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# Water Woes to Water Wins: A Roadmap for Sustainability in Rural Hazaribagh

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**ABSTRACT**
Water is finite and irreplaceable. According to the U.S. Geological Survey, Earth consists of only 71% of water out of which only 3% are freshwater and even in this more than 99% is unusable by humans and other living beings. Less than 1% are available for human use. This study brought to light the realization of the need to save water.
Sustainable Development Goals, a successor of Millenium Development Goals, was initiated by the United Nations in 2015 with the agenda 2030, to achieve 17 goals and 169 targets. It deals with ZERO GOALS, to reduce poverty, hunger to zero. It does not talk about the attainment of certain targets but to achieve completely without compromising the need of the future generation. Understanding the importance of clean water, for the requirement of living beings, among the 17 goals of Sustainable Development Goals, one of the goals has also been set for clean water as the 6th goal "attainment of clean water and sanitation".
My study is based on the condition, consumption, sources and problems of clean water availability in the rural areas of Hazaribagh, Jharkhand. The samples from two different villages of Hazaribagh district has been taken- Lasodh and Bodra form Churchu Block. Where some of the data are collected through the survey method while some are through observation method by visiting these two places.
The years for the achievement of these goals are set as 2030 running from 2015. With 9 years having passed and 6 years remaining, it's important to study the achievements or the extent to which they have been achieved especially in rural areas.

**Key Words:** Sustainable Development Goals, Agenda 2030, Zero Goals, poverty, hunger, freshwater.

## INTRODUCTION

### Background of the study

Millenium Development Goals which started in 2000, focussed mainly on developing nation was replaced by Sustainable Development Goals in 2015 by the United Nations, as a global project. Sustainable Development Goals were introduced at the universal level, including all the nations, understanding the need of global cooperation for development without compromising the need of future generation. It was the global commitment for achieving peace and prosperity at the global level.
Sustainable Development Goals (SDGs) consists of 17 global objectives, with the aim of addressing a wide range of global challenges. These goals are designed as a blueprint to achieve a better and more sustainable future for all by the year 2030. Thus, it is also called as Agenda 2030. The key areas under this programme are poverty, inequality, climate change, environmental degradation, peace, and justice.
The 17 goals determined by the United Nations under the SDGs are listed as follows:

1. **No Poverty:** Eradicate poverty from its root universally.
2. **Zero Hunger:** No person should be left without the availability of food, improved nutrition, and promote sustainable agriculture.
3. **Good Health and Well-being:** Ensure healthy lives and promote well-being for all at all ages.
4. **Quality Education:** Ensure inclusive and equitable effective education with lifelong learning opportunities for all.
5. **Gender Equality:** Achieve equality of access, availability and opportunities among genders. of
6. **Clean Water and Sanitation:** Ensure availability of clean and safe water with sustainability and sanitation for all.
7. **Affordable and Clean Energy:** Ensure access to affordable, reliable, sustainable, and modern energy for all.
8. **Decent Work and Economic Growth:** Promote inclusive and sustainable economic growth, full and productive employment, and decent work for all.
9. **Industry, Innovation, and Infrastructure:** Build strong infrastructure, promote inclusive and sustainable industrialization, and foster innovation.
10. **Reduced Inequality:** Maintaining the availability for all equally within and among countries.
11. **Sustainable Cities and Communities:** Make cities and human settlements inclusive, safe, resilient, and sustainable.
12. **Responsible Consumption and Production:** Ensure sustainable consumption and production patterns.
13. **Climate Action:** Take urgent action against sudden change in climate and its impacts.
14. **Life Below Water:** Protect and wisely use the oceans, seas, and marine resources for not loosing it in future.
15. **Life on Land:** Protect, restore, and promote sustainable use of terrestrial ecosystems and halt biodiversity loss.
16. **Peace, Justice, and Strong Institutions:** Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective and inclusive institutions at all levels.
17. **Partnerships for the Goals:** ensuring global partnership for sustainable development.

All these goals are interconnected, recognizing that the development in one area will lead to the development of others as well.

**Water Sustainability:**
As we know that only 3% of water available on earth is fresh, out of which less than 1% is available for human use. Water is very important for human existence especially the drinkable. Water is though a natural resource but it's not infinite. It is important for the water to be used wisely and judicially so that even the future generation doesn't get deprived of it. Its availability is the right of all the citizens irrespective of the caste, creed, religion, race, gender, etc.
Understanding the importance of water and its availability for future generation, United
Nations has given equal importance to its conservation and hence, one of the goals of Sustainable Development is related to the availability, management and conservation of water which is mentioned in the **Goal 6- Clean Water and Sanitation.** This goal focuses on achievement of 100% clean and safe water by the year 2030.
It is important to understand whether the drinking water is available or not. If available, is it safe to drink and also is it being conserved or not for the future generation. Including these parameters my study revolves around the rural areas of Hazaribagh town to understand the extent to which these parameters have been achieved to get the overview of the status of Goal 6 at the ground level under the Sustainable Development Goals. This study will give the overview of the water problems, success or failure of schemes related to water availability and conservation of water.

