, clean streets, and the construction of toilets. They chided local and state authorities to do more to clean their town and city streets and their administrative systems. (Basu, 2016)

Several phone Apps were launched by the central and local government departments in 2015 (e.g., the Swachh Bharat Mission App by the Ministry of Drinking Water and Sanitation; the Swachh Delhi App by the New Delhi government). The globalization process and the Internet have increasingly reduced the impact of the elite power base dominated by politicians and the mainstream news media as information gatekeepers (Coleman, 2013). Even in developing countries such as India, a section of the population that is well versed with new media technologies has been pushing its agenda in the elite public space, seeking answers and endorsing action by politicians. However, Prime Minister Narendra Modi-endorsed celebrities remained an important component in the public discourse around the Clean India campaign. Film star Salman Khan's tweets from @BeingSalmanKhan were retweeted the most in the sample data collected, followed by @narendramodi, the Ministry of Information and Broadcasting's @MIB_India, and Modi's prime ministerial account @PMOIndia.

CONCLUSION

Finally, social media has taken over multiple roles in every credible business premises now its has become a trend that adoption of social networking sites is essential for promoting products and services. In fact, selling the products or business in social media allows business to gain immediate feedback from the end users about their products and services. Moreover, it provides opportunities for predicting the needs and demands of consumers that enable continuous improvements.

In conclusion, social media has taken every feature of human activities. It has become an essential part of communication means. Virtual space has penetrated to political, social and cultural realms and have provided new patterns of acting in a real environment and influenced many decisions. Finally, online networks is existing to be and is becoming the influential tool for advertising products and services, as well as for attracting potential targets. Overall, social media can be considered as a foundational shift in daily activities and lifestyles.

SUGGESTIONS

Media has been playing a very important role in spreading the Swachh Bharath Abhiyan to the nook and corner of the country and changing the behavior of the public towards cleanliness. Mass media happens to be the most readily available and potentially most economical means of imparting information about Swachh Bharath Abhiyan. Along with other forms of communication 47 the mass media can effectively raise public awareness and concern about sanitation and can also play an important role to promote a positive attitude towards Swachh Bharath Abhiyan.

1. AUTHENTICITY

Currently in the world of technology, anything and everything seems so feasible. There are several images that are tagged to the #swachhbharath and not every image is true. The authenticity of the image is a highly questionable matter of fact and need to be addressed on a immediate basis. In particular, these images that strive to provide awareness among the citizens must be considered more and more critical.

2. VISIBILITY FOR LOGAL NGO

As a part of Swachh Bharath many small NGOs are contributing their part and are responsible for collecting the people under their umbrella to address the Clean India mission. These organization that are responsible for this mission need to be showed more visibility in the media front as the media plays a major role in showcasing the required limelight required for the upliftment of these NGOs

3. CONSISTENCY OF THE CLEANING

The cleaning of the local places in and around one's neighborhood and the popular destination happens on regular basis by different people. But the important part of the cleaning is after the cleaning is done how well is it maintained and for how many days. There must a close watch on the challenge like Clean India Challenge that would possible to create a new challenge on the check the place in proper interval

4. LOCALITY CONCENTRATION

India is seventh largest country in the world and the task can be simpler if broken down into small portions. Every neighborhood have their locally popular and influential people with whom the task can be addressed and the cleaned places can be maintained so that the tasks become more widespread. This also enables the local citizens to be more responsible about their own locality before doing for other public places and common areas.

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ROLE OF MEDIA IN SWACHH BHARAT ABHIYAN

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ABSTRACT

The swatchh bharat abhiyan was started by the Government of India in October 2014 to fulfill the mission and vision of clean India one day. During these past years there were many success stories about swatchh bharat campaign like near to six lacs villages were declared open defecation free, improvement of sewages, increased cleanliness of railway station, introduction of bio-toilet in trains and so on. However inadequate facilities to process solid waste remained a big challenge. Many surveys indicate that the conditions in cities has not improved drastically as near to 80% percent of solid waste are dumped openly without processing .Another key drawback of the Swachh Bharat Abhiyan is that their management rely too heavily on perception. The environment ministry data suggests that the perception about cleanliness of cities may differ quite sharply from the reality. Despite the Government's efforts ,there has been no significant changes on the ground. This paper focuses on the Role of media, an important part of the campaign , in educating the general population about the importance and significance of this campaign and changing their attitude towards cleanliness.

Keywords: Media, campaign, attitude, public.

INTRODUCTION

India generates close to 60 million tonnes of garbage every day and around 45 to 50 million tonnes is left untreated. The metros themselves generate 10 million tonnes of waste daily. By 2040, urban India alone would be generating close to 170 million tonnes of garbage daily. India's sewerage system is among the poorest in the world. Throwing of household garbage on the streets is not unusual. Open defecation remains a part of rural life in India, as millions of houses are yet to build toilets. Spitting and urinating in the open, unmindful of the defacement it causes, is ordinary practice for millions. Much of these actions add to growing filthiness, cause illness and make the country sicker. Avoidance of these actions can make India a clean place to live, decrease diseases and hugely reduce the treatment burden on the economy.

OBJECTIVES OF THE STUDY

- To analysis the coverage of digital media in swatchh bharat abhiyan.
- To understand public perception on cleaner environment.
- To measure the success of swatchh bharat abhiyan.
- Understanding the challenges of swatchh bharat abhiyan.
- Impact of social media to increase the awareness of general public about the importance of cleaner environment.

METHODOLOGY

Online research of varied articles were conducted related to swatchh bharat campaign and the effect media has on making this campaign a success by increasing the awareness of the general population.

To study the view of the people towards the Swatchh bharat campaign a survey was conducted among 50 respondents in Beliaghata selected randomly. The sample includes teachers, students and other members of the public. The respondents were asked common questions about the swatchh bharat campaign and they were specifically asked about how they became aware about the campaign. The age of the respondents varied between 20 to 50 years.

DISCUSSION

Swachh Bharat Abhiyan was officially launched on 2nd October 2014 at Rajghat, New Delhi by Prime Minister Narendra Modi. It is India's largest cleanliness drive to date with three million government employees and students from all parts of India participating in cities, towns, and rural areas. The citizens were called upon to spend 100 hours each per year towards cleanliness in their surrounding areas or other places to really make it a successful campaign. An estimated fund requirement of Rs.38,000 crores, for setting up of waste treatment facilities across the country. The Centre was supposed to contribute 20% (Rs.7600 Crores), states one-third and rest from private sector. Modi has called the campaign Satyagrah se Swachhagrah in reference to Gandhi's Champaran Satyagraha launched on 10 April 1916.

To trace the historical roots Mahatma Gandhi took up a broom in his hands in 1901, when he went to attend a conference of Congress in Calcutta. He picked up a basket and a shovel and started cleaning the night soil. It is then that people started following his example. Earlier, they had refused to clean the toilets because they said it was the job of the untouchables and not the upper caste.

Mahatma Gandhi settled in India in 1915 to lead India's freedom movement. He had many dreams for an independent India. Sanitation and cleanliness were at the top of the list. He said, "I want independence later, clean India first." He gave the concept of using trench latrine, which he used in Phoneix Ashram in South Africa. He also gave the concept of 'Tatti par mitti' that is 'Soil on human excreta'. After defecation, he wanted people to cover the waste with soil so that the flies did not sit on excreta and later on the food. This practice helped stop many diseases like diarrhoea and dysentery from spreading.

After Gandhi's death in 1948, Hon'ble Prime Minister, Shri Narendra Modi is the only other national leader, who has taken up the cause of providing toilets to all by 2019. He even talked about sanitation and toilets with the US President Mr. Barack Obama. He is the first Prime Minister who has openly spoken about Swachh Bharat Abhiyan and the need for toilets. No other Prime Minister has done this before. It shows his concern and desire to keep India clean. His initiative has created waves in the entire country.

Today the entire nation is talking about sanitation, Swachh Bharat Abhiyan, and is making an effort to keep public spaces clean.

The proposed sanitation programme will prove to be a great game changer for India in two respects:

1) Sanitation has a direct link with the spread of communicable diseases which are prevalent in India . As a matter of fact the "Health for All by 2000 A.D" flopped because an effective sanitation programme was not launched simultaneously. The basic cause of frequent epidemics in India is the omnipresent insanitation. India will usher into a genuine era of Health for All by 2/10/2019 if the above programme is implemented in its totality.
2) Living in an insanitary environment degrades the quality of human life and it is a curse and social stigma both. Therefore, the accomplishment of Total Sanitation Programme (TSP) will improve the living standards of the poorest of the poor on one hand and improve the Human Development Index (HDI) of India on the other. Presently, India stands at No. 130 in the HDI table of UNO. Poverty is half painful if one gets a chance to live in a perfect sanitary environment. In fact, sanitary environment is a basic necessity like air, water and food for aesthetic and psychological development of human beings.

   Urban sub-mission of the campaign, known as the swachh bharat mission of urban areas aims to cover almost 1.04 crore households in order to provide them 2.6 lakhs of public toilets, 2.5 lakhs of community toilets together with the solid wastes management in every town. Gramin swachh bharat mission, earlier the Nirmal Bharat Abhiyan, is aimed to make rural areas free of open defecation till 2019 for which the cost has been estimated is one lakh thirty four thousand crore rupees for constructing approximately 11 crore 11 lakh toilets in the country. A major dimension of the campaign is a plan of converting waste into bio-fertilizer and useful energy forms, for use in farming.

   This programme was totally neglected in the past but now thanks to our Prime Minister Shri Narendra Modi this programme is given top

priority that around three million government employees are directly or indirectly attached to the programme. The aim of the mission was to cover all the rural and urban areas in order to present this country as an ideal country before the world. The mission had targeted aims like eliminating the open defecation, converting insanitary toilets into pour flush toilets, eradicating manual scavenging, complete disposal and reuse of solid and liquid wastes.

Media and Swatchh Bharat Abhiyan

In today's world, media has become as necessary as food and clothing. It has played significant role in strengthening the society. Media is considered as "mirror" of the modern society, it is media which shapes our lives.

The purpose of the media is to inform people about current ,new affairs and to tell about the latest gossip and fashion. It tells about the people who are geographically divided.

The role of media has become one way of trading and marketing of products and prejudices. The media claimed to be governed by righteousness and equity, but greed for money and power, politics has poisoned its virtues.

Media is in charge of :

1. information
2. education
3. entertainment
4. advertising
5. correlation of parts of society

Society is influenced by media in so many ways. It is the media for the masses that helps them to get information about a lot of things and also to form opinions and make judgments regarding various issues. It is the media which keeps the people updated and informed about what is happening around them and the world. Everyone can draw something from it.

Media has been playing an important role in promoting swatchh bharat abhiyan campaign, it lead to realization that cleanliness is an important aspect of life. Media also helped in changing the behavior of the general population that public property is as important as private property and maintaining the cleanliness of public property lies in the hands of the Indian citizens.

Along with other forms of communication the mass media can effectively raise public awareness and concern about sanitation and can also play an important role to promote a positive attitude towards Swatchh Bharat abhiyan. Moreover every day public see a lot of advertisements in newspaper, TV, radios where they tell public to support this Abhiyan. PM Modi also praised the media for highlighting the importance of the campaign, particularly the lack of sanitation, as this was hurting India's image abroad and spreading disease in the country. He said "Clean India is a precursor to a healthy India. Lack of sanitation not only hurts India's image abroad but also breeds diseases. More important than health care is preventive health,". He even used social media to appreciate media by twetting

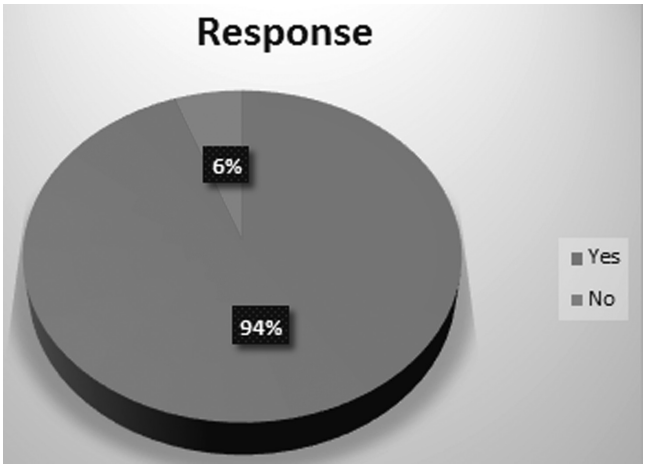
"I saw several TV channels showing dirt left behind after crackers. I congratulate them for spreading awareness on importance of cleanliness" on twitter.

RESULTS

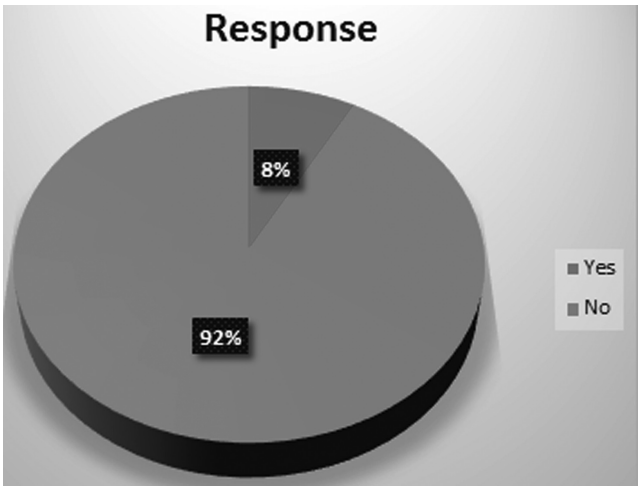
Public Perception on Swatchh Bharat Abhiyan

It has been found that the public has been made more aware about the climate change and the effect it has on our lives. There has been a positive response from public about swatchh bharat abhiyan campaign and media played a crucial role in promoting this campaign. Few common questions were asked to respondents while conducting research and their answers were recorded.

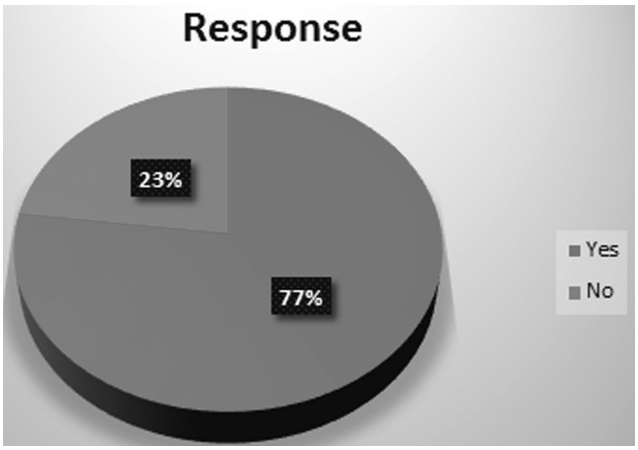
1. Are you aware about swatchh bharat abhiyan?



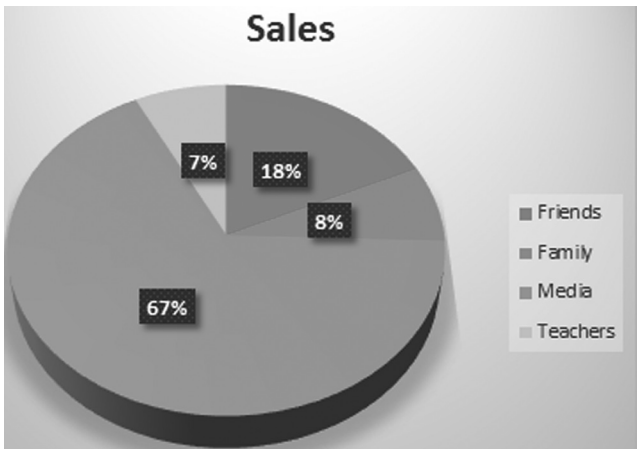
2. Are you aware on the amount of money spent on swatchh bharat campaign?



3. Do you know the objective which is to be achieved in 2019?



4. From where did you learn about swatchh bharat abhiyan and its recent updates?



So these are the few questions which were asked and according to their response most are aware about a clean India campaign and its objectives as well.

Success of swatchh bharat abhiyan

According to Government of India there are total of 10,08,26,047 household toilets built which provides 100% coverage and there are total 5,99,963 ODF(Open defecation villages) declared and total verified ODF is5,79,062,ODF gram panchayat 2,58,657,ODF block 6,847,ODF district 699. So these statistics are staggering and it shows the success of swatchh bharat abhiyan campaign in 2019. The objective of having 100% open defecation free villages has been achieved and the objective of total coverage of household toilets has been achieved as well. But at the same time treatment of solid waste remains a challenge, cleaning major water bodies, air pollution also remains a huge challenge, but we are slowly progressing towards meeting these remaining challenges.

CONCLUSION

Media play an important role to develop positive attitudes towards cleanliness. It spreads awareness and change other people's behavior towards Swatchh bharat abhiyan. Media has played an active role in taking the campaign to the people from the urban to the rural areas. Newspapers, because of their wider presence, played a lead role in spreading awareness of sanitation to involve every individual from each sectors of the society. Newspapers give knowledge about diseases which spreads due to lack of sanitation and moreover informs people regularly about the ranking of the Swachh States. Newspapers continuously published Swatchh bharat abhiyan news daily to aware the condition of the garbage treated in market areas, streets, parks, roadsides, construction of public and community toilets and provide water facilities etc. The attitude of the public has changed towards clean India but a lot remains to be done. There are still people who throw garbage on the roads even if there is a garbage bin nearby. High footfall at market places pose a challenge. The situation has certainly improved a lot since the last 5 years.

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HEALTHY CLEAN AND GREEN PRACTICE MAKES THE PEOPLE HEALTHY, WEALTHY AND WISE

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ABSTRACT

All the begin the ***clean, vibration and intention***. We have to keep our mind clear, then living area and working area. Where it start all the good works, flourish, mushroomed and groomed further. The more we keep our ***mind; heart and body*** clear the better we perform in overall ***personal life*** and ***professional life. Health*** is the greatest gift, contentment the greatest wealth, faithfulness the best relationship. To keep the body in ***good health*** is a duty... otherwise we shall not be able to keep our mind strong and clear. All the money in the world can't buy you back ***good health***. The people want active and happy life must ***protect what we have all the natural resources, inheritance wisdom, ancestral words and practice. The modern is different form leading us in right direction***. Making money and creating wealth is one of my weakest areas – knowledge wise – when it comes to self-improvement. We can have a better world, if we do good things. The clean environment can give better living space and take better decision. All things are start from small. Like the quotes says ***small drop make an ocean***… let's ***start practice in working area, home, surrounding, and pass to next generation in fulfillment...***

Keywords: Green, Clean, Resources, reuse, Intentions, Awareness, Wealth, Life, Future.

