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Tele/fax No. 0217-2603950,2602188.
E-mail- archcoa_ssm@rediffmail.com
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3.3

RESEARCH, PUBLICATION AND AWARD

3.3.2

TOTAL NUMBER OF BOOKS /VOLUMES PUBLISHED

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3.3.2 NUMBER OF VOLUMES/BOOKS PUBLISHED

WEBLINKS OF PUBLISHED BOOKS

Sr. No.	Name of Teacher	Title of Paper	Link for source website	Link for books uploaded on institute website
1	Ar. Niranjan V.Sangawar	Investigative study of municipal solid waste Anisotropy at Phursungi dumping yard in Pune region, Maharashtra state, India.	http://www.coasolapur.in/wp-content/uploads/2024/06/Research-paper-3.pdf	http://www.coasolapur.in/wp-content/uploads/2024/06/Research-paper-3.pdf
2	Ar. Niranjan V.Sangawar	A literature review on physio-chemical parameters of domestic grey water of residential building.	A literature review on physio-chemical parameters of domestic grey water of residential building (ijariit.com)	http://www.coasolapur.in/wp-content/uploads/2024/06/research-paper2.pdf
3	Ar. Niranjan V.Sangawar	Low-Cost Treatment System in Residential Building	Low Cost Treatment System in Residential Building (ijtsrd.com)	http://www.coasolapur.in/wp-content/uploads/2024/06/Research-paper-4.pdf
4	Ar. Niranjan V.Sangawar	Decentralize the Recycling of Domestic Light Greywater as an Alternative Water Supply Option in WaterManagement	http://www.coasolapur.in/wp-content/uploads/2024/06/research-paper-1.pdf	http://www.coasolapur.in/wp-content/uploads/2024/06/research-paper-1.pdf

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archcoa.ssm@gmail.com
Website- www.coasolapur.in

LIST OF BOOKS/VOLUMES PUBLISHED

Sl. No.	Name of the teacher	Title of the book/chapters published	Title of the paper	Title of the proceedings of the conference	Name of the conference	National / International	Calendar Year of publication	ISBN number of the proceeding	Affiliating Institute at the time of publication	Name of the publisher
1	Ar. Niranjan V. Sangawar	Nil	Investigative study of municipal solid waste Anisotropy at Phursungi dumping yard in Pune region, Maharashtra state, India.	Nil	Nil	International	2018-19	ISSN NO: 2456-2084 Vol.3	Vidya Pratishthan's Indapur College of Architecture, Pune	International journal of Recent Innovation in Engineering and Research
2	Ar. Niranjan V. Sangawar	Nil	A literature review on physio-chemical parameters of domestic grey water of residential building.	Nil	Nil	International	2019-20	ISSN NO: 2454-132X Vol.6	Vidya Pratishthan's Indapur College of Architecture, Pune	International Journal Of Advance Research ,Ideas And Innovations In Technology
3	Ar. Niranjan V. Sangawar	Nil	Low Cost Treatment System in Residential Building	Nil	Nil	International	2020-21	ISSN NO: 2456-6470 Vol.6/Issue-1	Vidya Pratishthan's Indapur College of Architecture, Pune	International Journal of Trend in Scientific Research and Development
4	Ar. Niranjan V. Sangawar	Nil	Decentralize the Recycling of Domestic Light Greywater as an Alternative Water Supply Option in Water Management	Nil	Nil	International	2022-23	ISSN NO: 2347-3150 Vol.12/Issue-6	Shri Siddheshwar Shikshan Mandal's College of Architecture,	Mukt Shabd Journal UGC Care Group-I Journal

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Decentralize the Recycling of Domestic Light Greywater as an Alternative Water Supply Option in Water Management

Ar. Niranjan Vilas Sangawar
Associate Professor, Shri Siddheshwar Shikshan Mandal's College of Architecture, Solapur

ABSTRACT

The construction industry is a critical constituent of India or any country economy but has a major impact on the environment. If we talk about size, building construction and building maintenance is one of the prime users of energy, material resources, and water, and also an alarming polluter. In a same line drinkable water is the most used material and at the same time scare material whichplays a vital role and one of the basic necessities of human being. As per the report from the United Nations has estimated that in the year 2025, about 2.6 billion people will be facing water scarcity problems which mean more than half of the population will be affected by water scarcity and even it will not be exerted to say that third world war may occur due to water.

The dearth of fresh water is one of the chief concerns for the most populous country in the worldthat is India and even the pinch can be sensed in many parts of the country particularly in summer days which compels human's more responsiveness towards the preservation of fresh water. In similar line to the world many countries are already facing fresh water crisis and many in verge to move to the club of water scarcity due their negligence towards water conversation.

