WATER MANAGEMENT PRACTICES IN URBAN HOUSEHOLD AREAS

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THE FEAR OF THE LORD IS THE BEGINNING OF WISDOM

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PROJECT WORK

ON

WATER MANAGEMENT PRACTICES IN URBAN HOUSEHOLD AREAS

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WATER MANAGEMENT PRACTICES IN URBAN HOUSEHOLD AREAS

INTRODUCTION

Introduction

Water is an essential natural resource needed to sustain life and support various functions of the urban economy. Due to the rapid urbanization observed worldwide, the demand for water in urban areas has increased significantly, presenting challenges for efficient water supply. Urban domestic areas are at the core of water management practices, as they consume a significant proportion of water consumption and face unique challenges related to population density, infrastructure constraints and environmental impacts.In recent years, it has been important to adopt a sustainable environment. development due to water scarcity, water quality degradation and the increasing effects of climate change, more and more attention has been paid to the water management practices of urban households.

Effective water management includes various strategies to optimize water use, reduce waste, improve water quality and increase resilience to water-related risks.This presentation provides an overview of the main water management practices of urban households. protection, efficiency and sustainability strategies. It explores the challenges and opportunities associated with water management in urban environments and emphasizes the importance of integrated approaches that consider social, economic and environmental factors.

The following sections discuss specific water management practices, including water conservation measures, effective application technologies. , decentralized water treatment systems and community participation initiatives. By comprehensively understanding these practices, urban economies can promote sustainable water management, mitigate water-related risks and increase resilience to growing water challenges.Overall, this presentation lays the groundwork for exploring innovative solutions and solutions. water management best practices that can be adapted to the unique context of urban economic zones. By adopting a holistic approach and leveraging technological advances, political action and community engagement, urban communities can strive to achieve water security, environmental sustainability and a better quality of life for current and future generations..

1. Importance of Water Supply in Urban Household Areas Water is essential for various household activities such as drinking, cooking, sanitation and hygiene. Effective water management ensures equal distribution, reduces waste and minimizes environmental impact. In a densely populated urban environment, efficient water supply becomes essential to meet the demands of residents while protecting the environment and public health.

2. Urban Water Supply Challenges Urban areas face several water supply challenges, including:

- **Water Scarcity:** Growing urban populations are putting a strain on water resources, leading to water shortages, especially in areas. with limited access to fresh water.

- **Aging infrastructure:** In many urban areas, aging water infrastructure is vulnerable to leaks, inefficiencies and pollution, exacerbating water-related problems.

- **Pollution:* * Urban activities pollute water . industrial emissions, road runoff and improper waste disposal threaten human health and ecosystems.

- **Climate Change:** Variable rainfall and extreme weather events due to climate change will further strain urban water systems, leading to supply insecurity. and flood management challenges.*

*3. Strategies for efficient water management**Addressing these challenges requires a combination of strategies, including:

- **Conserving water:** Promoting water-efficient practices such as efficient furnishings, rainwater harvesting and landscaping techniques can. reduce household water use.

-**Infrastructure upgrades:** Investing in modernizing water supply and distribution infrastructure, including repairing leaks, upgrading treatment plants and introducing smart technologies, will improve system efficiency and reliability.

- * *Practical resources. :** Control pollution through practices such as water pricing mechanisms that implement regulations and incentives for water saving technologies, encourage responsible water use and sustainable practices.

- **Public awareness and education:** Awareness of the importance of water conservation. , pollution prevention and sustainable practices empower people to participate in water management activities.

** 4. The role of technology in water supply** Technological development offers innovative solutions for urban water supply, including:

- ** Smart metering:** IoT-enabled water meters provide real-time information on consumption, enabling better monitoring and management of water use.

-**Data analysis:** Using data analysis and modeling tools helps to optimize water. distribution, detect leaks and forecast demand, improving overall system efficiency.

- **Water treatment technologies: ** Advanced treatment technologies such as membrane filtration and UV disinfection improve water quality and provide safe drinking water for city residents.

- * *Green Infrastructure: ** Implementation of green infrastructure solutions such as permeable pavements and green roofs reduces stormwater runoff and reduces pressure. for drainage systems and improve water quality.

This introduction sets the stage for further exploration of specific water management practices and case studies in urban household areas, highlighting the interdisciplinary nature of this critical field.

Objectives of study

1. What are the technique for water management?
2. To find the method of conserving water.
3. Encourage and implement practices that promote sustainable water consumption.
4. Promote the safe and responsible reuse of grey-water for non-drinking purposes.