INTRODUCTION

Green here, doesn't mean the color green, it means our biosphere, our environment and surroundings. Clean and green India scheme is only possible with the complete cooperation of everything. We can do that by reducing the use of plastic, planting more and more trees, Take right decisions and what is need to present and future orient need to work on. **Biosphere**: The area of the **planet where organisms live**, including the **ground** and the **air**. An **example** of the **biosphere** is where live occurs on, above and below the surface of Earth.

Let's go green to get our globe clean
It's not yours, not mine, it's ours.
So, protect your mother who nourishes you.

http://thebrightquest.com/how-to-keep-the-environment-clean

OBJECTIVES

- Conserve natural resources and energy.
- Protect human health and the environment by achieving remedial action goals.
- Support sustainable human and ecological use and reuse
- Minimize impacts to water quality and water resources
- Reduce air toxics emissions and greenhouse gas production
- Minimize material use and waste production
- Create wealth from waste

Go green

Going green" means to pursue knowledge and practices that can lead to more environmentally friendly and ecologically responsible decisions and lifestyles, which can help protect the environment and sustain its natural resources for current and future generations.

Going green is a gradual process of changing your lifestyle by using products that are considered to be **green** and ensuring that you reduce the imprint you and your family leave on the environment.

Analysis

Basic principles of going green.

1. Reduce pollution
2. Conserve resources
3. Conserve energy
4. Reduce consumption and waste
5. Protect the earth's ecological balance.

Main Reason to go Green is to Stop Global Warming

Global warming

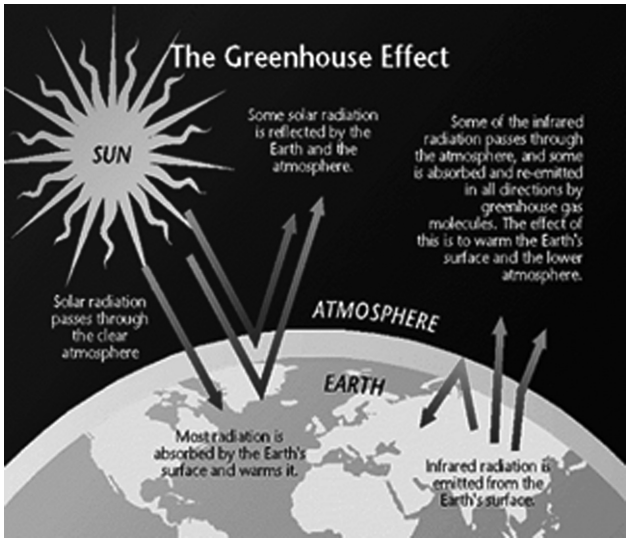
Global warming is the long-term rise in the average temperature of the Earth's **climate** system. It is a major aspect of current **climate change**, and has been demonstrated by direct temperature measurements and by measurements of various effects of the **warming**.

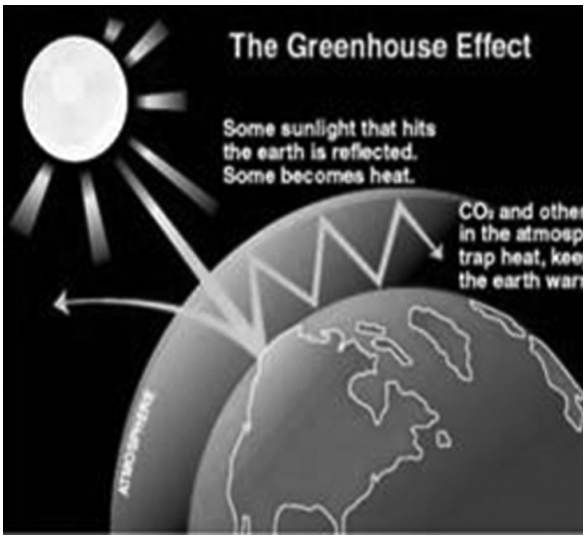
Effects of global warming

Global warming is projected to have a number of **effects** on the oceans. Ongoing **effects** include rising sea levels due to thermal expansion and melting of glaciers and ice sheets, and **warming** of the ocean surface, leading to increased temperature stratification.

The Greenhouse Effect

The greenhouse effect is the process by which radiation from a planet's atmosphere warms the planet's surface to a temperature above what it would be without this atmosphere. Radiatively active gases in a planet's atmosphere radiate energy in all directions





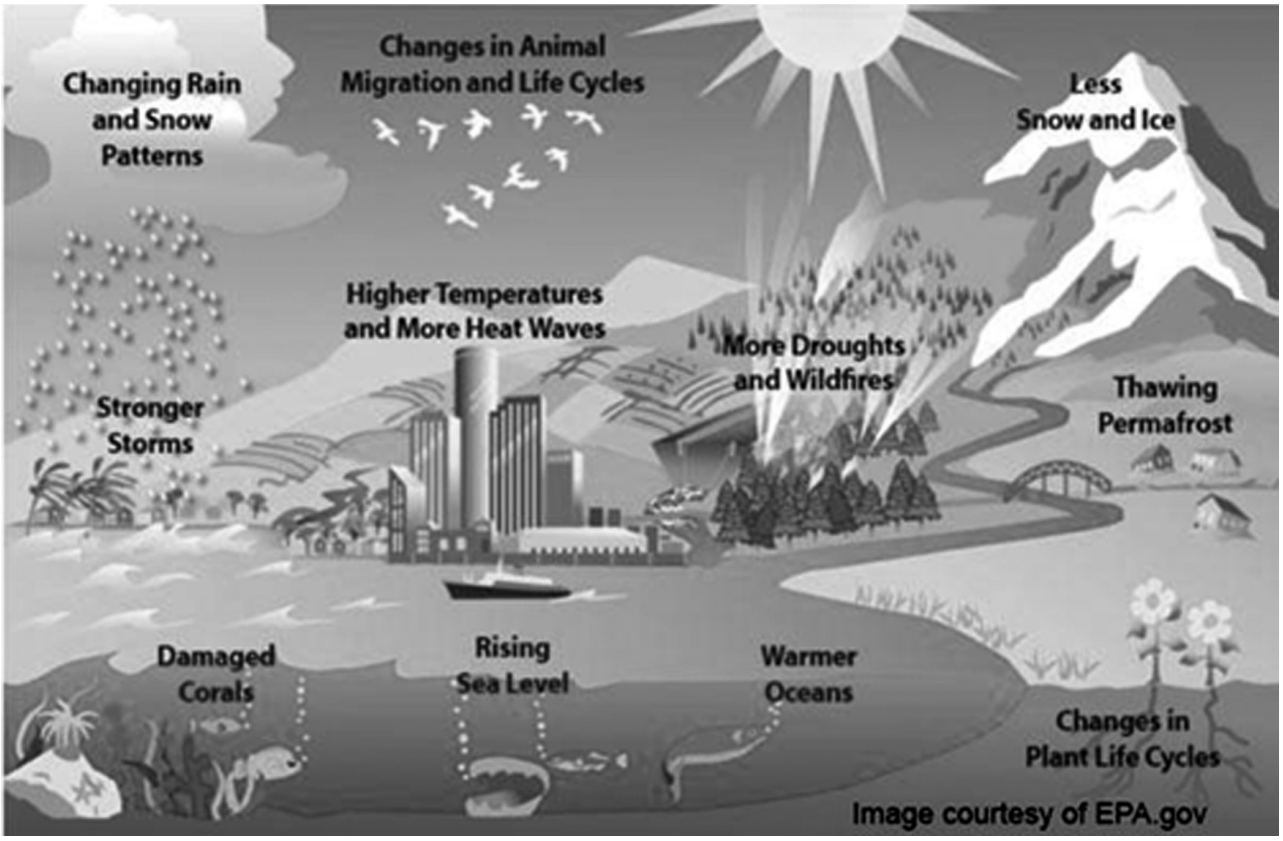
Examples of Greenhouse Gases

- Carbon dioxide
- Methane
- Halogenated compounds
- Nitrous oxide

Cause of Climate Change

According to the IPCC, human-caused global warming is driving climate changes impacting both human and natural systems on all continents and across the oceans. Human-caused global warming results from the increased use of fossil fuels in transportation, manufacturing and communications.

IPCC-Intergovernmental Panel on Climate Change



Reference: https://www.joboneforhumanity.org/global_warming?gclid=EAIaIQobChMIwbDV5_OT5QIVBJCPCh2oUAQrEAAYASAAEgJnH_D_BwE

So let's get started to GO GREEN

The first thing, a little R&R&R

The first R-REDUCE	The second R-REUSE	The third R-RECYCLE
If there is less waste, then there is less to recycle or reuse. The process of reducing begins with an examination of what you are using, and what it is used for.	Reuse is the action or practice of using something again, whether for its original purpose or to fulfil a different function.	The last stage of the waste hierarchy is to recycle. To recycle something means that it will be transformed again into a raw material that can be shaped into a new item.

Green Cleaning

Green cleaning is the process of choosing cleaning products that are better for both people and the planet. Switching to green cleaning products is good for the health and wellbeing of your people, and it also prevents unnecessary chemicals from being released into the environment.

Green Business

Green business, is an enterprise that has minimal negative impact on the global or local environment, community, society, or economy — a **business** that strives to meet the triple bottom line. Often, sustainable **businesses** have progressive environmental and human rights policies. Triple bottom line-an accounting framework with three parts: social, environmental (or ecological) and financial.

Green Marketing

Green marketing is the marketing of products that are presumed to be environmentally safe. It incorporates a broad range of activities, including product modification, changes to the production process, sustainable packaging, as well as modifying advertising.

Green Technology-What is it?

The term "technology" refers to the application of knowledge for practical purposes.

The field of "green technology" encompasses a continuously evolving group of methods and materials, from techniques for generating energy to non-toxic cleaning products.

The present expectation is that this field will bring innovation and changes in daily life of similar magnitude to the "information technology" explosion over the last two decades. In these early stages, it is impossible to predict what "green technology" may eventually encompass.

Examples of Green Technology Subject Areas

- Green building
- Environmentally preferred purchasing

Green building

Green building encompasses everything from the choice of building materials to where a building is located.

Environmentally preferred purchasing

This government innovation involves the search for products whose contents and methods of production have the smallest possible impact on the environment, and mandates that these be the preferred products for government purchasing.

Reference: https://www.green-technology.org/what.htm

Go Green Initiative

The Go Green Initiative is a global environmental education program that trains teachers and volunteers in schools to conserve natural resources for future generations and protect human health through environmental stewardship.

g	Generate less waste
R	Recycle everything that cannot be reused
e	Educate the community on eco-friendly options
e	Evaluate the environmental impact of actions
N	Nourish discussions and activities that integrate environmental education into existing curriculum

Cleanliness
Cleanliness is next to godliness

1. Aspects
2. Impact
3. Challenges
4. Champions

1. Aspects of Cleanliness

Disease prevention and hygiene are said to be the two aspects associated with cleanliness.

2. Impacts of Cleanliness on Our Lives

Cleanliness cuts across for all stages of life and it plays important roles in the activities of daily living.

- In education
- In the workplace
- In health
- Social relationships

3. Challenges in Cleanliness

Lack of resources can inhibit cleanliness. In order to maintain cleanliness, there is need for water, detergents and other supplies like cleaning equipment. In some situations, all these resources may be unavailable thus cleanliness is compromised. Another challenge is the availability of labor. Since cleaning is tasking and requires effort from people, some people opt out and cleanliness will not be achieved.

4. Champions of Cleanliness

- The first Prime Minister of Singapore, Lee Kuan Yew started the campaign to keep the country clean almost 50 years ago.
- Learning cleanliness from his days in the West, Mahatma Gandhi insisted that a lavatory must be as clean as a drawing room. He strongly believed that cleanliness would promote good health and hence advocated it throughout his lifetime.
- Following Gandhi's model, Prime Minister Narendra Modi has initiated a nation-wide campaign called Swach Bharat on 2nd October, 2014. It functions to provide sanitation facilities, proper solid and liquid waste disposal systems, and safe drinking water.

Reference: https://www.thewisdompost.com/essay/cleanliness-essay/3305

Healthy Environment, Healthy People

"A healthy environment underpins a healthy population," - Dr Margaret Chan, WHO Director-General

- Clean air and water, sanitation and green spaces, safe workplaces can enhance people's quality of life: reduced mortality and morbidity, healthier lifestyles, improved productivity of workers and their families, improve lives of women, children and elderly and are crucial to mental health.
- Environment provides a solid platform for good health. It is an accepted fact that premature death and diseases can be prevented, and to a significant degree, through a healthier environment.

What is polluting the environment?

- Heavy traffic, limited green spaces, air pollution, noise and violence all impact our health.
- Rural areas, known for environmental tranquillity, are also being subsumed in this expansion. Indoor cooking, especially in rural and peri-urban households, is a major health hazard.
- In India, rapid urbanization and economic growth has resulted in increased need for energy. For its energy needs, the country is over- dependent on coal, a potent source of air pollution.

- Untreated pollutants from industry, unclean domestic sources and agricultural practices extensively pollute our air, land and water bodies.
- Unsafe disposal of biomedical and e-waste too contribute to environmental pollution.

Addressing environmental pollution

- There's an urgent need for investment to reduce environmental risks, including at homes and workplaces.
- Such investments can significantly arrest the rising trend of morbidity and mortality, thus bringing down healthcare costs.
- The impact of environmental pollution highlights the increasing risk of climate and ecosystem changes in the coming decades.
- In India, the National Action Plan for climate change is guided by United Nations Framework Convention on Climate Change.
- The advent of Sustainable Development Goals, with their underpinning holistic philosophy, present an excellent opportunity to make a lasting contribution to reducing the disease burden attributable to environmental factors, thus facilitating healthy lives and promoting well-being of all people.
- The World Health Organization is providing global guidance on strategies for reducing the burden of pollution due to air pollutants, chemicals in soil and water, (like mercury) etc.
- A concerted and coordinated effort by all stakeholders and a multi-sectoral approach is imperative to address the situation optimally.

Initiatives by the Indian government

In India, the government is looking at innovative solutions.

- The Swachh Bharat Abhiyan encourages citizens to adopt cleanliness in all spheres of life and is particularly relevant and timely.
- The 'Smart Cities' initiative assures urban planning, building energy efficient housing and good network of public transport, all of which are environment friendly.
- Promoting more equitable access to clean fuels by removing blanket subsidy on cooking gas to high income group and including more households from low-income group in the LPG distribution list .
- Similarly, initiatives for cleaning the major rivers will help curb water-borne diseases.

Reference: https://www.google.com/search?q=healthy+environment,healthy+people&source=lnms&sa=X&ved=0ahUKEwiTjcfKxaDlAhXl6XMBHaChAJ0Q_AUIDSgA&biw=1366&bih=608&dpr=1

Sustainable Development Goals

Reference: https://www.unenvironment.org/news-and-stories/story/healthy-environment-healthy-people

Components of Hygiene and Environmental Health

Description	Concerns
Personal hygiene	Hygiene of body and clothing
Water supply	Adequacy, safety (chemical, bacteriological, physical) of water for domestic, drinking and recreational use
Human waste disposal	Proper excreta disposal and liquid waste management
Solid waste management	Proper application of storage, collection, disposal of waste. Waste production and recycling
Vector control	Control of mammals (such as rats) and arthropods (insects such as flies and other creatures such as mites) that transmit disease
Food hygiene	Food safety and wholesomeness in its production, storage, preparation, distribution and sale, until consumption.
Healthful housing	Physiological needs, protection against disease and accidents, psychological and social comforts in residential and recreational areas
Institutional hygiene	Communal hygiene in schools, prisons, health facilities, refugee camps, detention homes and settlement areas
Water pollution	Sources, characteristics, impact and mitigation
Occupational hygiene	Hygiene and safety in the workplace

Reference: https://www.open.edu/openlearncreate/mod/oucontent/view.php?id=187&printable=1

Marketing Benefits of Environmentally Friendly Businesses

These first three benefits of going green for business involve the key marketing concepts of customer relationships and reputation.

- Meet Buyers' Expectations
- Strengthen Customer Loyalty
- Improve your Reputation

Meet Buyers' Expectations

Many people center their lifestyles around sustainability these days. Shoppers want to do their part for the environment by exchanging their money with businesses that they trust will make a difference. Most prominently, this expectation comes from millenials, who are eco-conscious consumers. This group has been reported as very willing to pay more for brands that they believe in, such as health/wellness, sustainability, organics, eco-friendliness, and other social values.

Strengthen Customer Loyalty

In addition to standing out to new customers, going green can also help you to strengthen your relationship with your existing customers. Eco conscious shoppers show extraordinary brand loyalty when they know they aren't just getting good quality products, but also an environmental commitment and a follow through.

Improve Your Reputation

Going green means you're taking action to help the planet and the people who live on it—not just yourself and your customers. One of the biggest benefits of going green is that it improves your image in the eyes of your audience as caring and aware.

Business Benefits of Going Green

The previous three benefits of going green were more focused on marketing. This next section goes over the benefits of going green that are more directly related to your business operations.

- Create A Healthier Workplace Environment
- Go Green and Save Money
- Take Advantage of Available Tax Benefits

Create A Healthier Workplace Environment

Employee morale is one of the cornerstones of business. Whether it happens to be just you or an amazing, hardworking group of individuals, the people are the most important aspects of every business. Improving the quality of life at work with green technology, paperless processes and paychecks, recycled paper options, green cleaning materials, and green energy will in due course improve your entire business

Go Green and Save Money

Going green saves you money. Long-lasting, efficient light bulbs like CFLs and LEDs are decreasing the amount of electricity businesses use, lowering their utility bills. Energy Star appliances and technology will keep your business running on an energy-lean diet. Not only does this help businesses responsibly use energy; it also leaves money in the budget to invest elsewhere, improving the bottom line.