The imbalance between water demand and supply has become a significant concern of human life as demand is increasing exponentially. With growing population and particularly the concentric of population due to urbanization, this imbalance has become more acute in urban areas. So, implementation of alternative water supply options has become an inevitable need for water management. Grey water and black water recycling is one of the most reliable options to reduce urban water demand. Both centralized and decentralized recycling systems are used based on available resources and facilities. But decentralized systems should be given priority as it has potential to save the save transportation costand divert the risk of getting complete failure at the same time.Our study will focus on decentralize recycling of light grey water which consist waste from bathroom, wash basin, washing machine and reuse as an alternative water supply for gardening, vehicle cleaning, flushing tank etc.

Keywords:*Grey water, Alternate water source, physico-chemical, Treatment System, Decentralize system*

1. INTRODUCTION

1.1 General

Water consumption in residential projects are approximately makes up 10% of overall water consumption, preceded only by water consumed by agricultural irrigation and water consumption by industries. Building industry practitioners like Architects, Designers, and Engineers have begun to pay consideration to scheming and controlling the ecological damage due to their activities. Particularly Architects and designers have a unique opportunity to reduce ecological

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A literature review on physio-chemical parameters of domestic grey water of residential building

Ar. Niranjan Vilas Sangawar
niranjansa722@gmail.com
SPSMBH's College of Architecture, Kolhapur, Maharashtra

ABSTRACT

One of the most persistent complications of today is water inadequacy. International Water Management Institute has been estimated that one in three persons will face water inadequacy by the year 2025 in India and as per the United Nations report 2016 around 2.7 billion people by the same time in worldwide. Although India occupies only 3.29 million km² geographical areas which form 2.4% of the world's land area, it supports over 15% of world's population with only 4% of the world's water resources. With augmented population progression and development, there is a need to critically look at alternative approaches to ensure water availability. These alternative resources include rainwater and bulk of water used in household will emerge as grey water and contain some organic waste materials dissolved and suspended in it. When this is allowed to flow out this will join the sewage and bacteriologically contaminated, resulting in a sewage stream. It is possible to intercept this grey water, at the household level, treat it so that it can be recycled for using of other purposes.

Keywords— *Physio-Chemical Parameters, Grey Water, Water Scarcity*

1. INTRODUCTION

Grey water is basically a wastewater, generated in buildings from various sources of grey water include sinks, showers, baths, washing machines or dishwashers streams except for the wastewater from toilets. When appropriately managed, greywater can be a valuable resource which can be used for multipurpose. It is considered to be the largest potential source of water reuse option at point source, accounting for around 50% to 80% of the total water use in India. [1] & [3]

1.1 Grey Water Produced

As prescribed by the Central Public Health and Environmental Engineering Organization (CPHEEO), the standard norm for domestic water usage in India is 135 liters per capita per day (lpcd). With rapid expansion of cities and domestic water supply, quantity of gray/wastewater is increasing in the same proportion. As per CPHEEO estimates about 70% to 80% of total water supplied for domestic use gets generated as wastewater. The wastewater generation per capita by the class-I cities and class-II towns is about 72% of urban population in India.

Table 1: Water Requirements and Grey Water Generation as per CPHEEO Estimates [5]

S. No.	Description	Quantity of Water (Per Personal Per Day)	Grey Water Generation (Liters Per Person Per Day)
1.	Bathing	12 - 18	12 - 18
2.	Washing of Clothes	8 – 12	8 – 12
3.	Flushing of Water Closet	5 – 10	-
4.	Washing the Floor/House	2 – 5	-
5.	Washing of Utensils	3 – 5	3 – 5
6.	Cooking	3 – 5	-
7.	Drinking	5 - 8	-

1.2 Need of Study

The objective of this paper is to study the various Physio-chemical parameters of domestic grey water and its scope of reuse of same waste water for other purposes established on the bases of literature review

2. METHODOLOGY

The secondary data will be obtained from the literature review of various published research paper and articles by recognized institutes. The study work includes the efforts for study the physico-chemical parameters of residential grey water and reuse of same waste water for other purposes.

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INVESTIGATIVE STUDY OF MUNICIPAL SOLID WASTE ANISOTROPY AT PHURSUNGI DUMPING YARD IN PUNE REGION, MAHARASHTRA, INDIA

Ar. Niranjan Vilas Sangawar[1]

[1]*Vidya Pratisthan's Indapur College of Architecture, Indapur, Dist. Pune, India*

Abstract-The municipal solid waste (MSW) of Indian city has a low calorific value with high moisture content and quantity of non-combustibles which make it not suitable for incineration, and currently none of the municipal corporations in India runs a full-scale incineration plant. In India about 77% of solid waste has been disposed by Land dumping only and the efficiency of the method will depend upon our understanding of the geotechnical properties of MSW. The properties of MSW vary not only with space, but also with respect to time. The recent studies indicate that MSW is highly anisotropic. In this paper the analytical study of municipal solid waste anisotropy with respect to shear resistance and shear strength has been examined.