Aim: To create awareness on water management among people

REVIEW
OF
LITERATURE

Chapter 2

Review of literature

The review of the literature for the study titled "Water management practices in urban household areas" are discussed under the following headings

2.1. Human Ambitions and Earth's Limits
2.2. Freshwater Stress
2.3. Water for the Environment
2.4.Urban and Industrial Water Demands
2.5.Addressing Water Management Constraints to Achieve Prosperity

2.1.Human Ambitions and Earth's Limits

In the past, we have made decisions regarding the management of our water resources that have not always helped us become more secure or sustainable. We have disrupted and overallocated river flow regimes—sometimes to the point of drying them up, along with their downstream lakes. We have overdrawn groundwater aquifers; polluted many, if not most of our water bodies including estuaries, coastal zones and even oceans; and degraded ecosystems. We have done this mainly to satisfy short-term economic goals, often goals that may not have included the long-term environmental—or even economic—sustainability of region or basin, and indeed our own health.Our planet no longer functions in the way it once did. Earth is currently confronted with a relatively new situation, the ability of humans to transform the atmosphere, degrade the biosphere, and alter the lithosphere and hydrosphere. The challenges of our current decade—resource constraints, financial instability, religious conflict, inequalities within and between countries, environmental degradation—all suggest that business-as-usual cannot continue.These challenges to effective planetary stewardship must be addressed and soon. The various parts of the Earth system – rock, water, and atmosphere – are all involved in interrelated cycles where matter is continually in motion and is used and reused in the various planetary processes. Without interlocked cycles and recycling, the components of our Earth could not function as an integrated system.In the last 50 years or so we have come to recognize the movements in all Earth's layers, including the plates at the surface, the mantle and the core as well as the atmosphere and ocean. The momentum and acceleration of the impacts of business as usual threaten to tip the complex Earth System out of the environment in which everything living on this Earth has evolved and developed. Some call this new geological period the Anthropocene [*Crutzen*, 2002; *Williams et al.*, 2011]. Water is becoming a central issue in this new period. This applies not only to freshwater systems but also to the oceans, their levels and what lives in them. The interdependency between social or human ambitions on the one hand, and availability and quality of our natural resources and the environment on the other, is obvious; it determines the kind of development that is realistic and stable.The expansion in the production and supply of goods and services in the recent past has meant more jobs, income, and, generally, greater possibilities for a better life. It has also meant an increase in the use and pollution of natural resources. The adverse effects on water and other vital components of the Earth System are evident. Many river basins in the world are labeled as "closed" or are on the verge of being closed; their flows no longer reach the oceans [*Seckler*, 1996; *Gleick and Palaniappan*, 2010]. An estimated 1.4 billion people live in closed basins [*Smakhtin*, 2008] with more limited development options. The development of potential flood zones along rivers and coastlines has increased the incidence and impact of flood-related damages. According to the *World Health Organization (WHO)* [2007], during the last decade of the last century about two billion people were victims of natural disasters, 85% of which were floods and droughts.There is no escape from the fact that the need and demand for finite and vulnerable water will continue to expand and so will competition for it. More uncertainty in water availability, higher frequency of extreme weather events, and more rapid return flows of water to the atmosphere are expected in the future. Given the changes in the hydrologic cycle as a result of land use and climate changes and the closed character of many basins, allocations to, and patterns of future water use, will deviate from past trends.Research is needed to better understand how these complex interactions may develop over the coming decades and the associated social, political, and environmental implications. Clearly, water issues will become even more important in the lives and activities of people [*Cosgrove and Rijsberman*, 2000; *Grayman et al.*, 2012].