Take Advantage of Available Tax Benefits

Investing in renewable energy and green technology could qualify your business for tax-related benefits, in the form of credits or deductions.

Reference: https://thrivehive.com/benefits-of-going-green-for-business-owners/

From Waste to Wealth

These 5 Startups Are Showing India How To Manage Waste Effectively

- India generates about **62 million tonnes** of garbage every year
- More than **45 million tonnes of waste in India remain untreated**
- **To meet the goal of clean** India, it is important to tackle waste issues

Over **75%** of the waste we generate is recyclable but we, in India, recycle just **30%**. It is time for the nation to wake up and start taking **waste management** seriously because if this issue is ignored any further then by **2030** we will need a landfill as big as **Bengaluru** to dump all the waste.

To solve India's waste miseries, few startups seems to be slowly getting involved. Here are few innovative initiatives that are making a difference.

Reference: https://swachhindia.ndtv.com/waste-wealth-5-startups-showing-india-manage-waste-effectively-6965/

From Waste To 3D Printing

Protoprint in Pune is Changing the Waste Management Game

- Protoprint, a Pune based enterprise has partnered with Pune's waste pickers and is converting plastic waste into filaments for 3D printing.
- According to the data provided by the government, more than 15,000 tonnes of plastic waste is generated in India every day, of which 6,000 tonnes remain uncollected and littered.
- The bottles are converted into flakes which are then melted and extruded into HDPE filaments which are then used in the process of 3D printing, an additive manufacturing technique in which one can create, or print, objects layer by layer using raw material powder or filament as feedstock.

It's Easy Being Green – Pom Pom's Mantra

- Pom Pom is a web-based recycling platform that helps people to dispose off recyclable waste in a responsible manner.
- What's great is that the Pom Pom service also pays you back for your waste management initiative.
- It is one of a kind 'Trash to Cash' service that pays you for your unwanted recyclable trash.

Planet, Earn Good Karma: Karma Recycling

- Karma Recycling is today a leading trade-inoperator and redistributor of electronics in India.
- Karma Recycling came with the philosophy that a useless device for someone can turn into a useful device for someone else.
- What the company does is simple; it buys your old electronic device in any condition and recycles it for you.

This Startup Is Transforming Food Waste Like A Pro: GPS Renewables

- GPS Renewables is a Bangalore based enterprise that is solving the urban organic waste management problem in an economical and environmentally clean way.
- Working on a thumb rule of – Zero wastage.
- It is turning all the kitchen and other organic waste into biogas.
- The system has proven to be effective since 2013 and processes around 600 kgs of kitchen waste every single day.

No More Butts

- This startup collects and recycles cigarette waste, and even pays you for it.
- Smoking cigarette is harmful! But, it is harmful even when it is disposed off.
- The cigarette butt, discarded after smoking, is one of the most littered items in the world today, moreover, it is an environmental hazard.
- Now a Noida-based company – Code, is recycling all kinds of cigarette waste and trying to tackle this problem.
- Two friends in their twenties, Vishal Kant and Naman Gupta, started this startup. The company pays Rs.700 for every kilogram of cigarette waste, and Rs.80 for every 100 grams. Their customers are people who smoke as well as those who sell cigarettes.

E. T. Sathish Kumar & Faizan Zahin

Did you know?

Cigarette butts take anywhere between 18 months and 10 years to fully decompose.

Solving the Environmental Problems

- Responsible consumption and conservation are ways to solve environmental problems.
- It is important to recognize, however, that creating wealth and protecting the environment coexist.
- The environment cannot be protected by conservation alone.
- Wealth and surplus must provide the resources—mainly energy—to maintain order and keep objects and places clean.
- Sustaining a healthy economy also is critical to controlling pollution and maintaining a clean and healthy environment.
- Without wealth there are no resources to manage and control pollutants, especially through cleaning.
- Additionally, the world's natural resources must be used efficiently and the environments that create wealth must be kept clean.

https://www.ciriscience.org/a_269-Cleaning-and-the-Environment

SUGGESTIONS

Easy Ways to Become More Environmentally Friendly

1. Reduce the usage of your electrical appliances
2. Reduce the usage of your wooden stove
3. Maintain a healthy eco system
4. Reduce usage of chemicals and pesticides
5. Recycle the waste products
6. Grow your food locally
7. Reduce contaminants
8. Avoid the pollution
9. Become More Aware of Resources
10. Practice Conservation
11. Plant Trees
12. Change Your Travel Habits
13. Use Less Fossil Fuel Based Products
14. Composting
15. 3 R's of Waste Hierarchy
16. Buy Recycled Products
17. Join Environment Groups
18. Stop Littering
19. Protect Wildlife
20. Educate Others

Reference: https://www.conserve-energy-future.com/15-easy-ways-to-become-environmentally-friendly.php

CONCLUSION

Your Best Teacher is Your Last Mistake.

– A.P. J Abdul Kalam

Let be aware and not repeat our mistakes, make this world beautiful.....!!!

If we keep the place green it will help back in terms of health, it lead to create wealth, keeping the surroundings clean will help us to have a peace mind, when the mind is clear and peaceful, our thinking gets in to more purity, by thinking our actions will be good and by our actions we will become wise and peace. We can use this earth and pass to next generation same like what parents do to their children.

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- https://swachhindia.ndtv.com/waste-wealth-5-startups-showing-india-manage-waste-effectively-6965/.

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BIOMASS MANAGEMENT-AN APPROACHING ALTERNATIVE FOR A GREENER INDIA

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ABSTRACT

This Paper discusses a comprehensive review of biomass energy sources, their conversions, how advantageous they have become and environment and sustainable development. This includes all the biomass energy technologies, energy efficiency systems, energy conservation scenarios, energy savings and other mitigation measures necessary to reduce emissions. The current literature is reviewed regarding the ecological, social, cultural and economic impacts of biomass technology. This Paper gives an overview of present and future use of biomass as an industrial feed-stock for production of fuels, chemicals and other materials stating all the scientific reasons why it is beneficial to use biomass as an alternative to other harmful fuels. Results suggest that biomass technology must be encouraged, promoted, in-vested, implemented, and demonstrated in India with a close reference to The Swachh Bharat Abhiyan. This Paper also presents a case study on the biomass plant of IHM Chennai- the various departments and it's waste management.

Keywords: Biomass Energy Sources; Resource, Utilization; Waste Management

BIOMASS – AN OVERVIEW

Biomass is the oldest form of fuel or energy that is developed from organic materials; it is a renewable and sustainable source of energy which is used to create electricity or other forms of power.

Even though if we burn plant derived biomass, it will emit CO2, even then it has been classified as a renewable energy source in the EU and UN legal frameworks because photosynthesis cycles the CO2 back into new crops.

In some cases, the recycling of CO2 from plants to the atmosphere and back to the plants can even be CO2 negative, since relatively a larger portion of the CO2 is moved to the soil during each and every cycle. There are four major types of conversions that are listed below:

Thermal conversions

Thermal conversion process uses heat as the dominant mechanism to upgrade biomass into a better and more practical fuel. The basic alternatives are torrefaction, pyrolysis, and gasification, which are separated principally by the extent to which the chemical reactions involved are allowed to proceed (mainly controlled by the availability of oxygen and conversion temperature).

There are other less common, more experimental or proprietary thermal processes that may offer benefits, such as hydrothermal upgrading. Some have been developed for use on high moisture content biomass, including aqueous slurries, and allow them to be converted into more convenient forms.

Chemical Conversion

A range of chemical processes may be used to convert a biomass into other forms, such as to produce a fuel that is more practical to store, transport and use, or to exploit some property of the process itself. A many of these processes are based in large part on similar coal-based processes, such as the Fischer-Tropsch synthesis. Biomassacan be a converted into multiple commodity chemicals.

Biochemical Conversion

As biomass is a natural material, many highly efficient biochemical processes have developed a in nature to breakdown the molecules of which biomass is composed, and many of these biochemical conversion processes can be harnessed. In most cases, a microorganisms are used to perform the conversion process: anaerobic digestion, fermentation, and composting.

Glycoside hydrolases are the enzymes involved in the degradation of the major fraction of biomass, such as polysaccharides present in starch and lignocelluloses. Thermo stable variants are gaining increasing roles as catalysts in bio-refining applications, since recalcitrant biomass often needs thermal treatment for more efficient degradation.

Electrochemical Conversion

Biomass can be directly converted to electrical energy via electrochemical (electrocatalytic) oxidation of the material. This can be performed directly in a direct carbon fuel cell, direct liquid fuel cells such as direct ethanol fuel cell, a direct methanol fuel cell, a direct formic acid fuel cell, a L-ascorbic Acid Fuel Cell (vitamin C fuel cell), and a microbial fuel cell. The fuel can also be consumed indirectly via a fuel cell system containing a reformer which converts the biomass into a mixture of CO and H_2 before it is consumed in the fuel cell.

METHODOLOGY

The data was collected from various sources of qualitative research. it helped in understanding the procedures and methods to deal with cleanliness and greenery. This was quite helpful in finding various efforts put in by the government as well as the people there in spreading awareness about cleanliness and greenery.

The data mainly depends on the following resources:

- Books, official reports and surveys.
- Interviews with faculties and students, localities, etc.
- Photos and videos related to the topic.
- Few websites telling us about the management sector in relation to biomass.

PROGRESS OF BIOMASS IN INDIA IN THE RECENT YEARS

The bio-power a sector in India has picked up the pace in the last two years and even surpassed the annual targets set by the government. While India's clean energy sector missed its capacity addition target for the second year in a row owing to lapses in solar a (roof-top) and wind energy sectors, its bio-power capacity for 2017-18astood at 519 MW against the target of 340 MW. Industry players believe biomass power production is crucial for the country when it's starring at piling municipal and agricultural waste across India. Utilization of a biomass for power generation is the need of the hour as it solves two major challenges facing the country – power deficit and waste management. As a country, India produces 1,50,000 tonnes of municipal solid waste per day. While are cycling and segregation can help, they barely scratch the surface. There is a need to a safely dispose of the existing trash – biodegradable or not. While setting up more biomass power generation remains a viable option for processing and disposal of waste, the immediacy of the problem has necessitated evolving a mix of quick as well as long-term solutions.

SOURCES AND ADVANTAGES OF BIOMASS

The thing one needs to know about biomass is that biomass energy is derived from five distinct energy sources: garbage, wood, a waste, landfill gases, and alcohol fuels. Biomass can be relatively easily converted to other usable forms of energy like methane gas or transportation fuels like ethanol and biodiesel. There are several conversion technologies that may release the energy directly, in the form of heat or electricity, or may convert it to another form, such as liquid biofuel or combustible biogas. Biomass is becoming a very popular and getting worldwide acceptance day by day.

Biomass is still subject of many debates when it comes to talking about benefits of biomass, especially when compared with other renewable energy sources. Despite these lively debates most scientists will still tell you that biomass has many advantages over fossil fuels and it does help to decrease the amount of carbon emissions. The main benefits of biomass is as follows:

1. **Biomass is a renewable energy source** – The most obvious benefit of biomass energy is that biomass is renewable source of energy, meaning that it cannot be depleted like this is the case with fossil a fuels. Biomass mostly a derives from plants and plants are needed to support life on this planet. In other words, as long as plants are going to be on this planet, biomass will be available as renewable energy source.
2. **Biomass helps climate change by reducing greenhouse gas emissions** – Biomass indeed helps reduce the amount of greenhouse gas emissions that give more impact to global warming and climate change. Though biomass is connected with certain level of emissions this level is far smaller compared to currently dominant energy sources, fossil fuels. The basic difference between biomass and fossil fuels when it comes to amount of carbon emissions is that all the CO2 which has been absorbed by plant for its growth is going back in the atmosphere during its burning for the production of biomass energy while the CO2 produced from fossil fuels is only going to atmosphere where it increases Earth's greenhouse effect and adds to global warming. It should be also pointed out that compared to biomass fossil fuels when burning not only produce CO2 but also sulfur dioxide and lead oxide which are very toxic gases.
3. **Cleaner environment** – The third main benefit of biomass energy is that biomass can help clean our environment. World population is constantly increasing, and with the increase in population there is also a problem of increased waste which needs to be properly disposed. Many of garbage ends up in rivers, water streams, oceans harming nearby ecosystems and having negative impact on human health. Instead of pollution our planet with all this garbage we could use it for the production of this energy and it helps cleaning our environment from many different form of pollution.
4. **Biomass is widely available source of energy** – Even the opponents of biomass do not argue that biomass is widely available energy source. With biomass, almost everywhere we look we can find the potential source for the production of biomass energy. This is certainly one of the main benefits of biomass energy over fossil fuels. As we all know that fossil fuels are not going to last forever, and once fossil fuels will be depleted world will need to have relatively cheap, readily available energy source, and this is where biomass should step in and make the difference. Many energy experts agree that when you combine economic and environmental character of energy sources biomass will be on top of your list as one of the best energy sources.

BIOMASS: ITS INITIATIVES AND OBJECTIVES TOWARDS SWACHH BHARAT

- The government will appoint the central, the public works of waste from the government office. (Times of India.2018)
- The ministry of railways planned to facilitate the cleaning on demands, Bio-Toilets, clean bed-rolls from automatic laundries and dustbin in all coaches (Indian Railways Website)
- In the merger with Digital India project, the centre planned to have solar powered trash cans which operate in such a way that one the bin is full the alerts are sent to the sanitation team (Economic Times,2016)
- Swachh Vidyalaya – Initiative to bring basic hygiene facilities in school like sanitation, well maintained water and separate washroom for boys and girls. (Economic Times, 2015)
- These initiatives by government have bought all the citizens of Indian to make Swachh encouraged to lay their part right in order to pace the drive in the right direction.

CASE STUDY

Incineration at IHM Chennai

Talking about the layout of IHM Chennai, the major departments are:

1) Basic Training Kitchen.
2) Quantity Training Kitchen.
3) Advanced Training Kitchen (I & II)
4) Diploma Training Kitchen
5) Craftsmanship Training Kitchen
6) Bakery

Bakery

It involves training in baking and patisserie and carving.

The types of wastes involved is remaining of breads, cakes, croissants etc and also includes spoiled and soiled breads etc.

Basic Training Kitchen

It involves the basic knowledge on how to handle range, kitchen hygiene, and segregation of waste, identification of spices.

The types of waste involved is vegetable peel, carcass as it can be chicken or fish, stale bread.

Quantity Training Kitchen

Usage of heavy equipment and division of work.

The type of waste involves vegetable peel, carcass, boiled rice water, stale bread and shells.

Advanced Training Kitchen

Classes are done on a western cuisine and on larder.

The type of waste involves vegetable peel, carcus, boiled rice water, stale bread and shells, trimmings of meat, bones.

Diploma Training Kitchen

The training is limited to only the diploma students who pursue it for two years.

The type of waste involves vegetable peel, carcus, boiled rice water, stale bread and shells, trimmings of meat, bones.

Craftsmanship Training Kitchen

The training is limited to only the craftsmanship students who pursue it for 1 year.

The type of waste involves vegetable peel, carcus, boiled rice water, stale bread and shells, trimmings of meat, bones, fruit waste.

DATA ANALYSIS

Bio waste processed at source without creating any environmental impact thus making the segregation process very easy; Zero waste concept achieved in total; transporting and dumping eliminated; 100% fool proof system of waste handling; The plant if constructed underground enable usage of space effectively, Environment friendly since the process does not generate any polluting liquids or gas.

REVIEWS

Fruits and vegetables wastes, unbleached paper napkins, coffee filters, eggshells, meats and newspapers can be composted. Food waste is a very special type of compost agent food as it has got a high moisture content and low physical structure.

Hence the decision as to which is the most beneficial waste management alternative to utilize to manage food waste is usually made considering fundamentally only the economic reasons and the availability of waste management facilities.

Furthermore, there are few laws which delimit the range of solutions applicable to manage the different types of food waste; therefore the decision is often made considering only few alternatives.

Hence, keeping all of this in mind, IHM Chennai is striving for excellence in this sphere.

CONCLUSION

There are laws in many states that require counties to compost. As agricultural practices continue to exhaust soils and deplete organic matter, compost will be integral in maintaining soil fertility. Compost is an essential product in increasing amounts of land reclamation projects. It plays an important role in more environmentally regulated and aware agricultural systems. Also, bio-fuel in India is of a strategic importance as it augers well with the ongoing initiatives of the government such as the very famous "Swachh Bharat Abhiyan" and offers great opportunity to integrate with the ambition targets of the farmers' income ,waste-to-wealth creation and import reduction.

Apart from energy generation, these residues can be harnessed to produce solid bio-fuels such as bio-pellets that can effectively replace LPG, diesel, and other fossil fuel-based systems across a broad spectrum of applications.

This will also play a very crucial role for India in achieving the target of 10 GW of biomass power by 2022.

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GO GREEN CONCEPT: SOCIOLOGICAL INTERVENTIONS IN HOTEL INDUSTRY TOWARDS SWACHH BHARAT

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ABSTRACT

As a tribute to Mahatma Gandhi on his 150th birth commemoration to be commended in the year 2019", Prime Minister of India has set "Swachh Bharat Mission" on June 2014. Clean India and Green India being the two sides of one coin is one of the main reason for its sustainable development. Citizens of India has also become more and more sensitive to environmental issues and has started demanding for green products. Thus, with this pressure all the industry has started the "go green concept". With no exception, hotel industry has also implemented "go green concept". This paper is an attempt to study the benefits of implementing eco-friendly hotels, analysis the green ideas for hotels and resorts.

Keywords: Swachh Bharat Mission; Clean India; Green India; Sustainable development; Go Green concept.

INTRODUCTION

An eco-friendly hotel, or a green hotels, is an ecologically sustainable hotels or lodging that has caused significant ecological enhancements to its structure so as to reduce its impact on the nature. The essential meaning of an eco-hotel is that it is a environmentally responsible accommodation that pursues green living. These hotels are usually certified by the independent authority or by the state they are situated in. It is advantageous for these hotels to get certain certifications in order to be environmentally acquiescent.