Keywords – Municipal solid waste Anisotropy, Phursungi dumping yard, Shear resistance, shear strength.

I. INTRODUCTION

The issues of municipal solid waste management (MSW) have already attained frightening magnitudes in India. Continuously increase in population, urbanization, industrialization and change in the lifestyle of people result into the complication in managing solid wastes. On the other hand government is also planning for smart cities across the country which is if not managed or planned properly is going to worsen the situation of municipal solid waste management in India.

According to a latest CPCB report, in 2016, India produced some 52 million tons of waste each year of which roughly 23 per cent is processed or disposed using appropriate technologies. Approximately 77 per cent of solid waste is simply discarded to dumping yard with minor treatment or no treatment. But the major concern, which most of the methodology do not take into consideration is anisotropy. Anisotropy is one of the important characteristic which should be considered for solid waste disposal method. [1]

Pune city is well-known on the world map because of its scenic beauty and rich natural resources as well as its educational institutions. "Phursungi" area is one of the most beautiful areas on Pune's periphery in which hundred tons of solid waste is discarded every day. The city generates about 1500 to 1700 MT of waste per day, which is noteworthy amount and it is going to rise with the population in the forthcoming years so it is prerequisite of time for ground-breaking way of municipal solid waste disposal practice. For that, it is significant to know the anisotropy and its application in engineering practice of solid waste management. In this paper the study of municipal solid waste characteristic and anisotropy of Phursungi dumping yard has been deliberate which is regulated up to 6 feet depth. [2][3]

II. LITERATURE REVIEW

A) Literature Review on MSW Anisotropy and Phursungi Dumping Yard

Sr. No.	Paper	Author	Year of Publication	Remarks

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Low Cost Treatment System in Residential Building

Ar. Niranjan Vilas Sangawar, Prof. Joshi Sanjay Dhondo

SPSMBH's College of Architecture, Kolhapur, Maharashtra, India

ABSTRACT

The dearth of fresh water is one of the chief concerns at various places in India and even the pinch can be sensed in many areas of India particularly in summer days which compels human's more responsiveness towards the preservation of fresh water. In similar line to the world many countries are already facing fresh water crisis and many in verge to move to the club of water scarcity due their negligence towards water conversation.

Wastewater is any water that has been polluted by human use. Domestic wastewater can contain physical, chemical and biological pollutants. Broadly we can classify waste water as black water and grey water. Black water can contain feces, urine, water and toilet paper from flush toilets. Black water is distinguished from grey water, which comes from kitchen sinks, bathrooms, washing machines, and other kitchen appliances apart from toilets. Grey water can be further categorized based on the source of waste like Light Grey water and dark grey water. Our study will focused on light grey water which consist waste from bathroom, wash basin, washing machine except the kitchen waste will come under dark grey water.

Various researchers and Institutes are working towards the solutions in different ways to combat the circumstance. As an architect the role we can play to make the treatment and reuse of light grey water in effective way towards preservation of water. Study will be carried out in the direction of feasible system or solution for residential building so that the light grey water can be reused for toilet flushing, garden and plant irrigation, floor washing, car washing, ground recharging etc after a suitable treatment.

KEYWORDS: *Grey water, Effluent, physico-chemical, Treatment System*

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INTRODUCTION

The construction industry is a critical constituent of India or any country economy but has a major impact on the environment. If we talk about size, building construction and building maintenance is one of the prime users of energy, material resources, and water, and also an alarming polluter. In a same line water plays a vital role and one of the basic necessities of human being. As per the various research paper summary around one-fifth of the world's population, belongs to the areas of physical scarcity of water occurs (i.e. the countries where water in scarcity form) and almost one-fourth of the world's population, faces economic water lack (i.e., the countries that lack the necessary infrastructure to obtain water from rivers and aquifers). The world population has been rising at a pace of about 1% per year, similarly other infusing factors like economic growth, changing lifestyle patterns (due to pandemic diseases like covid-19) will continue to grow, and resulting in water scarcity in various parts of the world.[1]

Wastewater is any water that has been polluted by human use. Domestic wastewater can contain physical, chemical and biological pollutants. Broadly we can classify waste water as [illegible] and greywater. Black water can contain feces, urine, water and toilet paper from flush toilets. Black water is distinguished from grey water, which comes from kitchen sinks, bathrooms, washing machines, and other kitchen appliances apart from toilets. Greywater

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