2.2. Freshwater Stress

In recent decades the percentage increase in water use on a global scale has exceeded twice that of population growth. This has led to more, and larger, regions in the world being subject to water stress where the current restricted rates of water use and consumption, let alone the desired rates, are unsustainable. Water demands and supplies are changing. What they will be in the future is uncertain, but it is certain that they will change. Demands are driven in part by population growth and higher per capita water consumption in growing urban, domestic, and industrial water sectors.By 2050, the world will have to feed and provide energy for an additional 2–2.5 billion people as well as meet the current unsatisfied power needs of a billion. To meet the nutritional needs of this additional population, we should consider the amount of water that is consumed in the production of different goods and, in particular, energy and food. Energy and food security are demands that are particularly critical to water managers. Energy production, water, food security, and climate change are all connected through interactions and feedbacks. For example, the growing, transportation, processing, and trading of food products require large amounts of water and energy. A complete analysis is provided by the Comprehensive Assessment of Water Management in Agriculture [*International Water Management Institute (IWMI)*, 2007]. This work demonstrates that in a business-as-usual scenario, water consumption in agriculture would almost double.Per capita water use varies considerably over the globe. In developed regions one can assume an average value of 200 L per person per day. The value adopted internationally for basic human water needs is about 50 L per person per day [*Gleick*, 1996]. The amount of water each person in the USA uses is on average is much higher depending on a number of factors, in particular diet, but also in all the water required to make all the energy and nonagricultural products consumed. A recent report on water consumption in the USA shows reductions in all sectors: including agriculture; municipal and industrial; and thermoelectric power. But the report concludes that while substantial progress has been made, current water use trends are not sustainable in the face of population growth and climate change [*Donnelly and Cooley*, 2015].Water is increasingly becoming a priority policy issue at the international level. The third United Nations World Water Development Report [*United Nations World Water Assessment Programme (UN WWAP)*, 2009] warns, in an unprecedented fashion, that extremely serious consequences may result from the current inequitable, unsustainable use of water. Both economic development and security are placed at risk by poor water management. That is why the concern about a global energy crisis has recently begun to be accompanied by a concern about a looming global water crisis. The energy and water nexus expressed both by the effects of water use on energy consumption and by the effects of energy production on water consumption, is gaining increasing attention [see e.g., *Hoff*, 2011; *World Economic Forum Water Initiative (WEFWI)*, 2011, *UN WWAP*, 2011, 2012, 2014].

2.3.Water for the Environment

Inflowing water quality is as important as water quantity. Ecosystem changes may be caused by minor water quality changes. Multiple contaminants often combine synergistically to cause amplified, or different, impacts than the cumulative effects of pollutants considered separately. Continued input of contaminants can ultimately exceed an ecosystem's resilience, leading to dramatic and possibly irreversible losses. Groundwater systems are particularly vulnerable freshwater resources: once contaminated, they are difficult and costly to restore.Floods and droughts can have a substantial impact on the ecosystems of wetlands and forests. Cycles of droughts and floods are a natural part of ecosystems; they adjust to and are influenced by them. Floods and their associated sediments can recharge natural ecosystems providing more abundant water and fertile soil for plants (including food crops). Urbanization and other land use changes, poor agricultural practices, and industrialization are among those activities that can change water quantity and quality regimes in ecosystems, and hence adversely modify ecosystems [*Palaniappan et al.*, 2010].Today perhaps half of economically available freshwater is used to satisfy human demands—twice what it was only 35 years ago [*Young et al.*, 1994]. We are not sure how much water must remain in our natural ecosystems to maintain them; many have already been destroyed by overwithdrawals of water. However, indications are that in many others we are approaching the limits of how much water we can divert from them and still preserve their health, and in turn, ours [*Cosgrove and Rijsberman*, 2000]. Fortunately studies of the role of water in ecosystems are improving our ability to value it and to understand large scale, long-term ecosystem processes and the flows of water they require [*Oki et al.*, 2006].Scientists, engineers, managers, policy makers and stakeholders must work cooperatively together to identify and develop strategies to sustain largely ignored ecosystem values. A fundamental scientific challenge is to be able to specify the spatial and temporal scales needed to understand and manage for ecosystem resilience and sustainability. Focused effort on better articulating the relationships between flow regime, its alteration, and ecosystem dynamics is increasing rapidly [*Arthington and Balcombe*, 2010; *Poff and Zimmerman*, 2010], but identifying the "bounds" on ecosystem sustainability [*Postel and Richter*, 2003; *Richter*, 2009] remains a research goal.Nearly every hydrologic method introduced prior to 2050 will have been adapted to account for the increased uncertainty and nonstationarity which have become the central challenges of our profession. Regardless of available technology in 2050, water resources planning and managing will continue to take place in a social or political environment, i.e., an environment dominated by humans. Research is needed for an informed debate on the need to pay for the continued existence of something without any need or expectation of using it or seeing it. If this is going to happen, there will have to be a massive shift in the average person's understanding and valuation of the environment, as well as our understanding of national wealth and the cultural values humans place on their water resources.Water is a natural resource that is embedded in the cultural and religious values of societies. It is what we take pictures or create paintings of. It is why we construct fountains. Cultural differences play a key role in the way we perceive, value and manage water in our different societies. World health and poverty eradication have cultural connotations; culture has positive and negative health impacts on individual well-being—in particular women's health. Research is needed to better understand the cultural dimensions impacting water management practices and how they affect human behavior in different societies. Here the participation of social scientists is particularly critical. Water resources management strategies must take culture fully into account if those strategies are to be sustainable over the long term. Intercultural dialogue should be a guiding principle for raising awareness. Cultural diversity is a source of sustainable practices. Indigenous knowledge holders—i.e., local stakeholders—and scientists should cooperate in finding solutions to water-related problems.