The environmental friendly improvements in hotels can include non-toxic housekeeping practices, the use of renewable energy, organic soaps, energy-efficient light fixtures, and recycling programs. An eco-friendly hotel should have a set of best practices in order to do their part to benefit the environment. Some of these best practices that can be followed by hotels include serving local organic food in restaurants, reusing linens when a guest is staying for more than one night, and incorporating in-room recycling and composting programs. Hotels that have these certifications and best practices have the advantage of attracting environmentally conscious travelers and stand out from other hotels.

The three R's have a vital role to play in the construction of a green building. They are:

- Recycling (of old material),
- Reduction (of wastage) and
- Re-use (of material).

Criteria for Green Hotels

An eco-friendly hotel should normally meet the below criteria:

- Reliance on the environment
- Environmental sustainability
- Demonstrated commitment to conservation
- Arrangement for ecological training programs
- Consolidation of cultural consideration
- Arrangement for economic return to the neighborhood community

Characteristics of Green Hotel

Green hotels pursue severe green rules to confirm that their visitors are remaining in a safe, non-poisonous and energy-efficient place. Here are some essential attributes of a green hotel:

- Housekeeping department uses non-toxic cleaning agents and laundry detergent
- 100% organic cotton sheets, towels and mattresses are used
- Non-smoking atmosphere
- Renewable energy sources, i.e., solar or wind energy
- Organic soap and amenities to reduce waste
- Recycling bins in guest room and hotel lobby
- Re-use of towel and sheet (guests can tell housekeeping to leave these slightly used items to reduce water consumption)
- Energy-efficient light
- Green vehicles for on-site transportation
- Serve organic food
- Non-disposable dishware
- Fresh air atmosphere
- Greywater recycling
- Newspaper recycling

Go Green Concept in India

The Indian Green Building Council (IGBC) was established in 2001 by the Confederation of Indian Industry and the Godrej Green Business Center, and is constantly endeavoring towards the wide appropriation of green building concept in the India. In the past 10 years, more than 687 undertakings have been enrolled or certified under IGBC's green structure rules created in India. This undertakings includes hotels, hospitals, and business, institutional and manufacturing plant buildings.

As far as hospitality industry is concerned, hotels in India is ranked second in Asia in 2011, with around 500 ventures and roughly 90,000 rooms. About 60% of the nation's very good quality hotels are situated in Bangalore, Pune, Mumbai, Chennai and New Delhi.

With the pressure of go green from environmental sensitive customers, there is a growing number of eco-friendly hotels in India. The ITC Gardenia, a luxury hotel in Bangalore, was awarded the platinum rating by the US Green Building Council LEED (Leadership in Energy and Environmental Design), it is the first hotel in India to achieve the highest rating for green buildings.

Understanding the benefits of eco-friendly hotels, ITC now has a platinum rating for all its luxury hotels—the ITC Windsor in Bangalore, the ITC Mughal in Agra, the ITC Sonar in Kolkata, the ITC Kakatiya in Hyderabad, the ITC Grand Central and the ITC Maratha in Mumbai, and the ITC Maurya in New Delhi. The Leela Palace Hotel in New Delhi has also been certified platinum rating.

The Pune Marriott Hotel and Convention Centre has been awarded with the gold certification as has the Heritage Madurai Hotel and Resort, while the Fortune Select at Lavasato be certified silver rating. Many hotels are enrolled for LEED certification such as Piccadilly Hotels for its forthcoming Hyatt Regency properties at Gurgaon and Ludhiana for a gold rating.

Few salient features of incorporated in these green buildings are zero water discharge, 25-40% energy saving conventional buildings, 40% reduction in drinking water use, use of treated greywater for flushing and landscaping, use of fly ash in bricks and concrete, high efficiency equipment, and eco-friendly housekeeping practices.

With the number of green buildings predicted to multiply, the energy requirements of Indian cities might change, transforming traditional urban culture. We hope for the best.

OBJECTIVE OF THE STUDY

The objective of the study are:

- To analyze the benefits of implementing go green concepts in hotels.

- To identify the various authorities that certifies the environmental standards of hotels in India

SIGNIFICANCE AND SCOPE OF THE STUDY

The main aim of Swachh Bharat Mission is to achieve "zero carbon footprint". "Green Footprint", i.e., go green concept is one of the important contributor towards Swachh Bharat Mission through green buildings, waste management, water conservation & harvesting, use of renewable energy, power remediation, etc.

On the other hand, hotel industry is responsible for about 15% of the total water use in commercial and institutional buildings. Approximately, around 25 gallons of water is used per day for laundry alone, which is more than 2 million gallon of water per month.

Thus it is important to study the importance of implementing "go green concept" in hotel industry in India, not only as an initiative towards Swachh Bharat but also as a responsibility to protect the environment. And also to know the certifying authorities in India, that certifies the environmental standard. As the hotels can enroll themselves with these authorities and also the customers can know these authorities criteria for certification.

RESEARCH METHODOLOGY

The study is based on secondary data collected from various research articles, national and international journals, periodical reports, magazines, informatory videos and websites.

REVIEW OF LITERATURE

In spite of the huge number of studies directed on corporate maintainability and ecological administration all in all, it isn't completely comprehended why a few associations are more naturally proactive than others and what drives improved ecological execution in an association. It is particularly appropriate to ponder these viewpoints on an industry and territorial premise (Kirk 1995; Mauser 2001; Tinsley 2002) as isn't obvious from the writing whether the components influencing expanded natural responsibility are comparable, or are industry and district explicit (Alvarez Gil et al. 2001; Rivera 2001).

Ongoing exploration recommends that there are various elements that influence natural duty for different segments. Therefore, conventional arrangements of drivers are available to reactions of reductionism, uniting the contention that further research is required on explicit areas (Lynes and Dredge 2003; Rivera and DeLeon 2005; Salzmann et al. 2005).In the immense group of writing in regards to natural duty and corporate social obligation, a significant part of the writing has focused on manufacturing enterprises (Lynes and Dredge 2003).

Administration industry contemplates, for example, ones directed with the inn part, have gotten little consideration in the writing in spite of the expanding natural significance of the travel industry and, all the more explicitly, the lodging business' effects on the earth. Of all the mechanical segments explored by the World Bank Group CSR Practice, the travel industry was the least created as far as sets of principles and CSR activities (Dodds and Joppe 2005).

The natural impacts of this industry are dismissed in the writing and it is imperative to comprehend why the usage of ecological activities have been restricted (Mitchell et al. 1997; Berman et al. 1999). There is likewise an absence of concentrates that have represented both indus-attempt and nation impacts (Salzmann et al. 2005). An examination of the components that influence the degree of natural responsibility in the lodging business is perti-nent in creating techniques for activity.

There are a few instances of the advantages to being green in the lodging business (Kirk 1995; Rivera 2002a, 2002b; WWF IBLF 2002; Graci 2002; Gössling et. al 2005; Bohdanowicz 2005; Green Lodging News 2008), nonetheless, a lot of this data has not been spread on a more extensive scale to all organiza-tions in the business and isn't exhibited in a strong way to show the advantages, nor the business case for all hotels. The enormous, global organizations have a system of sharing money saving advantage investigations of activities among their chain anyway the business case has not been all around created among all hotels in the business.

AUTHORITIES TO CERTIFY HOTELS IN INDIA

The following are the various authorities that provides certification for hotels in India.

Organization	Certification Name	Description	Source
U.S. Green Building Council	Leadership in Energy and Environmental Design (LEED)	LEED certification affirms that the structure has been made remembering green standards, for instance, vitality preservation and everything of that nature. Created by the United States Green Building Council in 2000, the LEED certification procedure gives business structures a scorecard for gathering benchmarks identifying with so much territories as area and transportation, materials and assets, and water productivity, among others	www.usgbc.org
Hotel Association of Canada, LRAWorldwide,Inc	Green Key Global	Ecological accreditation program for lodgings. Gives specialized direction. Partaking offices are granted somewhere in the range of 1 and 5 Green Keys relying upon adherence to criteria	www. greenglobe.com
HVS	ECOTEL certification	The ECOTEL certification stays among the spearheading programs that merged the mainstays of supportability with an emphasis on condition assurance. The Employee Education and Community Involvement globe predicted a situation the board framework through the making of a green group and preparing for staff to enable them to empower the plan for manageability. The ECOTEL program, after some time, moved its base to India.	www. ecotelhotels. com
International Standards Organization	ISO 14000 certification	The International Standards Organization in 1996 and is basically a guide for associations trying to actualize an institutionalized program for ecological tasks. When the arrangement is executed inside an association, ISO sends examiners to audit the whole program and measure vitality utilization, reusing endeavors, and so forth for accreditation.	www.iso.org
Godrej Green Business Centre	The Indian Green Building Council (IGBC	GBC is ceaselessly endeavoring towards the wide selection of green structure ideas in the Indian business. Over the most recent 10 years, in excess of 687 undertakings have been enlisted or confirmed under IGBC's green structure rules created in India. They additionally rouse and affirm lodgings which use and full fill the base ecologically well-disposed practices in their hotels	www.igbc.in
Sustainable Travel International	Sustainable Tourism Eco-Certification Program (STEP)	Ecological affirmation program for visit administrators, lodgings, attractions, transportation, and the voyage business. Gives direction, self-evaluation apparatus, and 2 to 5 star eco-logo rating framework. Separate confirmation offered for extravagance settlement	www. sustainabletrave l.org

BENEFITS OF GREEN HOTEL RANKINGS

The top benefits received by hospitality industry through go green concept are:

Long Term Monetary Savings

- One of the key focal points of go green concept is recourse efficiency. These advancements decrease resource utilization, setting aside hotels cash over the long haul.
- For instance, supplanting standard radiant lights with longer-enduring high-proficiency bulbs is a well-known route for hotels to cut their energy bills.
- On the whole go green concept will reduce the operating cost of the hotels.

Meeting the Needs of Eco-Conscious Travelers

- As was referenced before, consumers are ending up increasingly more mindful of the fact that it is so imperative to protect the earth. Numerous hotels visitors are conscious to stay in a "green" environmental friendly hotel, as it enables them to realize that they're protecting the earth.
- Millennials are progressively expecting that their destination resorts are patronize to be ecologically conscious —without paying an extra cost.
- As per Scott Lee, an originator of Ritz-Carlton and Auberge properties, millennials prefer to stay in resorts / hotels that are both environmentally and culturally sustainable.
- Thus on the whole go green concept is an investment made by the industry which not only saves money in long run but also attracts more number of customers, thus increase in profit.

Conforming to New Environmental Regulations

- Market interest for green administrations isn't the main factor that adds to the choice to become environmentally viable.
- As the public turns out to be increasingly delicate to the Earth's environment, policy makers additionally pay attention, passing new laws and guidelines intended to constrain contamination. New guidelines might be passed to fight with a specific crisis.
- By utilizing green advances and techniques, hoteliers can be better arranged for any new forthcoming natural restrictions that may come in future.

Thus, on the whole, saving cost with increase in customers and meeting to laws and regulations will lead to sustainable development of the company.

Other benefits to the environment are:

- Energy conservation
- Water conservation
- Waste management
- Green procurement
- Alternative energy sources

SUGGESTIONS

The following are few suggestions to hotels in order to be eco-friendly>

- Hotels should implement an effective pest management program that will minimize the use of chemicals.
- Program to reduce food waste must be established.
- Recycling program to manage solid waste can be implemented.
- Install new and effective laundry system that will reduce the misuse of gallons of water.
- In order to conserve water, low flow water shower heads and faucet aerators can be installed.
- Last but not least, in order to develop green tourism, hotels should promote its benefits to the guests.

CONCLUSION

The present need of the society is "Hospitality with responsibility!" Awareness about protecting environment and green hotels needs to be widespread in the industry as well as in academics so as to involve the future hoteliers in pursuit for achieving environment friendly green hotels. Initiative must be taken by the Indian government to appreciate the Hotel industry in India that implement schemes and policies which are in favor of Green Hotels. Further the steps and measures taken by the Hotels in India shows that they have understood that the activities they carry out have a great impact on the environment, both short and long term. In this condition, green hotels are one of the most sustainable measures, with visible results.

Consequently, "go green concept" is not only an initiative towards Swachh Bharat, it is the social responsibility of every individual.

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ROLE OF MEDIA IN ENVIRONMENTAL CONSERVATION THROUGH SWACHH BHARAT

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ABSTRACT

The Republic of India is a developing nation, with the effects of the british colonial rule still affecting the nation to this day. Despite the less than fortunate start the country is rapidly growing with an increasing economy and standing in the international market. Largely due to the land being gifted with natural resources and the increasing population resulting in a vast workforce available. With the expansion the same environment and natural resources on whose shoulders the country stand on are not being looked after, with very little public awareness about the subject. This paper will discuss the role of media in the act of environmental conservation by spreading the message mainly through the help of swachh bharat.

INTRODUCTION

Environmental conservation is an issue that is being faced by each and every nation, state and community. The global temperature has doubled in the last 50 years with it being predicted to rise by 1.5 degree Celsius globally in the next 20 years. Developing and developed countries alike are facing this issue with each doing very little to help the cause.

The swachhbharatabhiyan was launched in the year 2014 with a single goal in mind to make India to clean up the streets, roads and infrastructure of India's cities, towns, urban and rural areas. The rampat pollution with results in the corrosion of environment the degrading of living conditions of the citizen is being addressed by the abhiyan or mission.

The name swachhbharat literally translated to clean india campaign. It started as a tribute to the father of our nation Mohandas Karamchand Gandhi, in order to achieve his vision of a clean India. But the mission has grown much larger than that. Through the public support and involvement it has become a national call a janandolan of sorts. And although some of the public became aware of this mission through government channels and advertising efforts the larger part of the population came to know it through the media that they ingest daily, the major contributors being, print media, mainstream television media and the internet media

OBJECTIVES

The objective of this paper is to review the effects the media has had on environmental conservation specialty through the swachhbharatabhiyan. By focusing on the individual contributions of media and finding the effects it has had on the environment and the living conditions of common populace of india.

METHODOLOGY

The sources referenced for this paper are the various official publications by the government of India on the Swachh Bharat campaign. The paper also looks at various other studies in the field for statistics and numerals suggest best magazines and news outlets, Global reporting initiative, as well as publicly disclosed information online.

REVIEW OF LITERATURE

"Media have to make the comprehensive coverage of environmental issues which would help in preaching the common man on his/her role in building the cleaner environment with due responsibility." (Suresh, 2016)

"Media has played an active role in taking the campaign to the door steps of the people from the urban to the rural areas." (Pradha, 2017)

"Media has converted its pen into broom. This is a service to the nation." (Modi,2014)

DISCUSSION & FINDINGS

"I saw several TV channels showing dirt left behind after crackers. I congratulate them for spreading awareness on importance of cleanliness" (Modi, 2014)

Every government in power understands the power the media has, it is the literal source of information and through the information provided people make decisions and opinions about the issues that are present in their environment.

A five year campaign was launched on 2nd October 2014, with the goal to make India an Open Defecation Free (ODF) nation, to provide clean water and basic sanitation for all its citizens and to promote solid and liquid waste management. Launched at Rajghat, New Delhi, the SwachhBharat Abhiyan or the clean India campaign strives to achieve the goal by 2nd October 2019, the 150th birth anniversary of Mohandas Karamchand Gandhi, the father of our nation.

The campaign although has grown much larger than the goals that were originally set in front of it. It has blazed through many of its predetermined goals and has taken on more opportunities, including climate change, pollution, environment degradation, green technologies, recycling of electronic devices. These goals may not be official but through public involvement the campaign has taken the meaning to clean India, quite literally.

Table 1: Public Perception of impact of Swachh Bharat Campaign

Statement	Strongly agree	Agree	Don't know	Disagree	Strongly Disagree
Swachh Bharat Campaign helps in the development of the country	39.13	36.95	8.69	8.69	6.52
Swachh Bharat campaign has brought changes on the ground level	6.52	47.82	17.39	21.73	6.52
Participation of celebrities increase public participation in the mission	4.34	43.47	19.56	26.08	6.52
Municipal corporation is not much helpful in sanitation, hygiene and waste management	39.13	36.95	8.69	8.69	6.52
Cleanliness in the area has improved after SBA	6.52	39.13	6.52	36.95	6.52

From the general opinion of the populace maximum consider swachhbharat to be an excellent policy that promotes the growth of India, these decisions have very little influence of the political affiliation of the individual as even those that are not in support of the current ruling party are in favor of swachhbharatabhiyan.

Although a certain critique is present that some famous personalities are merely performing an act of taking part in the swachhbharatabhiyan and not taking the mission in its spirit. And the blame falls on the new media that such acts are gaining popularity and should be thus not reported. However I would suggest that even

the mention of swachhbharat and the will to ensure it is achieved truthfully is thanks to the media that has brought attention to the matter.

Several institutes government or non government have also been actively taking part in this campaign and performing activities with their employees or students such as cleaning beaches, cleaning parks, conserving the forested areas and encouraging planting more, thus turning the earth into a much healthier place.

"Ridding the country of single use plastic by 2022 will be "Clean India (Swachh Bharat) Part 2" (Javadekar, 2019)

This statement has been given by the environment minister of India while speaking at a press conference announcing the government's new environmental initiative. Through this it can be easily inferred that though it may not have been the original goal of then swachhbharat campaign it has now officially embart the path of climate conservation.

While the role of print media is evident in raising awareness, in today's day and age one cannot ignore the effect internet media and social media has on any subject.

A recent example can be seen where 20Thseptember 2020 has been set as an event on the social media platform Facebook to clean the beaches of those attending in their respective cities. This post has over 10 million individuals confirming to do so on the due date.

Social media platforms like facebook, twitter, reddit, are a frequent hotspot for climate activists and environmental enthusiasts. A such the scope of swachhbharat has provided a unifying voice for those interested in protecting the environment.

Also print media such as The Hindu, The Times of India, Indian Express regularly publish articles, news stories and editorials that bring environmental conservation into the public eye.

CONCLUSION

We have seen now through the platform provided by the swachhbharat campaign the individual citizens are becoming aware of the environmental crisis that is facing us and are taking initiatives to prevent it. The media has played a vital role in the success of Swachh Bharat Abhiyan by raising awareness in the common populace of the county.