**STATEMENT OF PROBLEM**
Water is a scarce natural resource which has no substitute. It is a gift of God which is though limited but its availability is the right of every living being. With this motive, Sustainable Development Goals has one of its objective related to clean water initiated by the United Nations but the problem is whether this programme has been able to achieve the adequacy of water or not and also to what extent are people having sufficient water for their use.
There are various schemes launched for water adequacy but is it really benefitting the rural areas or not and what are the condition of water related project in these areas are also the major concern for this study.
The problem also dwells in whether the villagers are aware of the different methods of conserving water for future generation and also of harmful affect of polluting it. The use of water should not be ill-treated and it's the responsibility of every individual to judiciously use it keeping in mind the future generation.

**OBJECTIVE OF THE STUDY**
1. To assess the availability of clean water in rural part of Hazaribagh.
2. To highlight the problems related to water.
3. To comparatively analyse the situation of water adequacy in two villages of Hazaribagh.
4. To bring into light some water conservation methods that can be practiced in the area of study.

**SIGNIFICANCE OF THE STUDY**
- This study will help in analysing the extent to which the Government has achieved in providing clean water to the households of rural areas.
- It will assist in determining the major problems faced by the villagers.
- This study will bring into light the schemes operated by the government for providing water in these rural areas.
- It will bring into the notice of Government regarding the awareness of water conservation techniques among the villagers.
- This study will give a comparative view of water condition between the two villages.

**METHODOLOGY**
This study has been done only by taking the data from the **primary source** using the random sampling method.

**Sample:**
Two of the villages from the rural part of Hazaribagh has been taken as the sample- Lasodh and Bodra of Churchu Block in Hazaribagh district. Lasodh consists of 157 households and Bodra of 160.
My sample size for Lasodh is 23 and that of Bodra is 24, approximately 15% of the population.

**Tool:**
The tool used for the collection of data is **Open-Ended Schedule.**
A schedule is the tool used by the researcher for collecting data directly from the respondents.
It is filled by the researcher and the questions are asked in an interview mode.

**Construction of Schedule:**
A list of various questions has been constructed by me to assess the water related conditions and problems of the villagers, to form a schedule:

1. Number of households with access to clean water.
2. Number of households getting the water easily.
3. Distance in kilometre that the households need to travel for getting water.
4. Sources of water for households.
5. Problems related to accumulating water in households.

**Data Collection:**
**LASODH VILLAGE**
**In terms of: No. Of Households**

**Sample Size: 23**

| With Clean Water | With easy access to Water | Travelling the distance for water | | | Sources of Water | | | Problems Related to Water |
|---|---|---|---|---|---|---|---|---|
| | | 1-2 km | More than 2 km | Nearby | Wells | Handpumps | Ponds | |
| 5 | 8 | 12 | 3 | 8 | 6 | 9 | 8 | Lower water table for well and handpump, Contaminated Pond water, Dirty well water in rainy |

**BODRA VILLAGE**
**In terms of: No. Of Households**

**Sample Size: 24**

| With Clean Water | With easy access to Water | Travelling the distance for water | | | Sources of Water | | | Problems Related to Water |
|---|---|---|---|---|---|---|---|---|
| | | 1-2 km | More than 2 km | Nearby | Wells | Handpumps | Ponds | |
| 2 | 6 | 13 | 5 | 6 | 4 | 10 | 10 | Lower water table for wells and handpumps, water gets dry in summer, dirty water, no water provision through government. |

**Data Analysis:**

- 5 out of 23 i.e., **21.73%** of households in Lasodh village are able to get the clean water whereas only 2 out of 24 i.e., **8.33%** of households in Bodra village manage to get it.

Both the villages strive harder to get the clean water. The reason gained from the villagers are that they depend most on the pond or seasonal river which gets contaminated by people's excretion near these ponds. Also, there are various agricultural practices that take place nearby and the use of insecticides and pesticides in the field percolate downward under the ground contaminating the rivers, ponds and wells near to this field. Also in rainy season, the running up off soil layer enter the pond and form a bed beneath which not only reduces the water level but also makes it dirty.

- **34.78%** of households in Lasodh village are able to get the water easily including both clean and unclean whereas **25%** of households in Bodra village do.

It clearly shows that both the villages not only endeavour to get the clean water but they even manage to get the water with much trouble. The inference that has been quoted by the observation and response of villagers is that the water table get lower and lower during summer due to deforestation losing the hold of water, leading to dry wells and handpumps at most hours. During the morning, they manage to get some water but in late hour, it gets much difficult. Thus, the houses nearby can manage to get the water easily while those slightly far face much problems.