2.4. Urban and Industrial Water Demands

Urban centers depend on water and energy inputs to function properly. The treatment and final disposal of liquid and solid wastes are still challenging the public health and public works agencies of the majority of urban centers, primarily in the developing world. Water supply, sanitation, wastewater treatment, storm water drainage, and solid waste management have been planned and delivered largely as isolated services. Commonly a range of authorities, each guided by distinct policies and pieces of legislation, continue to oversee these water subsectors at the city level.Because the traditional urban water management model has failed to distinguish between different water qualities and identify uses for them, high-quality water has been diverted to indiscriminate urban water needs. Even basin-level management often neglects to acknowledge the cross-scale interdependencies in freshwater, wastewater, flood control, and storm water. Thus, there is a need to identify, and then implement, ways to rehabilitate urban ecosystems. This will require innovative institutional mechanisms, and a balance between autonomy and cooperation. Urban water planning, development, and management need new strategies because water is just one component, albeit an important one, of an increasingly complex interlinked system that includes urban supply of energy, food, employment, transportation, and job creation.Agriculture can support larger numbers of urban residents, but farmers must be able to retain access to sufficient water to support crop and livestock production. The interaction between cities and the countryside will become increasingly intertwined. If well managed, it could offer new opportunities for mutual benefit, including recycling and reuse of water and nutrients held in municipal waste products.Integrated urban water management in the future will reframe a city's relationships to water and other resources. It will require improving environmental monitoring and information by expanding the scope and factual basis of comprehensive urban water management models. In addition, it will require a framework for negotiations that includes all of the stakeholders and stresses the importance of gradual but comprehensive institutional formats and clarity in local, regional and national decision-making processes.Decentralized systems are sometimes proposed, as opposed to the centralized ones adopted by most cities in developed nations. But it is not an either/or option. Local systems are, and must be, part of larger physical and institutional contexts. The choice should be based on economic analysis, but also consider other aspects, such as institutional issues around responsibility for operation and maintenance and flexibility in system development.Thanks to superior productivity, urban-based enterprises contribute large shares of gross domestic product (GDP). While in the past, industrial development has used as much water as might be available, today it is increasingly recognized through market signals that water has a value and that there is an opportunity cost associated with most uses of finite resources. The trend is clear. Less is withdrawn and more wastewater is treated, so that both the water and some of the elements that accumulate in the production process can be reused. Industries in many countries are now consuming less water per unit output and reducing pollution loads in their waste. 21st Century approaches to urban water management will incorporate (1) increased water conservation and efficiency, (2) distributed stormwater management which captures and uses rainfall, (3) source separation, (4) water reclamation and reuse, (5) distributed water treatment, (6) heat recovery, (7) organic management for energy production, and (8) nutrient recovery.Given the challenges in urban water management, urban water resources research will be an increasingly prominent component of the entire water resources research effort in the foreseeable future.