By bringing such matters to the attention of people the news and print media have raised the populaces awareness upon the subject and promoted such activities. The media helps to form the social norm of cleanliness in India.

The swachhbhartabhiyan has bridges the gap that was present between the various environmental activists and has brought them together. And social media has provided a global platform for these individuals.

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USE OF TECHNOLOGY IN SWACHH BHARAT ABHIYAN

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ABSTRACT

"Swachh Bharat Mission" i.e. The Clean India Mission, a national level crushed, recently launched by the Government of India. It is a great step to the protection of degrading of our environment. The main motive of this campaign was the wiping out the open defection, transformation to hygienic toilets from pour flush toilets, removal of manual scavenging and described all to bring about a behavioral change in people regarding hygienic sanitation practices and to encourage public participation in achieving these goals. Globally, India continues as the country with highest number of people doing open defection. If Swachh Bharat Mission (SBM) is executed properly with its entire collaborator taking their respective responsibilities then there will be no wonder that one day India will become an open defection free country. A brief about this program, objectives, related health issues and its role in environmental protection has been discussed in this.

Keywords: Swachh Bharat Mission, sanitation, open defection, toilets, environmental protection.

INTRODUCTION

The mobile and web application Swachhata is a 4th generation complaint and redressal mobile and web platform. It is a quantum leap in how complaints and grievances are being redressed by Municipal Corporations in India. The solution is for the 4041 towns and cities of India. The core of the Swachhata application is to use the application more effectively and civic engagement to help resolve the Swachh Bharat complaints. The Swachhata application fuses together a time-tested complaint redressal platform with the opportunity for citizens to work together on civic issues with community centric features for citizens to vote up on complaints, share them with other concerned citizens and comment on the work being done.

OBJECTIVES

1. To identify the various technology used in Swachh bharat mission
2. To list the usage of various mobile applications in Swachh bharat mission

REVIEW OF LITERATURE

1. D. Kadge, A. K. Varute, P. G. Patil, P. R. Belukhi (2016) in their study have proposed a Automatic Sewage Disposal System that can be made available in the train
2. Thomas Schlebusch, Steffen Leonhardt (2011) study explains the proposed Intelligent Toilet System for Health Screening
3. Pandya Chintan, Yadav Jatin, Kareliya Sanket (2015) study explained about the proposed Automatic working bio-toilet tank that be used for railway coaches.

SWACHHATA APP

Many changes are driven by technology and innovations in this revolutionary world. Swachhata App is launched by Ministry of Urban Development. From any part of India anyone can register the user complain through this App. The location of the user complain will be recognized by the App and required action will be taken by the local bodies at the earliest. The main advantage of this application is the user can chose their language from 8 different languages. Real-time sanitation coverage in rural areas will be provided by the App at finger tips. The user can post a complaint for himself, or the city or nearby places. An event can be created by the user or view the events created by other user and volunteer for the event. One can get the directions to participate in an event and even share about the details to a friend or many users, to register a complaint through a picture or directly focusing the camera in the location. When the user allows the App to use the camera, the image will be captured and it can be used for one or more of the following reasons:

1. To post a complaint
2. To change the status of complaint
3. To post a comment with image
4. To update profile picture or
5. To create or edit the personal events

Fig 1: Image of the Swachhata App

Figure 1 explains the swachhata application icon for the mobile users

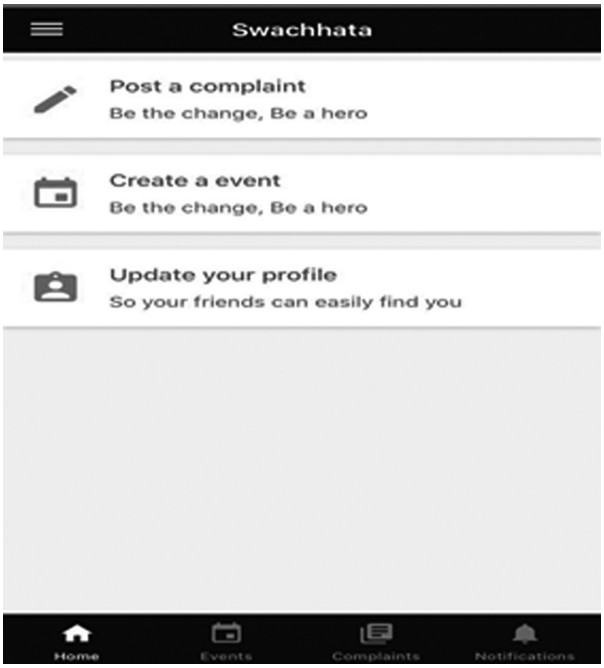

Fig 2: Home Screen of Swachhata App

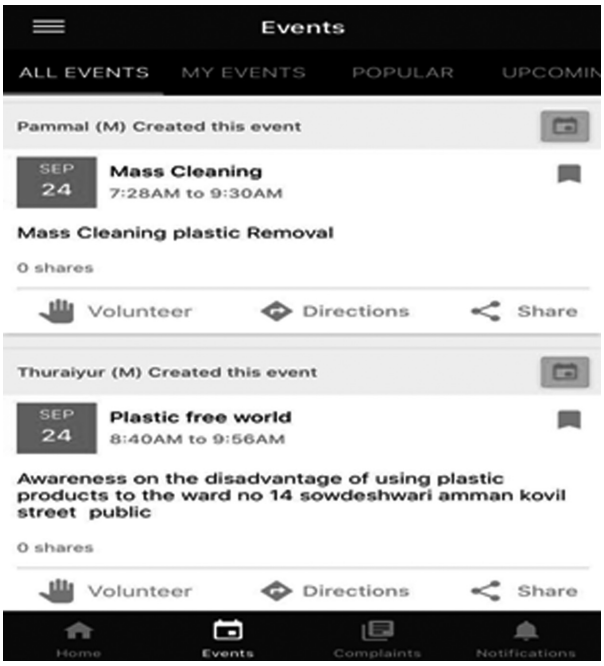

Fig 3: Events Page of Swachhata App

The App can be downloaded from the following link:

1. For Android phones the swachhata application can be downloaded from the link https://play.google.com/store/apps/details?id=com.ichangemycity.swachhbharat&hl=en_IN
2. For iphone users the swachhata application can be downloaded from the link

   https://apps.apple.com/in/app/swachhata-mohua/id1124033628

The swachhata application enables the citizens to do the following:

- The rating for one's village on Swachhta can be viewed on the application.
- The number of household toilets constructed for the beneficiaries under Swachh Bharat Mission – Gramin can be viewed by the application user.
- The percentage of real-time sanitation coverage can be viewed
- The number of open defecation free villages can be viewed on the application.

NAMMA CHENNAI APPLICATION

Greater Chennai Corporation and Chennai Smart City Limited has developed The Namma Chennai App as a Public Grievance Redressal App. The civic grievances voiced by the residents is tracked by the corporation officials.

The link for downloading the application for the mobile users is:

https://play.google.com/store/apps/details?id=com.ceedeev.grivenancev2&hl=en_IN

Fig 4: Mobile Application for Swachhata

The figure 4 shows the application for cleanliness for Greater Chennai Corporation. The complaints can be logged in and can check the status of the complaint in the application with user login.

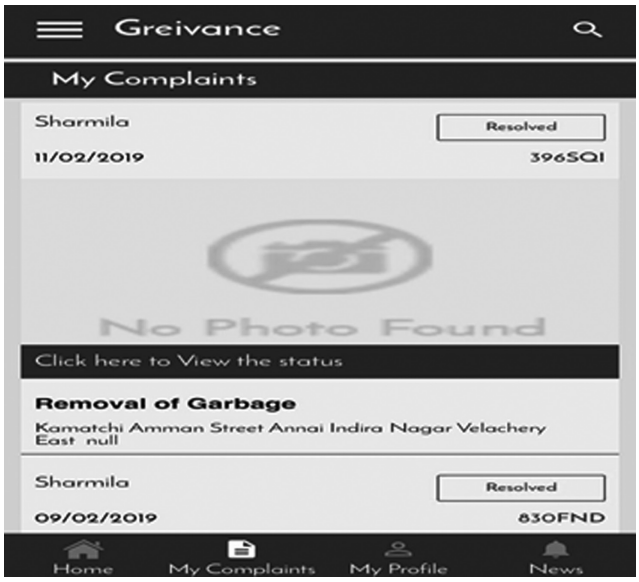

Fig 5: My Complaints in the Application

The Figure 5 shows the screen shot of the user complaints with the address, date and whether the complaint is resolved or not on the Namma Chennai mobile application.

Fig 6: The News in Local Language in the Application

Figure 6 explains the local news in the Greater Chennai Corporation mobile application

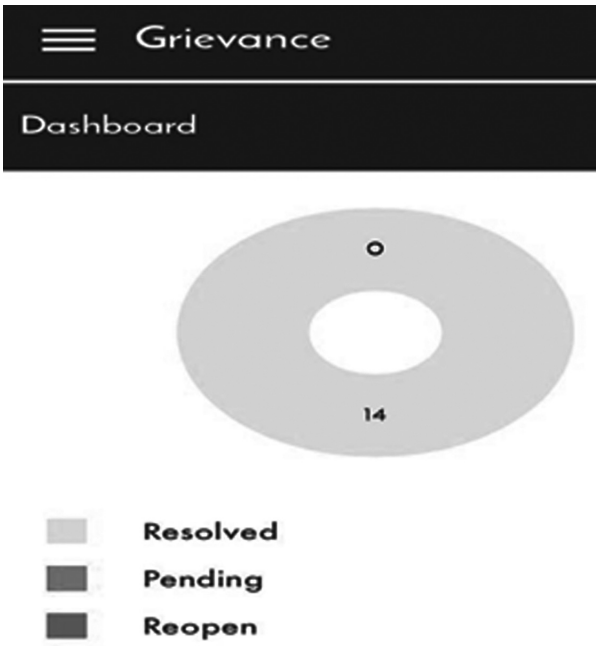

Fig 7: Dashboard of the Application

Figure 7 gives the screen shot of the mobile application which clearly shows the dashboard of the user.

WORKING OF THE SWACHHATA APPLICATION

The application gets the inputs from citizens to monitor and resolves the various issues in real time. The system consists of the following modules.

Citizen Application: Swachh Bharat complaints can be uploaded in this mobile application by the user.

The Engineer Application: The complaints uploaded by the citizen are monitored by the sanitary engineer to take immediate action.

Municipal Administrator Website: The complaints received from their cities and towns are monitored by the Municipal Commissioners and their digital teams through this website.

Ranking & Rating Website: The application is rated by the citizen based on the complaints resolved.

The following figure explains the working of the Swachhata application in detail

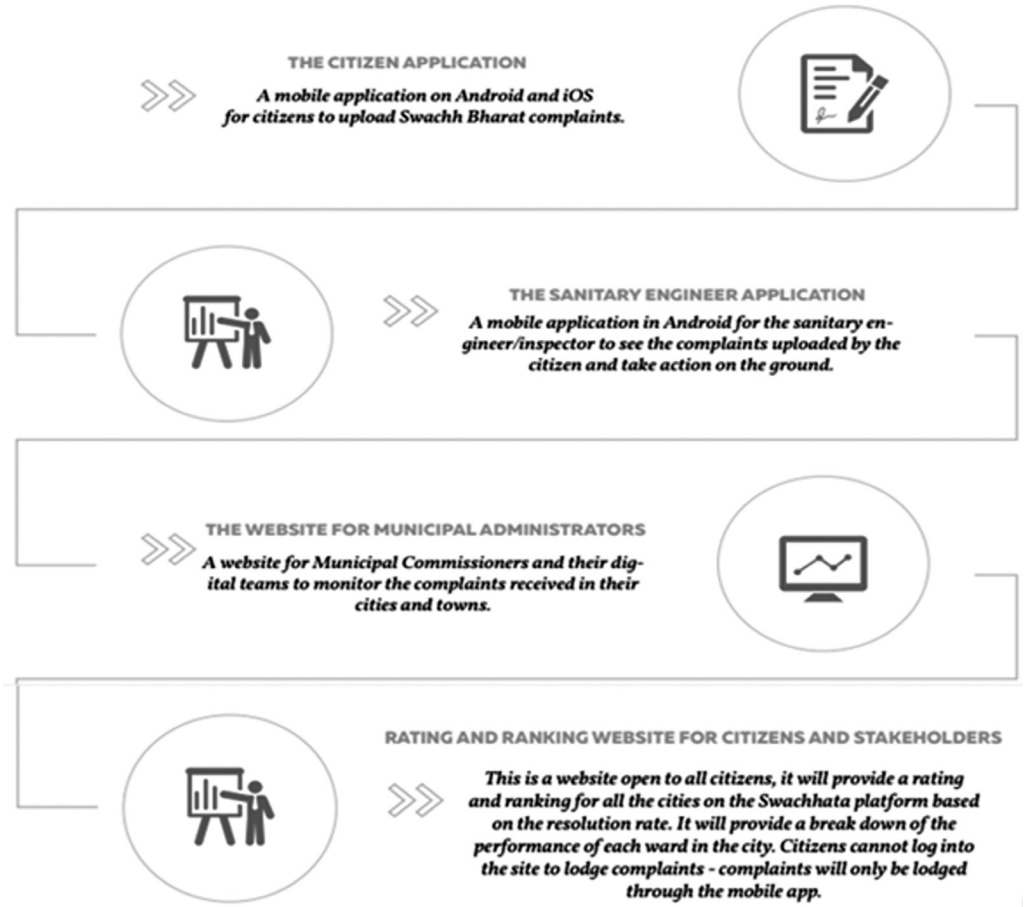

Fig 8: Working of the System

The above figure explains clearly about the working of the mobile application in detail from the application of the citizen to rating and ranking of the website.

APPLICATION FOR LOCATING A TOILET

The user can locate the nearby toilet using the application called google toilet locator or find X toilet. These application are specially used in New Delhi by the citizens.

REAL TIME MONITORING FOR TOILET CONSTRUCTION AND USAGE

To monitor the progress of toilets construction or usage in an area, a real time monitoring system application is used. the Ministry of Drinking Water and Sanitation has launched this monitoring system where mobile phones can be effectively used.

CONCLUSION

Rapid advances in technologies provide ample opportunities for bringing in innovations in waste management, cleanliness of urban and rural place and sanitation. Awareness about technology in Swachh bharat has to be created among the citizens of India. This present study clearly explains the various use of technology in the Swachh bharat mission. When used extensively and by every citizen, drastic changes can be bought in the society which will lead to the success of Swachh bharat mission in India. Its very clear that initiatives using technology in development projects acts as a strong enabler for key governmental and private sector interventions. Smarter use of technology will result in Swachh bharat which is a dream come true.

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SWACHH BHARAT MISSION: A JOURNEY TOWARD A CLEAN ENVIRONMENT

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ABSTRACT

"Swachh Bharat Mission" i.e., The Clean India Mission, a national level crushed, recently launched by the Government of India. It is a great step to the protection of degrading of our environment. The main motive of this campaign was the wiping out the open defection, transformation to hygienic toilets from pour flush toilets, removal of manual scavenging and described all to bring about a behavioral change in people regarding hygienic sanitation practices and to encourage public participation in achieving these goals. Globally, India continues as the country with highest number of people doing open defection. If Swachh Bharat Mission (SBM) is executed properly with its entire collaborator taking their respective responsibilities then there will be no wonder that one day India will become an open defection free country. A brief about this program, objectives, related health issues and its role in environmental protection has been discussed in this.

Keywords: Swachh Bharat Mission, sanitation, open defection, toilets, environmental protection.

INTRODUCTION

The Government of India embraced a majorly issued approach of the name Total Sanitation Campaign (TSC) in 1999, later on it was named again as the Nirmal Bharat Abhiyan (NBA). The prime focus of the campaign was to improve the sanitation conditions in the rural regions of the county. Their focus primarily was on to give more momentum and to encourage the households of rural areas to construct better latrine infrastructure and to motivate them to use a better and prevented toilet system. The motive of the Nirmal Bharat Yojana was that, they focused on community led strategies that were demanded by the people themselves for a total sanitation drive to establish a safer and a cleaner environment. Not only family circles but also village schools and village communities and Anganwadikendra also considered under the mission of Nirmal Bharat Yojana.

The objective of the plan was not only on the creation of sanitary infrastructure but also to spread awareness among the people in improving their personal whereabouts in terms of hygiene and the proper disposal of waste material. The implementation of this program involves the association of the Panchayati Raj Institutions through various local social mobilizations, and campaigns.

A financial subsidy was provided to households for constructing latrines. To give a boost to the TSC, the government also launched the Nirmal Gram Puraskar (NGP), an incentive program that sought to recognize the achievements and efforts of Panchayati Raj Institution (PRIs) in encouraging full sanitation coverage in their Gram Panchayats. Government of India has launched the Nirmal Gram Puraskar (NGP) in 2003 month October and gave the first awards in 2005. NGP seeks to recognise the efforts made by Panchayati Raj Institution (PRIs) and institutions who have contributed significantly towards ensuring full sanitation coverage in their areas of operation. TSC lays strong emphasis on Information, Education and Communication (lEC), capacity building and hygiene education for effective behaviour change with the involvement of PRls, CBOs, NGOs, etc.

Considering all the households with IHHLs (Individual Household Latrine), cluster toilets, community toilets the prime minister has given his approval for restructuring of the Nirmal Bharat Abhiyan into Swachh Bharat Mission (Gramin). NBA has been transformed into the Swachh Bharat Mission with two sub-Missions – Swachh Bharat Mission (Gramin) and Swachh Bharat Mission (Urban).

Many people in India knows open defecation as a national embarrassment, but if one calculates for the loss that it imposes on the health and future productivity of India's children, it's clear that the sanitation crisis is actually an emergency.

The Census 2011 of India shows that 4,041 statutory towns (administrative units that have been defined by 'statute' as urban such as municipal corporations, municipalities, cantonment boards, notified town area committees, town Panchayats or nagarpalikas) having eight million households do not have access to toilets and defecate in the open. Pathetic sanitation has significant health concerns and coarse sewage from towns is the biggest cause of water pollution in India. This shows both the scale of the challenge ahead of the Indian towns and the massive costs incurred from not addressing them.

The Swachh Bharat Mission (SBM) derives from the vision of the Government of India as a tribute to Mahatma Gandhi on his 150th birth anniversary to be celebrated in the year 2019 to make certain hygiene, waste management and sanitation across the nation. The Prime Minister of India has launched SBM on 2nd Oct. 2014.

INTENTIONS OF SBM

The Swachh Bharat Mission has the following intentions:

1. Removal of open defecation
2. Abolition of Manual Scavenging
3. Contemporary and Systematic Municipal Solid Waste Management
4. To effect interactive change regarding healthy sanitation practices
5. Generate attentiveness about sanitation and its connection with public health
6. Capacity Intensification for Urban Local Bodies (ULB's)
7. To create an empowering environment for private sector participation in Capex (capital expenditure) and Opex (operation and maintenance)

1. Removal of open defecation

The elimination of OD is primarily a complex socio-cultural and sociopolitical task. It is not a major technical or financial challenge as Community-Led Total Sanitation (CLTS), with its option to consider all types of sanitation and hand washing facilities, does not require the development of new technologies specifically for OD elimination as several existing technologies are already fit-for-purpose; nor does it always necessitate the provision of subsidies.

The further development and rigorous field-testing is needed to ensure that there is no reversion to OD in communities which have become OD-free

2. Abolition of Manual Scavenging

Manual scavenging is a word used mostly in India for the manual removal of untouched human excreta from bucket toilets or pit latrines by hand with buckets and shovels. It has been publically banned by law in 1993 due to it being viewed as a caste-based, dehumanizing drill (if not done in a safe manner).

It involves moving the excreta, with the help of brooms and tin plates, into baskets, which the personnel carry to dumping locations sometimes several kilometers away. The workers, entitled as scavengers (or more appropriately "sanitation workers"), rarely have any personal protective equipment. Manual scavenging is a caste-based livelihood, with the massive majority of workers involved being women too.

3. Contemporary and Systematical Municipal Solid Waste Management

The arrangement of municipal solid waste differs critically from municipality to municipality, and it changes ominously with time. In municipalities which have a powerful waste recycling system, the waste stream mostly be made up of intractable wastes such as plastic films and non-recyclable wrapping materials.

At the beginning of the 20th century, the popularity of domestic waste (53%) in the UK consisted of coal ash from open fires. In established areas without significant recycling activity it primarily includes food wastes, market wastes, yard wastes, plastic containers and product packaging materials, and other various solid wastes from housing, commercial, institutional, and industrial sources.

Most definitions of municipal solid waste do not include industrial wastes, agricultural wastes, medical waste, radioactive waste or sewage sludge. Waste collection is performed by the Municipality within a given area. The term residual waste relates to waste left from household sources containing materials that have not been separated out or sent for processing.

4. To Effect Interactive Change Regarding Healthy Sanitation Practices

Community-Led Total Sanitation (CLTS) interventions aimed for ODF communities through the swift improvement of sanitation standards, motivated by a community's mutual disgust and fear of illness. Many of the Community-Led Total Sanitation (CLTS) programs were successful at rapidly igniting communities to end OD. However, for those programs to achieve sustainable results, more emphasis may need to be placed on long-term solutions and activities that drive maintenance behaviors.

Beyond maintenance behaviors, a study of 116 villages by PLAN Australia found that more support to upgrade basic latrine facilities is needed for those households and villages that have maintained their ODF status.

5. Generate Attentiveness About Sanitation and its Connection With Public Health

Sanitation promotion is one of the most important roles the health sector can have in environmental health planning, because behaviours must be changed to increase householders' demand for and sustained use of sanitation, especially in rural areas where the pressure for change is lower. Thus, two of the most promising large-scale sanitation programmes in Africa are centred around demand creation and are both led and delivered by the Ministry of Health and its associated structure.

Sanitation can be promoted by the health sector through a stand-alone programme such as sanitation marketing or community-led total sanitation Community-Led Total Sanitation (CLTS) or included in disease-specific control programmes such as the 'SAFE' approach to trachom. Alternatively, it can be incorporated into a wider integrated community health package such as Ethiopia's HEP (Health Extension Programme), which was developed in 2004 to prevent the five most prevalent diseases in the country; safe sanitation and hygiene became a major focus within HEP because of the recognition that these diseases are all linked with poor environmental health.

6. Capacity Intensification for Urban Local Bodies (ULB's)

The Government of India (GOI) launched the Swachh Bharat Mission (Urban) [SBM(U)], with the vision of ensuring hygiene, waste management and sanitation across the nation, as a tribute to Mahatma Gandhi on his 150th birth anniversary, to be celebrated in the year 2019. SBM (Urban) is being implemented by the Ministry of Housing and Urban Affairs (MHUA).

The mission also focuses on improving the levels of cleanliness through Solid Waste Management activities.

The mission targets coverage of all statutory towns.

7. To Create an Empowering Environment for Private Sector Participation in capex (Capital Expenditure) and Opex (Operation and Maintenance)

Capital expenditures are major purchases that will be used beyond the current accounting period in which they're purchased. Operating expenses represent the day-to-day expenses designed to keep a company running. OPEX are short-term expenses and are typically used up in the accounting period in which they were purchased.

Understanding CapExvsOpEx difference is crucial for any business struggling to optimally utilise finance by making sure that the correct mode is used for capital expenses and other types of expenses. Blow you will find a complete guide to CapexvsOpex, explaining the benefits and disadvantages of both, and how to manage them effectively.

DIFFERENT PARTS OF SBM

The Swachh Bharat Mission has the following parts:

1. Household toilets, containing conversion of insanitary latrines into the pour-flush latrines
2. Community toilets in villages
3. Public toilets in cities.
4. Solid waste management plans
5. IEC & Public Awareness and public sentiment
6. Capacity building and Administrative & Office Expenses (A & OE) for the SBM

By Public Toilets, it is implied that these are to be provided for the floating population / general public in places such as markets, train stations, tourist places, near office complexes, or other public areas where there are considerable number of people passing by.

By Community toilets, it is implied that a shared facility provided by and for a group of residents or an entire settlement. Community toilet blocks are used primarily in low-income and/or informal settlements / slums, where space and/or land are constraints in providing a household toilet. These are for a more or less fixed user group.

OPEN DEFECATION

Open defecation (OD) is the practice of defecating in the open place or in public. This may be done as a result of cultural custom or having no availability to toilets. Open defecation is practiced all over the world it is natural but in camping type situations and represents no health and environmental problems when done in sparsely populated point of view and when the "cat method" is used, i.e., covering with the body waste with some soil, leaves or sand.

However, open defecation becomes a notable health problem and a big issue for human being dignity when it practiced in more densely populated areas, such as in big villages or in urban informal settlements in developing countries. Here, the practice is usually related with the poverty and exclusion.

More than 1 billion people across the world that are still practicing open defecation today, around 600 million, or about 60 percent, people in India alone. Under Swachh Bharat Mission, 111 million toilets will be built till which is the aim of government 2019 that is more than 60,000 toilets per day or nearly one toilet every second.

However, by building toilets and sanitation infrastructure will not stop the problem of open defecation in India. Having access to safe and clean toilets is a first step, but it does not become long-standing habits or how personal preference affects behavior with choice of toilet use. We have seen toilets built in India in the past being renounce, or used as storerooms.

The fight to end open defecation in India needs to be fought on various fronts: one on the ground with toilets and sanitation building, and second in the hearts and minds of the people by how good response, they are giving to toilets, so that latrine use will becomes the normal.

EFFECT OF OPEN DEFECATION

The health and personal safety effect due to open defecation are basically the same as those from lack of sanitation.

Health Effect

Open defecation or less of sanitation or toilet is a major factor in creating various diseases and health issues, most importantly diarrhea and intestinal worm infections but also typhoid, cholera, hepatitis, polio, trachoma and others. The countries where open defecation is most effectively practiced have the highest numbers of deaths of the children under the age of 5, and also the high levels of malnourishment (leads to impede growth in children), high levels of poverty and large gap between the rich and poor. Open defecation is a basic cause of diarrheal death; 2,000 children under the age of 5 die every day, one every 45 seconds, from diarrhea.

Safety and human Impacts

Open defecation also impacts on human safety and grandeur - in particular women are more suffering to gender-based violence and sexual assault when they defecate in the open.

Elimination of Open Defecation

The key drivers to eradicate open defecation are as follows:

1. Political will factor
2. A focus on behavior change in citizen
3. Sanitation solutions that offer a better value than open defecation in the society
4. Stronger public sector local service systems
5. Creation of the right incentive structures

Toilets are still out of range for more than one-third of the worldwide population, with shattering consequences to the health and development of children. However, the key to joining the gap lies within the communities themselves.

CONCLUSION

Even after government is taking this much effort to counter the problem of open defecation, the situation in India is remains unchanged. One of the main reason for this is because many people in rural India still prefer to go open defecation other than using affordable latrines.

Many people think that the root cause of such general open defecation in the country is the fact that India is a developing economy with less per capita monthly income, so it is hard to find afford a latrine for people. Surprisingly, open defecation has very minimum to do with a country's economic strength than with the choices, priorities and habits of its people steps to reduce open defecation include awareness in people (for example via the UN World Toilet

Day at a global level), campaigns on behavior change, increasing political power will as well as demand for sanitation. Community based Total Sanitation (CLTS) campaigns have placed a particular focus on ending open defecation by "triggering" the communities themselves into action and let us think that the recently launched SBM will further help to solve the problems

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A STUDY ON DEVELOPMENT OF SWACHH BHARAT MISSION WITH REFERENCE TO ODF VILLAGES AND HOUSEHOLD TOILETS IN TIRUVALLUR, KANCHIPURAM AND VELLORE DISTRICT

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ABSTRACT

Swachh Bharat mission is very necessary to run continuously in India until it achieves its goal. It is very essential for the people in India to really get the feeling of physical, mental, social and intellectual well-being. It is to make living status advance in India in real means which can be started by bringing all over cleanliness. In this paper we have gave the information about the targets and achievements of Swachh Bharat Mission in Tiruvallur, Kanchipuram and Vellore district from October 2nd 2014 to October 2nd 2019.This campaign is aimed to make rural areas free of open defecation till 2019 for which the cost has been estimated is one lakh thirty four thousand crore rupees for constructing approximately 11 Crore 11 lakh toilets in the country. There is a big plan of converting waste into bio-fertilizer and useful energy forms. This mission involves the participation of Gram Panchayat, PanchayatSamiti and ZilaParishad.

INTRODUCTION

Swachh Bharat Abhiyan (SWA)

Swachh Bharat Abhiyan (SWA) or Swachh Bharat Mission (SWM) is a nationwide campaign in India. This mission is mainly focused to tidy up the cities and villages of India. It was launched on 2nd October 2014 on Gandhi Jayanthi by the honorable Prime Minister of India, Mr. Narendra Damodardas Modi at Rajghat, New Delhi. The mission's main objective is to make India as open defecation free on 2 October 2019 to pay tribute to Mahatma Gandhi on his 150th birthday. It was planned to construct 90 million toilets all over India which spans oven 4041 statutory towns and cities. This mission says every Indian citizen to take responsibility of making India an ODF country and it will bring a humungous change in the country's look as well the citizen attitude. The open defecation is the process of people defecating in open rather than using the restroom. This mission objective is to make a community Open defecation free so to make a community open defecation free the community should have the following:-

- Constructing household toilets.
- Constructing community toilets.
- Constructing public toilets.

"Swachh bharat" means "Clean India" in Hindi, There is a great impact after this mission got implemented. People started cleaning the villages and roads of the cities. The cleanliness has led to increase in tourism which in return played a big role in development of India. This mission has also a great impact on health, the health issues due to un-hygiene environment were minimized after the Swachh bharat mission. The progress of Swachh bharat Abhiyan in Tamil Nadu is going well. The cleanliness campaign of the government is creating an awareness among the people as well as it is also shows the importance of hygiene and side effects caused by the open defecation process which in return makes the people use the household toilets constructed under this mission and be health cautious. Still in few cities and villages, the non-educated people are still unaware of the swachhata and they still follow the process of open defecation, throwing garbage, etc. All these can be controlled by doing more awareness programmes in villages and explaining them more about swachhata and hygiene.

OBJECTIVES

- This paper shows the progress of the mission and its achievements in Tamil Nadu state.
- According to mission it was planned to construct 48 lakhs toilets in Tamil Nadu state before 2nd October 2019, precisely 3, 50,039, 5, 38,355, 4, 31,068 toilets in Tiruvallur, Vellore and Kanchipuram districts respectively.
- In this paper we will show the report of the construction of toilets and development of Swachh Bharat mission in Tiruvallur, Vellore and Kanchipuram districts of Tamil Nadu in these five years.
- In this paper the targets showing the Swachh bharat mission in making the districts Tiruvallur, Vellore and Kanchipuram districts of Tamil Nadu an open defecating free state.
- To determine and analyze the target that is fixed for this mission in Tiruvallur, Vellore and Kanchipuram districts of Tamil Nadu.

METHODOLOGY

The problem of this research work defines whether the Swachh Bharat Mission regarding ODF villages and household toilets in Tamil Nadu is achieved or not. We have conducted survey in random villages of Tiruvallur, Kanchipuram and Vellore district. We have also collected the data from various sources. We compared the information with Survey results and Government sources and came to a conclusion about the development of Swachh bharat mission regarding household toilets and ODF villages. We used a qualitative methodology and information from various secondary sources and we did a data analysis using the information. Analysis is based on how many open defecating villages are verified and how many household toilets constructed in these five years; the analysis is made on yearly basis. We used these data analysis and gave a conclusion to our paper about the development of Swachh bharat mission reference to ODF villages and household toilets in Tamilnadu.

DATA ANALYSIS

The Table 1 shows the number of household having toilets in 2014 and how it improved year by year and how many household toilets are constructed in the span of five years and it also show how much percentage it have achieved the target kept by Swachh bharat mission. There was a total of 3,50,039 households in Tiruvallur district in which 1,57,943 house hold was without toilets before Swachh bharat mission and 24,728 household in LOB (Left out of baseline). Slowly year by year they constructed toilets in the household and finally achieved the goal of constructing 3, 50,039 toilets

Table1: Number of Household Toilets Constructed in Tiruvallur District from 2014 - 2019

S. No	Village Name	Total Detail Entered (With & Without Toilet) Including LOB	Total HH Detail with Toilet	Coverage of HH (including unapproved)										
				2013-2014	2014 - 2015	2015-2016	2016-2017	2017-2018	2018-2019	HH's accessing Community and Other Toilet	Total HH Covered	HH Covered in LOB	Total HH Covered in (LOB+BLS)	IHHL Coverage (%)
1	2	3	4	5	6	7	8	9	10	11	12=(3+4+5+6+7+8+9+10+11)	13	14=(12+13)	15=(14/3)*100
State Name: Tamil Nadu		District Name: Thiruvallur												
1	ELLAPURUM	26786	10133	284	842	4845	2842	6316	0	0	25262	1524	26789	100
2	GUMMIDIPUNDI	35401	11903	11	1090	3784	5854	8720	774	0	32136	3265	35401	100
3	KADAMPATHUR	23779	9686	409	1238	2873	2075	4186	0	0	20467	3312	23779	100
4	MINJUR	36028	16158	202	3646	3525	4658	5154	337	0	33680	2348	36028	100
5	PALLIPATTU	16853	8313	256	549	1013	2255	3818	0	0	16204	649	16853	100
6	POONAMALLEE	31748	19677	0	1574	958	2783	4102	101	0	29195	2553	31748	100
7	POONDI	22668	7075	427	240	3077	2145	4270	2846	0	20080	2588	22668	100
8	PULAL	5252	2506	2	132	410	636	1162	0	47	4895	357	5252	100
9	R.K.PET	22686	6524	833	686	2022	4170	6517	0	0	20752	1934	22686	100
10	SHOLAVARAM	35947	19183	303	1011	2889	3689	6283	0	0	33358	2589	35947	100
11	TIRUTTANI	16819	9217	238	822	1007	1844	2576	0	0	15704	1115	16819	100
12	TIRUVALLUR	31887	21195	71	1048	1738	2691	4060	0	0	30803	1084	31887	100
13	TIRUVELANGADU	21527	9836	789	148	2175	2732	4847	0	0	20527	1000	21527	100
14	VILLIVAKKAM	22658	15962	662	1515	764	1592	1753	0	0	22248	410	22658	100
Total		**350039**	**167368**	**4487**	**14541**	**31080**	**39966**	**63764**	**4058**	**47**	**325311**	**24728**	**350039**	**100**

Table 2: Number of Household Toilets Constructed in Vellore District

S. No	Village Name	Total Detail Entered (With & Without Toilet) Including LOB	Total HH Detail with Toilet	Coverage of HH (including unapproved)										
				2013-2014	2014 - 2015	2015-2016	2016-2017	2017-2018	2018-2019	HH's accessing Community and Other Toilet	Total HH Covered	HH Covered in LOB	Total HH Covered in (LOB+BLS)	IHHL Coverage (%)
1	2	3	4	5	6	7	8	9	10	11	12=(3+4+5+6+7+8+9+10+11)	13	14=(12+13)	15=(14/3)*100
State Name: Tamil Nadu		District Name: Vellore												
1	ALANGAYAN	23988	6108	77	343	2719	3385	8814	0	0	21446	2542	23988	100
2	ANAICUT	29370	12239	157	448	2253	3404	7913	0	222	26636	2734	29370	100
3	ARAKKONAM	17217	4576	0	389	2075	1685	6966	591	0	16282	935	17217	100
4	ARCOT	22356	7811	203	186	1738	3506	7821	0	0	21265	1091	22359	100
5	GUDIYATTAM	37356	15796	8	440	4248	4447	10886	0	0	35825	1531	37356	100
6	JOLARPET	36186	7072	468	162	3648	2949	18834	0	0	33133	3053	36186	100
7	K.V.KUPPAM	29682	15188	841	138	1661	1812	6559	0	0	26199	3483	29682	100
8	KANDILI	36861	8124	188	951	4117	3737	15882	0	0	32999	3862	36861	100
9	KANIYAMBADI	18268	14397	0	195	459	1065	218	0	0	16334	1934	18268	100
10	KATPADI	17574	7505	126	197	2239	1374	5290	0	0	16732	842	17574	100
11	KAVERIPAKKAM	37018	11863	203	669	2853	3075	13645	1897	225	34430	2588	37018	100
12	MADHANUR	22453	11739	2	550	1959	2091	4927	0	25	21293	1160	22453	100
13	NATRAMPALLI	20912	6830	248	297	1909	1914	8509	0	3	19710	1202	20912	100
14	NEMILI	32514	19089	0	230	1782	2490	5915	0	0	29506	3008	32514	100
15	PERANAMBATTU	36990	15845	1	463	3029	3367	12689	0	0	35394	1596	36990	100
16	SHOLINGHUR	25556	8198	15	499	2128	2815	10559	0	0	24214	1342	25556	100
17	TIMIRI	23674	8531	18	203	2439	1885	8392	0	388	21856	1818	23674	100
18	TIRUPPATTUR	27658	7131	292	454	2780	2521	9989	0	0	23167	4491	27658	100
19	VELLORE	14378	7263	63	164	1563	982	3447	0	7	13489	889	14378	100
20	WALAJAPET	28344	10223	349	134	3465	2282	9051	1001	462	26967	1377	28344	100
Total		**538355**	**205528**	**3259**	**7112**	**49064**	**50786**	**176306**	**3489**	**1333**	**496877**	**41478**	**538355**	**100**