2.5.Addressing Water Management Constraints to Achieve Prosperity

Within a couple decades, water scarcity may affect about two thirds of the world's population. In many countries there is still a tendency to deal with water scarcity problems by augmenting the water supply, e.g., by increasing surface and groundwater storage and allocation through the creation of new infrastructure, desalination of saltwater or brackish water, reuse of wastewater, or recharging aquifers. This tendency has prevailed over focusing on reducing water demand, e.g., by stemming the losses in transport and distribution systems, implementing adequate tariff systems, which seek to encourage lower water demand levels, changing water use technologies, and, generally, increasing the efficiency of water use in domestic, industrial, and irrigation systems; in other words, seeking to increase overall water productivity.Reducing water demand can also be achieved by controlling other aspects that are not directly related to water, but which are equally important. This can be achieved, for example, by controlling demographic growth, increasing the efficiency of the use of goods that consume water (in particular food products) in their production processes and supply chains, promoting appropriate land use planning, or attenuating the effects of climate change on water through adequate mitigation and adaptation measures.Water managers today and those in the future will have to be familiar with a wide range of applicable disciplines and be able to interact with a variety of professionals, stakeholders and users. These managers and their agencies should have sufficient technical, economic, social, financial, and environmental skills to be able to engage in dialogue with the professionals and affected stakeholders in the regions where improved water management is needed. They should have the capacity to interact with politicians and inform them of the science behind any impact predictions. They need to understand policy makers' short-term political commitments, and be able to facilitate the conciliation of politicians' initiatives with long-term sustainable water resource policies.The ability to fully represent the real world in analysis and simulation tools will undergo a change that revolutionizes engineering practice in this area by enabling fine-grained representation of the real world, perhaps limited only by the rate of increase in scientific knowledge as opposed to engineering capability. We will therefore experience changes in practice not just in speed and scale, but in kind. The human skill sets required to manage and work effectively in this changing environment will evolve; syntax, sources and organizational models will change, but the ability to apply intellect and propositional logic will not. Systems analysis will be a principal tool of the future.Prosperity is understood to be a state in which people are living and doing well. People are happy and healthy [Jackson, 2011]. The goal of our society should be to create the conditions under which it is possible to increase prosperity, within the ecological and natural resource limits of our finite world. Determining just how best to do this involves understanding the complexity of the system of drivers and impacts that affect human well-being through water security and the risks or benefits to society of alternative policy and management decisions [Cosgrove and Cosgrove, 2013]. By using a range of models for analyzing the consequences of different possible future scenarios, one can identify robust adaptable policies that work across sectors and scales. Thus these model-based analyses could avoid the present quandary of implementing new policies only to find out that they aggravate a problem rather than curing it because of forgotten factors in the system.

METHODOLOGY

Chapter 3

METHODOLOGY

The methodology related to the study factors that influence to volunteering and empathy developments in adolescence under the following topics

- 3.1 selection of area
- 3.2 selection of samples
- 3.3 selection of methods and sample methods
- 3.4 selection of tool - questionnaire
- 3.5 Analysis and interpretation of data

3.1 Selection of area

The study was conducted among adolescents aged 17-22 years.college in Ernakulam district were selected based on the easy approachability and availability of samples.Here an online sampling method was used.

3.2 Selection of samples

A Sample study is when a small group is used. Technically speaking,the entire group from which the sample is derived is referred to as the entire population ,while the exact group chosen for the study is referred to as the sample .The population as a whole should be represented in the sample that is taken.whether the sample size is adequate will depend on how representative the sample is.Age and size of the sample is 30 adolescents ,age from 17-22 years were selected for the study

3.3 Selection of method - survey method

A single survey is made of at least a sample (or full population in the case of a census). A method of data collection (eg. a questionnaire) and individual questions or items that become data that can be analysed statistically.A single survey may focus on different types of questions such as preference (eg. participation of any volunteering activities) or factual information (eg.email id,income), depending on its purpose .Survey was conducted among college student adolescents to know about the influence of volunteering and empathy development.it was done in online mode and circulated among the students.

3.4 Selection of tool -questionnaire

Questionnaire consist of series of questions to collect information from the respondents.questionnaire includes both open and close ended questions to collectdata.To evaluate the data that influence of volunteering and empathy development in adolescents.use a well structured questionnaire was created .By using a questionnaire ,their views about empathy development,The used questionnaire gathers information on name,age,residence ,etc.To gather information from participants ,a mixed questionnaire comprising open -ended and closed -ended questions was created .The multiple choice format for designing the open- ended questions

3.5 Analysis and interpretation of data

The gathered information was examined and tallied.Each respondent about the trait about empathy,impact on personal behaviour by volunteering the empathy development in response to series of questions .The information was utilised to determine what variables affect the respondents about the development and volunteering of empathy among adolescents.

RESULT

AND

DISCUSSION

Chapter 4

Result and discussion

The result and discussion of the study " Water management practices in urban households areas" is discussed under the following headings:

A.General profile of the samples

4.1.1 Number of members in the family

B.Distribution of respondents who face water leakage

4.2.1 Check of leakage
4.2,2 Check and maintenance of water fixtures

C.Technology used in households

4.3.1 installation of water meter
4.3.2 Installation of water saving devices
4.3.3 Usage of dishwasher
4.3.4 Usage of washing machine
4.3.5 Usage of timer or rain sensor

D.Distribution of water demands

4.4.1 Frequency of watering outdoor plants or garden
4.4.2 Frequency of washing car
4.4.3 Reuse of greywater

F.Programs on water conservation

4.5.1 Participation in community on water conservation
4.5.2 Awareness on regulations of water conservation

A.General profile of the samples

4.1.1 Number of members in the family

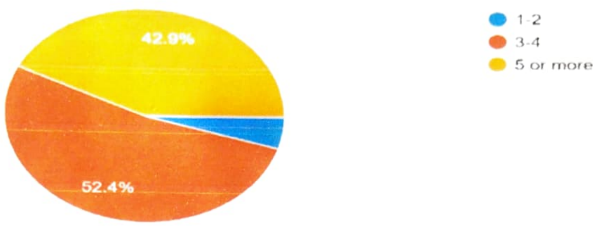

Figure 4.1.1 shows the number of members which the sample belongs to out of 20 respondents 52.4% belongs to 3-4 members and 42.9% belongs to 5 or more.

B.Distribution of respondents who face water leakage

4.2.1 Check of leakage

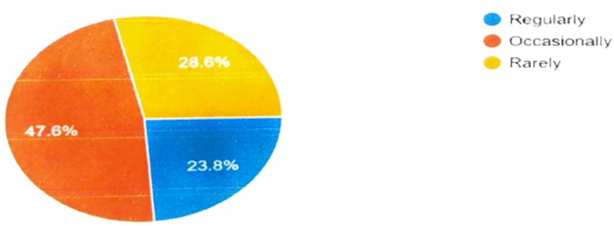

Figure 4.2.1 shows that check of leakage which the sample belonged to out of 20 respondents 47.6% occasionally,28.6% and 23.8% check of leakage.

4.2.2 Check and maintenance of water fixtures

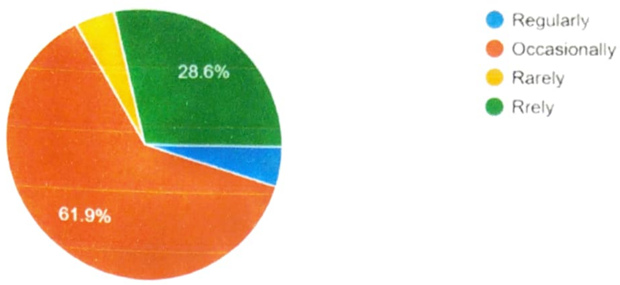

Figure 4.2.2 shows check and maintenance of water fixtures are done by the samples belonged to out of 20 respondents 61.9% occasionally and 28.6% rarely.

C.Technology used in households

4.3.1 Installation of water meter

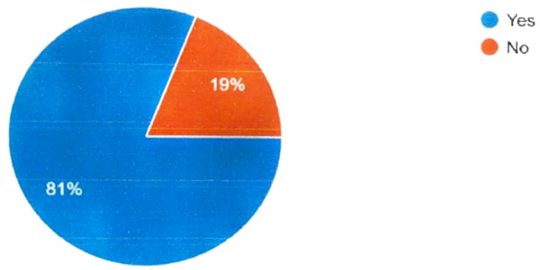

Figure 4.3.1 shows the installation of water meter of the sample respondent. According to the above data 81% has installed water meter and 19% has not installed water meter.

4.3.2 Installation of water saving devices

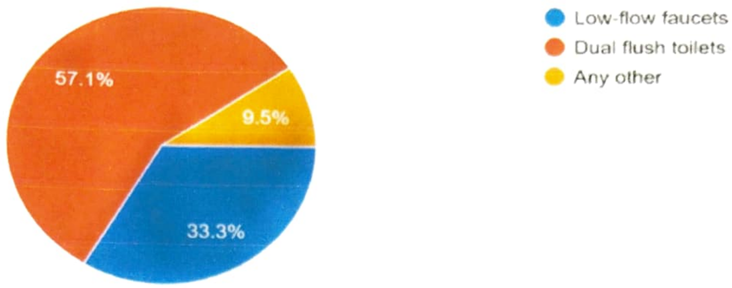

Figure 4.3.2 shows the installation on water saving devices of the sample respondent. According to the data 57.1% has installed dual flush toilets and 33.3% has installed low-flow faucets.

4.3.3 Usage of dishwasher

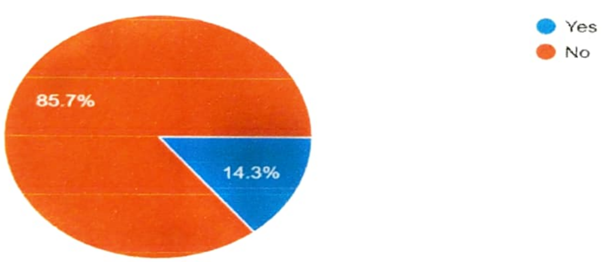

Figure 4.3.3 shows the usage of dishwasher of sample respondent. According to the data 85.7% use dishwasher and 14.3% of people was not using dishwasher.