The Table 2 denotes the number of household toilets constructed in Vellore district in the span of 5 years (2014-2019) under Swachh bharat mission. There are 5, 38,355 household including LOB in which 2, 91,349 household doesn't have toilet facilities before Swachh bharat mission. Slowly under the mission the district slowly developed year by year and reached 100% in 2019 becoming an Open Defecating free district. This development has made awareness in people about the effects of open defecation and importance of household toilets

Table 3: Number of Household Toilets Constructed in Kanchipuram District from 2014 – 2019

S. No	Village Name	Total Detail Entered (With & Without Toilet) Including LOB	Total HH Detail with Toilet	Coverage of HH (including unapproved)											
				2013-2014	2014 - 2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	HH's accessing Community and Other Toilet	Total HH Covered	HH Covered in LOB	Total HH Covered in (LOB + BLS)	IHHL Coverage (%)
1	2	3	4	5	6	7	8	9	10	11	12	13=(3+4+5+6+7+8+9+10+11+12)	14	15=(13+14)	16=(15/3)*100
State Name: Tamil Nadu		District Name: Kanchipuram													
1	ACHARAPAKKAM	27931	6145	299	2903	2896	3115	9836	0	1	1311	26506	1425	27931	100
2	CHITHAMUR	21818	5747	768	2807	2038	3168	6490	0	0	129	21147	671	21818	100
3	KANCHIPURAM	26805	12300	722	2858	3537	5239	477	0	0	302	25435	1370	26805	100
4	KATTANKOLATHUR	40803	18651	9027	1910	1298	2358	4656	1	0	1902	39803	1000	40806	100
5	KUNNATTUR	53940	32957	7540	686	3021	3442	4318	0	0	120	52084	1856	53940	100
6	LATHUR	23384	8102	1173	3996	3424	3414	685	0	0	141	20935	2449	23384	100
7	MADURANTAKAM	32032	7174	2036	3284	2087	3609	10119	9	47	1571	29936	2096	32032	100
8	SRIPERUMBUDUR	26075	10593	1484	3928	2741	2772	2097	2	0	658	24275	1800	26075	100
9	ST.THOMAS MOUNT	39368	35512	502	661	635	313	395	0	0	1246	39264	104	39368	100
10	THIRUPORUR	36160	19701	3298	1856	2521	3321	3977	0	0	88	34762	1398	36160	100
11	TIRUKKALUKUNRAM	38335	15057	4493	2295	2555	1976	8806	5	390	124	35701	2634	38335	100
12	UTTIRAMERUR	33202	14109	2225	3245	3223	3372	4553	0	0	1229	31956	1246	33202	100
13	WALAJABAD	31215	10166	474	3247	1709	3268	9880	1	0	872	29617	1598	31215	100
Total		**431068**	**196214**	**34041**	**33676**	**31685**	**39367**	**66289**	**18**	**438**	**9693**	**411421**	**19647**	**431068**	**100**

The table 3 gives the information about the number of household toilet constructed in Kanchipuram district from 2014-2019. It also give the information about how many household are under LOB and also how many household had toilets before Swachh bharat mission. There are a total of 4,31,068 households in Kanchipuram district including LOB (Left out of baseline) in which 2,15,207 household without toilet, which was kept as target by Swachh bharat mission to be completed by 2019 which was achieved by the mission according to the government survey.

Table 4: Number of ODF Villages Declared and Verified in Vellore District from 2014 – 2019

S. No	Block Name	Total No.of Villages	Village										
			Declared ODF					Verified ODF					
			2015-2016	2016 - 2017	2017-2018	2018-2019	Total	2015-2016	2016-2017	2017-2018	2018-2019	Total	Total in percentage
1	2	3	4	5	6	7	8=(4+5+6+7)	9	10	11	12	13=(9+10+11+12)	14=(13/3)*100
State Name: Tamil Nadu		District Name: VELLORE											
1	ALANGAYAN	29	2	4	21	2	29	2	0	3	24	29	100%
2	ANAICUT	38	1	3	23	11	38	1	0	1	36	38	100%
3	ARAKKONAM	26	0	5	8	13	26	0	0	3	23	26	100%
4	ARCOT	39	1	5	33	0	39	0	1	3	35	39	100%
5	GUDIYATTAM	44	1	4	15	24	44	1	0	4	39	44	100%
6	JOLARPET	36	4	1	31	0	36	4	0	1	31	36	100%
7	K.V.KUPPAM	39	1	4	20	14	39	1	0	2	36	39	100%
8	KANDILI	39	2	2	35	0	39	2	0	2	35	39	100%
9	KANIYAMBADI	24	1	2	21	0	24	1	0	2	21	24	100%
10	KATPADI	21	0	4	17	0	21	0	0	4	17	21	100%
11	KAVERIPAKKAM	55	2	3	17	33	55	0	2	3	50	55	100%
12	MADHANUR	36	2	5	8	21	36	2	0	4	30	36	100%
13	NATRAMPALLI	26	1	3	22	0	26	0	1	3	22	26	100%
14	NEMILI	52	2	2	48	0	52	1	0	1	50	52	100%
15	PERANAMBATTU	51	3	5	10	33	51	3	0	2	46	51	100%
16	SHOLINGHUR	45	3	3	39	0	45	3	0	3	39	45	100%
17	TIMIRI	55	1	3	51	0	55	0	1	2	52	55	100%
18	TIRUPPATTUR	34	3	3	28	0	34	0	3	3	28	34	100%
19	VELLORE	18	1	1	16	0	18	1	0	0	17	18	100%
20	WALAJAPET	36	1	1	1	33	36	1	0	1	34	36	100%
Total		**743**	**32**	**63**	**464**	**184**	**743**	**23**	**8**	**47**	**665**	**743**	**100%**

The table 4 denotes the information about how many villages in blocks of Vellore district is declared and verified as Open Defecating Free (ODF) under Swachh Bharat Mission. There are total of 20 blocks in Vellore district under which there are 743 villages. These villages are declared and verified by the committee under Swachh bharat mission.

Table 5: Number of ODF Villages Declared and Verified in Kanchipuram District from 2014 – 2019

S. No	Block Name	Total No.of Villages	Village										
			Declared ODF					Verified ODF					
			2015-2016	2016 - 2017	2017-2018	2018-2019	Total	2015-2016	2016-2017	2017-2018	2018-2019	Total	Total in percentage
1	2	3	4	5	6	7	8=(4+5+6+7)	9	10	11	12	13=(9+10+11+12)	14=(13/3)*100
State Name: Tamil Nadu		District Name: KANCHIPURAM											
1	ACHARAPAKKAM	59	2	6	51	0	59	0	0	7	52	59vv	100%
2	CHITHAMUR	43	4	3	36	0	43	4	0	2	37	43	100%
3	KANCHIPURAM	40	5	14	21	0	40	5	0	6	29	40	100%
4	KATTANKOLATHUR	39	2	3	34	0	39	2	0	0	37	39	100%
5	KUNNATTUR	42	3	5	34	0	42	3	0	2	37	42	100%
6	LATHUR	41	5	21	15	0	41	4	0	12	25	41	100%
7	MADURANTAKAM	58	4	3	51	0	58	0	0	0	58	58	100%
8	SRIPERUMBUDUR	58	4	6	48	0	58	4	0	0	54	58	100%
9	ST.THOMAS MOUNT	15	4	3	8	0	15	0	0	3	12	15	100%
10	THIRUPORUR	50	4	13	33	0	50	4	0	0	46	50	100%
11	TIRUKKALUKUNRAM	54	3	6	45	0	54	3	0	0	51	54	100%
12	UTTIRAMERUR	73	2	11	60	0	73	2	0	6	65	73	100%
13	WALAJABAD	61	4	7	50	0	61	3	0	0	58	61	100%
Total		**633**	**46**	**101**	**486**	**0**	**633**	**34**	**0**	**38**	**561**	**633**	**100%**

The table 5 shows the data about the number of villages in Kanchipuram district. There are total of 13 blocks in which there are 633 villages which are kept as target to achieve as ODF villages. According to the survey these villages are self-declared and verified by the committee of Swachh bharat mission as Open Defecating Free (ODF) villages.

Table 6: Number of ODF Villages Declared and Verified in Tiruvallur District from 2014 – 2019

S. No	Block Name	Total No.of Villages	Village										
			Declared ODF					Verified ODF					
			2015-2016	2016 - 2017	2017-2018	2018-2019	Total	2015-2016	2016-2017	2017-2018	2018-2019	Total	Total in percentage
1	2	3	4	5	6	7	8=(4+5+6+7)	9	10	11	12	13=(9+10+11+12)	14=(13/3)*100
State Name: Tamil Nadu		District Name: TIRUVALLUR											
1	ELLAPURUM	53	2	8	23	20	53	1	0	0	52	53	100%
2	GUMMIDIPUNDI	61	4	7	33	17	61	0	0	0	61	61	100%
3	KADAMPATHUR	43	2	6	25	10	43	2	0	0	41	43	100%
4	MINJUR	55	2	10	27	16	55	2	0	0	53	55	100%
5	PALLIPATTU	33	1	6	20	6	33	1	0	0	32	33	100%
6	POONAMALLEE	28	2	5	15	6	28	2	0	0	26	28	100%
7	POONDI	49	2	7	16	24	49	2	0	7	40	49	100%
8	PULAL	7	1	4	2	0	7	0	0	5	2	7	100%
9	R.K.PET	38	1	9	21	7	38	1	0	9	28	38	100%
10	SHOLAVARAM	39	3	7	21	8	39	3	0	0	36	39	100%
11	TIRUTTANI	27	1	5	14	7	27	1	0	0	26	27	100%
12	TIRUVALLUR	38	1	8	20	9	38	1	0	0	37	38	100%
13	TIRUVELANGADU	42	1	7	26	8	42	1	0	7	34	42	100%
14	VILLIVAKKAM	13	1	7	5	0	13	0	0	8	5	13	100%
Total		**526**	**24**	**96**	**268**	**138**	**526**	**17**	**0**	**36**	**473**	526	**100%**

The table 6 gives the information about the number of the villages in Tiruvallur District and also gives the information about how many villages are declared as ODF villages. There are total of 14 Blocks under Tiruvallur District under which there are 526 villages which are declared and verified as village by the committee of Swachh bharat mission.

RESULTS

From the above data analysis we can come to result that the government has achieved its objectives in Swachh bharat mission by giving 100% Open Defecating Free (ODF) villages and by constructing a huge number of household toilets. There was a great improvement in the Swachh bharat when compared to 2014 and 2019.

Table 7: Development of Household Toilets in Percentage

Sl.no	District	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
1	Tiruvallur	57.90%	67.21%	79.16%	97.79%	100%
2	Vellore	42.50%	51.98%	61.79%	95.87%	99%
3	Kanchipuram	64.83%	72.52%	82.06%	98.11%	99%

In the above table development of household toilets according to the government plan has been showed in percentage. There was a gradual increase in development of the household toilets according to the government Surveys. When the Swachh bharat mission was started back in 2014 there were only few houses with household toilets which slowly got developed and in 2019 every house has household toilets according to the survey taken by the government.

Table 8: Development of ODF Villages in Percentage

Sl.no	District	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
1	Tiruvallur	4.56%	4.56%	22.81%	73.00%	100%
2	Vellore	3.09%	4.31%	12.79%	75.24%	100%
3	Kanchipuram	5.37%	7.27%	23.22%	100.00%	100%

The above table denotes the development of open defecating free villages in the span of these five years when the Swachh bharat Abhiyan was started the whole India has only 4 to 10% of open defecating free villages which slowly developed by awareness programmes and construction of household's toilets and reached 100% open defecation free India in 2019 according to the survey taken by the government.

CONCLUSION

An ODF free country is the best tribute to Mahatma Gandhi. Swachh bharat mission is the best tool to achieve this process. From the above study we came to conclusion that Tiruvallur, Kancheepuram, and Vellore districts of Tamil Nadu state are 100% Open defecation free districts as well as the Swachh Bharat Mission has achieved its target of constructing the household toilets in these districts. Our honorable Prime Minister led the program in such a manner that the targets kept by the government can be achieved. From the above tables you can come to conclusion that Swachh Bharat mission of making India an ODF country come to end of the first stage.

SUGGESTIONS

1. We can make more swachhata programmes in rural districts and make them of cleanliness and how to keep their areas clean.
2. We can start the subject of cleanliness in schools so the children can learn the value of swachhata from basics.

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SOCIOLOGICAL INTERVENTIONS AND SWACHH BHARAT – A MIRROR TO A BETTER INDIA

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ABSTRACT

We need a clean and safe green environment in India amidst this severeity of Global warming across the world. Swacch Bharat is a key milestone to commence our propagandas of clean, green and sustainable environment. When we say healthy environment, we mean sustainable one coupled with social, mental, physical as well as intellectual well being. Therefore if we have to improve our standard of living by implementing social reforms in our behavior and mentality. The Mission augmented and stimulated by the Government regulatory bodies have emancipated the adverse factors affecting the root cause of its progress and henceforth they could propagate this mission covering around 1,07 crores of households providing approximately 2.8 lakhs of public toilets,2.8 lakhs of community toilets ensuring Swachh Solid Waste Management execution in almost every towns. Nonetheless suffering extreme resistances, Swachh Gramin Seva has been implemented in almost 20 crore populated rural belts. The Paper aims at mulling the aftermath of Swachh Bharat Abhiyan on segments of population and their demographies.

And also to find out the acceptance and adoption of Swachh Bharat Abhiyan practices at household, community, society, schools and institutional level.

Keywords: Awareness Campaigns, Environment, Society, Solid Waste Management, Swachhata.

INTRODUCTION

The origin of Swachh Bharat dates back to Nirmal Bharat Abhiyaan which was inaugurated by Government of India in 1999 to ensure cleanliness of rural belts. Later on it has been reconstrued and restructured into the Swachh Bharat Mission (Gramin). This campaign is aimed to make rural areas absolutely free of any defecation for which the Government has already projected more than 11 crores and 11 lakhs toilets in our country.

They have massive plans and preoccupied proposals of biogas energy harnessing projects that will convert waste into bio-fertilizer but to make it a grand success, Gram Panchayats, Panchayiti Samitis and Zila Parishads must lurge forward with enthusiasm and zeal.

This pious and holistic mission was stimulated by our Prime Minister Sri Narendra Modi as a catalyst with a vision to rebuild a new Clean India. It was finally launched on October 2nd in 2014 suggesting each and every Indian citizen to contribute and shoulder the responsibility and duty in keeping the country clean.

The PM clearly voiced out to the mass that a clean India would both be a significant as well as imperative gift to our Father of Nation marked on 150th birth anniversary and ensured that everyone ought to contribute to the core. Most of the urban areas are the worst hit and bersecked, mangled affected by unplanned, vicious improper wastage disposals, so they need compulsory education so as to ensure that their cities are kept clean. The Swachh Bharat Mission is an integrated collaborative reform that if taken with utmost sincerity can bring about a drastic change in both the country's outlook, mindset of citizens. It will alienate and eradicate waste, sanforize and reduce litters and pollution accelerators and thus it will pave way for a healthier and productive state and mind.

- Mindsets need to widen: If Gandhiji can toil day and night and honourable Prime Minister can invest separate long extra hours from his busy schedule, then why cannot we?
- Anti-litter campaigns: Harbour and foster sanitation in our apartment, community and neighbourhood to nurture people to take up the broom and the brush.
- Stop complaining & start participating: Mantra for the success of the Swachh Bharat Mission.

NEED FOR THE STUDY

As it is being said, "Cleanliness is next to Godliness" therefore it is necessary to keep the environment clean so as to avoid various diseases. India being second largest populated country in the world wherein the 70% of the total population is the Youth therefore they must be targeted first for the cleanliness as youths are the future of the nation which will lead to a clean and green India, which will affect the life of the people as the life expectancy of a person increases with a clean and hygienic surroundings and environment. This will also help in the raise of the foreign as well as domestic tourism which will help in the increase of the Gross Development Product (GDP) of the nation.

OBJECTIVES

1. To mull the aftermath of Swachh Bharat Abhiyan on segments of population and their demographies.
2. Acceptance and adoption of Swachh Bharat Abhiyan practices at household, community, society, schools and institutional level.

METHODOLOGY

This study is based on the qualitative method. The research is based on both the primary source and secondary sources. For primary source the interview and observation has played the major role. Secondary source is based on Journals, Edited books, News papers, Magazine, etc.

This research related work was conducted in Chennai district of Tamilnadu. A typical list of multidimensional localities was obtained through the Chennai Municipal Corporation, Chennai, from where selected 14 localities were chosen randomly. A list of respondent was prepared from the selected localities. From the above mentioned list total 280 sample size including dependent and independent variables were selected for this study such as age, sex, education, caste, religion, occupation, income, family type, sustainable, impact, society, adoption, awareness, sanitation, hygiene, knowledge, practices, disease, cause, Community etc.

REVIEW OF LITERATURE

The Govt has manifested to reform and refurbish technologies to provide sanitation an inspiring step taken towards cleanliness drive. It was inaugurated of launching and setting campaign for approximately 5 million government employees, student fraternity from schools and colleges those who had participated in the event to make it a grand success. This campaign had been globally commemorated and took a milestone in convincing the Nation and their citizens to be fully aware and conscious of the booming scrape of irregularity in global climate change that can result in disastrous future consequences like use of Trillions of plastic that remain non biodegradable. Honorable Prime Minister Narendra Modi had chosen elites and erudites listed in top notches from business industries, sports, culture and film fraternity to drive the clean India campaign progressively. He also had requested these erudite and famous personalities to invite another nine persons individually to form a chain of Swacch Bharat ideology, pleaded and requested them sincerely with immense benevolence to continue the chain of nine people to look forward taking future aftermath of unimaginable climatic fury into account. While leading the mass movement for cleanliness, the Prime Minister proposed and propounded janatas of India to satisfy the unfulfilled dreamland of Mahatma Gandhiji i.e., Clean and Green India.

DISCUSSION

The crux and rudimentary motive of this prestigious campaign is to encourage Indians to remain pure and pristine in terms of cleanliness and health. It is very common that the learned facilitators, students, and gullible people keep participating in this "Swachh Bharat Abhiyan" through thick and thin. The main goal of this holistic campaign is to convey a message of awareness program across India. This program encapsules the construction of bathrooms in public areas, hailing sanitation awareness in rural areas, cleansing streets, interventional dynamic changes in people, and transforming India as an ideal country presentable in higher grades in front of the world. Agreeing to this campaign nine people were first invited to the program and continue the chain, this way there were massive chain of people who were involved in this campaign and made it a success. On completion of the cleanliness program, it indirectly drew the attention of business investors and foreign investors in India and also spotted as a tourist's destination from all over the world. This resulted to serious ramifications in economic growth of India. This mission necessitates the full fledged participation of private ltd, sectors towards cleanliness program.

Students and Institutional Involvement in Swachh Bharat Abhiyan

Altogether cohesively we can achieve our motto by enforcing and entrusting our propaganda across the boundaries of four dimensions our Nation. It simplified the understanding in different mode and surprising ways. Confidence, conviction and character are three most significant attributes and salient characteristics of the youth. Youth is a big weapon to make this program successful. Youth need to stand by their commitment to fulfil certain goals. Youths are bedrocks to the society. Today youths play a significant job role towards the cleaner, greener and sane environment by replicating, reproducing skill, ideas and knowledge to the society from their potential to make a lot of difference. Youth can revitalize the essence of the nation first character in every citizen.

Youths can organize programs, conduct rallies to accomplish certain prima-facie objectives towards cleaner environment: improve fundamental ideas about sanitation and primary health. Imparting health knowledge among students. Chalk and design a health awareness pamphlet. Arrange color coded dustbins to improve sanitation. Organize education to women and old aged people about cleanliness, roadside plantation of saplings and sanitation.

Sanitation is one of the hygienic ways of underlining health issues through prevention of human touch with the hazards of wastes as well as the proper treatment and systematic aligned synchronic disposal of sewage or wastewater. There are several kinds of sanitation services implemented by cities and counties all across the world. They not only provide comfort to citizens, but also make sure that societies remain cleaner and healthier to survive in. Liquid and solid wastes must be managed and controlled and these services make sure that it is done as efficiently and safely as possible.

1. Dry Sanitation
2. Ecological Sanitation
3. Environmental Sanitation a. Solid Waste Management b. Water Management c. Industrial Waste Management d. Noise and Pollution control
4. On – site Sanitation
5. Improved and unimproved sanitation
6. Overall Sanitation
7. Food Sanitation
8. Community-led Total Sanitation
9. Sustainable Sanitation

A CLEAN AND GREEN INDIA

Swachh Bharat Abhiyaan — is not just confined to cleaning surroundings but also enforcing the participation of general mass of commons in planting saplings, creating trash-free e-litter free environment, providing sanitation facilities and paving a way for Swachh Bharat in ground reality. A Clean India is crucial for promoting the nation as an ideal destination for tourists from across the world. Spotless, infallibly clean India often become a hallmark or epitome of global praise and recognition for Indians therefore it is considered to be the exact time and opportunity to participate towards Swachh Bharat. This campaign guides citizens to adopt good habits of cleanliness but also boost our image as a nation, sincerely working towards cleanliness.

The significance of cleanliness and hygiene is of utmost importance and it should not be overlooked by any society. Every community, creed and section of society cum civilization emphasizes on the vitality of cleanliness. Dates back to history, cleanliness has been regarded as one of the important factors by which to gauge a civilization's progress. People visit parks with

their friends and family to be joyous and have fun but generally forget to keep the environment clean. They consume food and throw packets, wrappers in open ground or pavements without acknowledging that plastics wrapper are non biodegradable. In public places we don't find enough adequate dustbins. Even though dustbins are kept, people do not know the proper what and how to use it. It is also observed that people keep their rooms and houses clean and throw the garbage on the street without paying heed to the consequences hereafter. It is apparent that even students of private schools throw garbage on the ground even in the presence of garbage bins. Keeping our community clean is a big challenge. This shows our attitude towards sanitation and hygiene. Spitting is another problem. People spit it without considering the commuters and passers by walking on the road. It's an eyesore. The horrible condition of public toilets is another major issue. The deficiency of public toilets itself is a big challenge; hence people are forced to use open spaces to answer the call of nature. The toilets are too horrible to use.

Our basic sense of responsibility is to keep our neighbourhood clean.

REASONS FOR THE INADEQUACY AND INEFFICIENCY IN THE SERVICES

- Apathy of the Municipal Authorities.

  The disposal and treatment of the solid waste is not been done properly as there is a lot of garbage littered everywhere around a bin too. The government is not taking any stringent actions for it due to which there arises an environment prone to illness and spread of diseases. Moreover, the modern technologies and equipments are not yet been introduced which will effectively help in the waste management. There are no proper working conditions for the labors and their grievances are not being taken care.

- Absence of Community Participation.

  The community is not being educated properly about handling of the waste which leads to the dumping of waste and garbage on the streets, open space, drains, etc creating an insanitary condition.

CONCLUSION

The Sociological interventions will improve the practice of Waste Management. The Social Community Awareness should be made mandatory in such a way that each and every person varying in ages should be aware about the pros and cons as well as the consequences of it. It can be done from the schools wherein the awareness regarding the participatory techniques should be given to the parents and teachers along with the students. The main focus of this should be given to the school students rather than stressing onto college and university students. Apart from awareness camp it should be made mandatory that there should be participation from the youth which will make the task more effective as well as more efficient.

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TECHNOLOGICAL TANTRA IN SWACHH BHARAT: A TAPESTRY OF TACTICAL TANTRIC?

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ABSTRACT

Technology is the application of scientific knowledge for practical purposes. This extensive application has been thoroughly explored and utilized in myriad fields sequeling fostered results and developments. Interestingly, the 'Clean India Campaign' in India which is popularly prompted as 'SwacchBharathAbhiyan' has incorporated technology in several spheres to the fullest extent since the launch of the campaign. As it comes to pass, it is vital to pause and probe the prospects of the technological interventions in SwacchBharath. Dissemination of this dimensional dialects divulges the advancements in this mission and would help sustain the system in the long run. This research paper craftily captures the concept using numerous primary and secondary sources. It appropriately assembles the achievements of including technology in the mission and brings to foray the optimistic opportunities in the future.

Keywords: Swachh Bharat, Technology, Smart-bin, Waste management.

OBJECTIVES OF THE STUDY

This research study proposes to

- Identify prominent areas where technology has been effectively employed in Swachh Bharat Abhiyan.
- Unearth the aspects of technological intervention.
- Enable the end-users to understand the process applied.
- Educate the readers about the incorporation of technology in clean India campaign.

Periodization of the Study

This study focuses on the technological usage in Swachh Bharat from the time the campaign was initiated by the Government of India till the present time i.e., 2014 till present. So, the collection of data corresponds to the periods mentioned.

Sources of the study

An array of sources are consulted to construct this research paper which includes both primary and secondary data. Primary sources include Government websites, Publications of the Ministries, Frameworks by Government and a few essential Government orders. Secondary sources consulted include research articles from National and International Journals, published books of repute, industry magazines, and blogs.

Contiguous Hypothesis

A hypothesis is a proposed explanation based on limited evidence and is used as a starting point for further investigation. Here, the research proposes to project the possible advancement of technology and its role in fostering Swachh Bharat Abhiyan in India.

Twilight of Technology in Swachh Bharat

Ministry of Science and Technology, Government of India works in tandem with the Prime Minister's office to realize the essence of Swachh Bharat Abhiyan. It has garnered schemes that could have technology to customize certain initiatives and lead to sustainability. Some of the enterprising initiatives include establishing waste-to-energy plants by the companies in collaboration with the Government, and application of biotechnology in enabling purification of drinking water (Gopi, 2017). Though these are just a few, the focus now moves towards the technologies that have been discovered and initiated for Swachh Bharat.

The Limelight of Technologies in Swachh Bharat

The following are a few major developments with regards to the technological interventions in Swachh Bharat;

Transforming waste management using Information and Communications Technology (ICT)

The population in India has been exploding and the lifestyle of people has been changing over the times. This has led to the multiplication of the production of wastes. These wastes are generally solid, semi-solid and bio-medical wastes. However, in the present modern times, initiating a safe and cost-effective way of disposing of the wastes is very challenging. It is to be noted that Indian cities alone produce solid wastes of about 100 million tonnes in a year. Most of the cities do not have a systematic garbage collection method and so the wastes are piled up in open fields and lands. In order to organize the disposal of these wastes in a scientific way, ICT comes into the picture. It can assist with clear image of city sanitation, solid waste management, route mapping for garbage gathering, resource optimization, well-organized asset administration, effectual upkeep, prominence of waste bins, measurement of quality of air, etc. Key tools in enhancing Swachh Bharat include; (Prabhakar & Mehrotra, 2015)

1. **Online platforms**

   These platforms offer choices and substitutes to the consumer to look into reprocessing time worn matter. The current handler is also cheered to see for possibilities to sell and redeem price from the product before clearance of the product as condemned. Thus online platforms are helpful in decision making.

2. **Analytics**

   Exact estimates on over-all waste produced, waste category and identification of maximum waste production regions permit active organization and supervision of solid waste management services. Especially during fairs and festival times, barrier-free collection of large amounts of waste and transporting them is made easier by applying analytics.

3. **Crowd-sourcing**

   Here, the common public is encouraged to inform garbage related issues needing immediate attention of the authorities through social media like mobile phones, Facebook, Instagram, websites, etc.

4. **Sensor-based waste collection**

   This technology enables in identifying the level at which the waste bins are being used. The sensors can sense if the waste bins are full or empty. This assists in prompting the waste collection and schedules the same accordingly. This also helps in reducing costs. In any given locality especially in India, the garbages though disposed in the bins, spills every where and can be a ground for the pests to infest on. This may also result in spreading of diseases. So, a smartness based waste management system is required. The latest application is the usage of Internet of things (Kumar et al., 2017). The sensors alerts the local municipal garbage disposing agents or authorities through microcontroller. A similar one has been devised using Zigbee which is a top ended protocol for communication using IEEE 802.15.4 standard and the bin that supports this function is called as the 'smart bin' (Ghate and Kurundkar, 2016

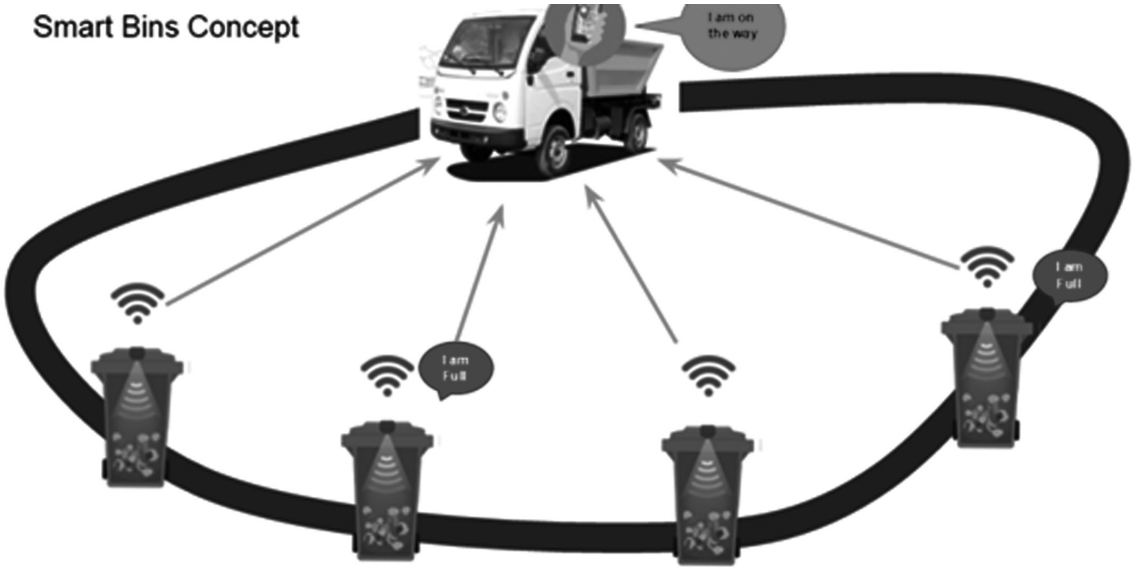

Fig 1. Smart Bin (Bioenabletech, 2019)

5. **Automated waste collection system:**

   A commonly used system which is effective in collecting garbages is the Automated Waste Collection System (ACS). Here, a chute system is incorporated where the waste is sucked through pipes from high rise buildings. An advantage of this system is that, it uses very minimum support of the humans.

6. **GPS devices and sensors on waste truck:**

   Global Positioning System (GPS) and sensors is a powerful technology by itself. It tracks and routes the trucks to maximise the waste collection effectively and makes sure that the agents dispose the wastes in the chosen area. This ensures that the garbages are properly disposed.

Sensor-based sorting

Smart Sorting is carried out using the sensors that are fixed with the trucks. The sensors is built in such a way that it can identify and sort waste materials on the basis of visible spectrum or colour with infrared or ultraviolet spectra or on the basis of their indeginous properties of reflected light or atomic density or conductivity / permeability or atomic characteristics. The recently developed system is the 'Object detection based garbage collection Robot' (Khandare et al. 2018).

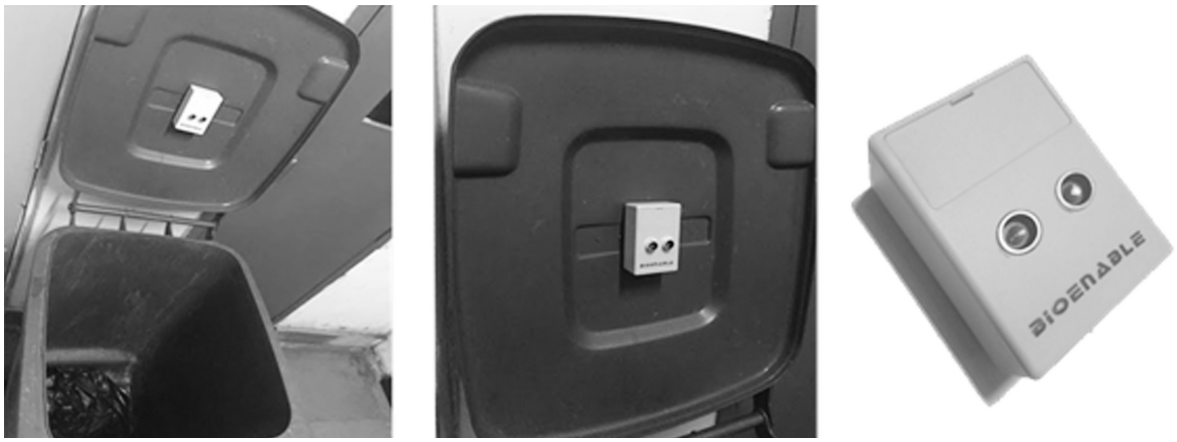

Fig 2. Sensors in the Bins (Bioenabletech, 2019)

Pollution sensors

This is an advanced level of technology where the pollution sensors attached with the truck can grasp the pollution level at a particular landfill and record the same. This is used for regular monitoring and action plan.

Energy simulation

This energy simulation is a software analytics that can efficiently generate precise picture of waste generation and also generation of energy from the waste.

7. Analytics-based landfill management

This application enables a smart landfill management based on the accuracy of waste generation and projection of the waste collection along with the components of the types of waste. This is essential for a country like India, whose' population is swiftly increasing and thereby causing more wastes.

Integrated asset management solutions

Big data associated with the waste infrastructure, procedures, processes, information systems, governance etc. are effectively used with the help of advanced ICT for better operations and sustainability.

Business process automation

Re-structuring, maximise and computerize commerce processes by business process management solution to encompass a wholly incorporated and policy-driven set of programmed industry processes that increases competence and reduces service deliverance expenses.

Workforce and resource management

This application of ICT, strengthens the labour force and supply management solutions to progress workforce commitment and job administration. It also enables in optimising the employees with the help of workforce management solutions like preparation, forecasting and scheduling, duty-shift management, cell phone applications to accomplish errands and proficient routine managing implements.

City performance management

This application accurately supervises and closesly checks the waste management performance in a given city's subsystems. It is assisted with digital technologies, big data analytics, etc., to maintain appropriate city governance and allows well-organized performance.

Geospatial dashboard

This feature provides an overall information on the presence of smart bin locations, landfill locations, waste management assets and other features which can be effectively used by the service providers and the public.

Fig 3. Geospatial Dashboard (Dandabathula, 2019)

CONCLUSION

This research paper has probed into a micro level area which is like a drop of nectar in the ocean of honey. Enormous initiative like this are on the move. These technologies are expected to cover as many as 4041 urban areas in India in next 5 years. Both the private and the Government players are expected to partner in this mission and make India a dream land to dwell. Technology will prove to be the solution in convalescing competence and capacity of city services to foster waste & hygiene value chain. Technology will also enable real time governance & control of waste and sanitation value chain for Swachh & Smart Bharat.

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