4.3.4 Usage of washing machine

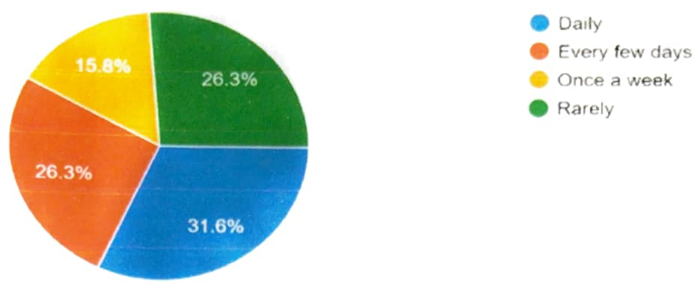

Figure 4.3.4 shows the usage of washing machine among sample respondent. According to the above data 31.6% daily ,26.3% rarely and 15.8% once a week was washing machine used.

4.3.5 Usage of timer or rain sensor

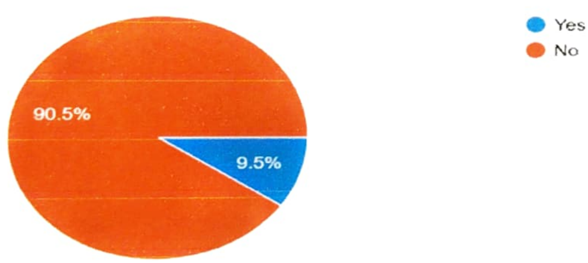

Figure 4.3.5 shows the usage of timer or rain sensor of the sample respondent. According to the above data 90.5% don't use timer or rain sensor, 9.5% use timer.

D.Distribution of water demands

4.4.1 Frequency of watering outdoor plants or garden

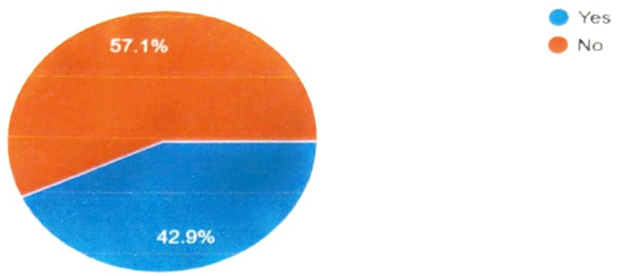

Figure 4.4.1 shows the frequency of watering outdoor plants or garden of the sample respondent. According to the data 57.1% watering is done and 42.9% don't water garden.

4.4.2 Frequency of washing car

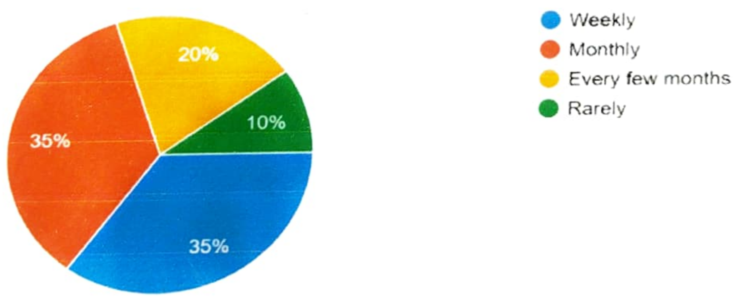

Figure shows the frequency of car wash of sample respondent. According to the above data 35% washes car monthly and weekly,20% washes every few months.

4.4.3 Reuse of greywater

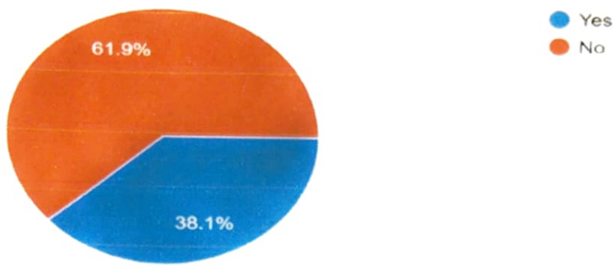

Figure 4.4.3 shows the reuse of grey water. According to the above data 61.9% don't reuse grey water and 38.15 reuse grey water.

F.Programs on water conservation

4.5.1 Participation in community on water conservation

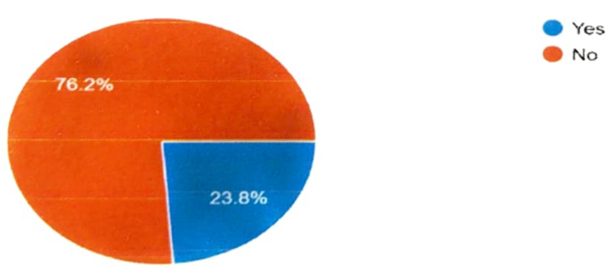

Figure 4.5.1 shows the participation in community on water conservation of the sample respondent. According to the above data 76.2% was participated in community and 23.8% were not participated.

4.5.2 Awareness on regulations of water conservation

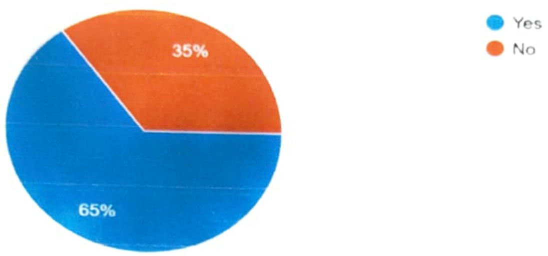

Figure 4.5.2 shows the preferred source for giving awareness of the sample respondent. According to the data 65% preferred water conservation and 35% was not preferred.

SUMMARY

AND

CONCLUSION

Chapter 5

Summary and Conclusion

Summary

The study of water management practices in urban household areas was conducted through survey. Online survey method with preplanned questions was chosen. General profile as name,number of members in the family,water saving practices, water demands were taken.

From the collected data we can say that;

1.Majority of the respondents reside 3-4 members in the household.

2.Majority surveyed demonstrated with water conservation and regulation.

3.A significant percentage of respondent indicated using plenty of water for households.

4.Above 61.9% check and maintain water fixtures.

5.Identified that water was mostly used on watering outdoor plants or garden.

6.Above 57.1% dual flush toilets, 33.3% of low-flow faucets and other water saving devices are used in households.

7.Above 23.8% participated in community on water conservation programs.

8.Water management practices was also involved in households (eg; grey water).

9.When asked about the devices for water saving 81% has the same.

10.Above 35% felt to have a proper guidance on water management practices.

Conclusion

From the research conducted on " water management practices in urban hiusehold areas" we came to the conclusion that households need to be educated regarding the water management practices to save water and save future lifes. Majority of the people reside in the household was 3 to 4. Majority of the respondents responded with water conservation and its regulations. water management practices play a pivotal role in ensuring the sustainability and resilience of urban areas. By implementing a comprehensive approach that combines technological advancements, behavioral changes, policy interventions, community engagement, integrated planning, and resilience building, cities can address the challenges of water scarcity, promote responsible water usage, and safeguard precious water resources for generations to come. Effective water management not only mitigates the risks of water shortages and environmental degradation but also fosters healthier, more sustainable communities and ecosystems. It is imperative for governments, organizations, and individuals to collaborate and prioritize sustainable water management practices to meet the growing demands of urbanization and climate change.

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APPENDIX

APPENDICES

QUESTIONNAIRE

1. How many people reside in your house?
•1-2
•3-4
•or more

2. Do you have a water meter installed in your house?
•Yes
•No

3. How often do you check for leaks in your household plumbing?
•Regularly
•Occasionally
•Rarely

4. List the water-saving devices installed in your home
•low-flow faucets
•dual flush toilets
•Any other

5. How often do you water your outdoor plants or garden?
•Daily
•Every few days
•Once a week
•Rarely

6. Do you collect rainwater for outdoor use (e.g., watering plants, washing cars)?
•Yes
•No

7. How often do you wash your car?
•Weekly
•Monthly
•Every few months
•Rarely

8. Do you use a dishwasher?
•Yes
•No

9. If yes, do you wait until it's fully loaded before running it?
- Always
- Sometimes
- Rarely

10. How often do you use a washing machine?
- Daily
- Every few days
- Once a week
- Rarely

11. Do you reuse graywater (e.g., from laundry, dishes) for any purpose?
- Yes
- No

12. How often do you check and maintain your water fixtures (e.g., faucets, showerheads) for leaks or efficiency?
- Regularly
- Occasionally
- Rarely

13. Do you use a timer or rain sensor for your outdoor irrigation system?
- Yes
- No

14. Do you participate in any community water conservation programs or initiatives?
- Yes
- No

15. How do you dispose of household hazardous waste (e.g., paint, chemicals)?
- Proper disposal at designated facilities
- Pour down the drain
- Throw in the trash

16. Do you have any water-efficient landscaping features (e.g., drought-resistant plants, mulching)?
- Yes
- No

17. Have you installed water-saving aerators on your faucets?
- Yes
- No