- As we have seen, in Lasodh **34.78%** of households are living nearby having easy access to water but the major households need to travel the distance of 1-2 km to get water that is, **52.17%** of households and rest **13.04%** need to travel even more than 2 km to fetch water.

Bodra's condition is even worse than Lasodh. **25%** of househols in Bodra lives near to the water body whereas **54.16%** need to travel the distance of 1-2 km and rest **20.83%** even need to travel more than 2km just for getting the water which is their own right.

Rationale behind this is that since the water table goes much beyond in summer, thus the nearby wells and handpumps get dried in summer. Water table decreases due to the increase demand of water in summer, extraction of water is higher than its power of replenishment, evaporation, low rainfall, dependence on irrigating land, etc. Thus, villagers need to go far which is less populated to get water as the water level in those areas would naturally be higher than the populated place. Some even need to travel more in search of water.

- As it can be seen from the above table, there are three sources of water in these two villages- wells, handpumps and ponds. The condition of wells and handpumps are already mentioned above. Due to low water in these two sources, people of both the villages are also dependent on ponds, which are actually seasonal in nature. Water accumulated in these ponds are from rainfall.

**34.78%** of interviewed households of Lasodh depend on ponds for their personal use of water and **39.13%** depend on handpumps which are not only in their villages. They even need to travel long distance to get from handpumps as the pond water are much more contaminated due to people's excretion of human waste nearby and people bathing over there but still low level of water from handpumps force them to take the pond water. Rest **26.08%** are dependent on wells.

**41.66%** of Bodra depend on pond water but due to its contaminated nature, it is difficult to be used for drinking purpose. Same percentage of people depend on handpumps as well i.e., **41.66%** and the rest **16.66%** on well water.

It can clearly be seen that in both the villages, people are less reliable on well water. This is mainly because there are less wells in villages, water level gets too low, it is difficult to pull out water, water gets much dirty due to rainy water and also in summer the wind brings lot of dry leaves and soil into it.

- Through all the data accumulated and by observing, it can be jotted down that there are many problems related to water in both the villages like dry wells and handpumps, contaminated water especially in pond, no government initiatives for providing water supply, more distance to cover, etc.

It has also been observed that various **Jal Minars** were constructed in both the villages under the Jal Jeevan Mission but its not in order at the current date. Villagers said, there used to be water from government supply in the initial years of establishment but since few years no government supply water are available in these **Jal Minars.**

**FINDINGS**

- Availability of clean water in rural part of Hazaribagh is very poor. Only 21.73% of households in Lasodh and 8.33% of households in Bodra manage to get the clean water and rest has to rely on their home method of cleaning water like boiling water.
- Many of the problems related to water have been identified in the sample villages such as: no water conservation method is being practiced, no government schemes are implemented in these village for providing water, Jal Jivan Mission has not shown any continuous and positive impact on villagers, many of the schemes are not implemented, too much insecticides are used on field which is polluting water, People are not having there personal latrines at home due to which they come to the field for their nature's call which contaminates the water bodies, dependant on rainfall, people are bathing, washing their clothes, animals in the pond.
- Comparing the two villages- Lasodh and Bodra, though the condition of water adequacy is poor in both the villages, Bodra shows even the worse condition.

The reason that has been found is that handpumps in Bodra are not in working condition and they depend mostly on the handpumps of Lasodh. Thus, they need to travel much.

- It has been found that villagers are unaware of the water conservation methods and neither the government is taking any initiative regarding this. Lots of water are being wasted in rainy season instead of using it to wash animals. Even the agricultural field are not being irrigated with this water.

There is various water conservation method that can be practiced in these regions such, as: --

Rain Water Harvesting. Since Hazaribagh is known for rainfall. So, this rainwater should be fully utilised by making a reservoir to collect it and later after the end of rainfall, it should be tightly closed to use it when required.

Ground Water Harvesting. Ground Water should be replenished by refilling wells, outdated handpumps should be removed and pits should be made to recharge aquifers, which is used to extract water.

**SUGGESTIONS**

- Various schemes should be implemented by the government for providing clean water to the villagers.
- After implementation of the scheme, its continuance should be checked upon.

- Villagers should be made aware of various water conservation methods and importance of conserving it.
- Remote sensing should be used to determine the area which could be dug for well and handpump so that level of water doesn't decreases frequently.
- Government should provide personal latrines at the home of households and should strictly prohibit them to relieve themselves in field.
- Appropriate use of insecticides and pesticides should be trained to the farmers so that excessive use of these could not adversely affect the land as well as the nearby wells and ponds.
- Since Hazaribagh is a hilly area, rainfall let the surface runoff and gets accumulated in river bodies, so the small canal should be constructed near these to stop siltation.

**LIMITATIONS OF THE STUDY**

- This study has focussed only on the primary data. Thus, the government schemes in these areas have been known only through respondents and no government data.
- The loopholes in continuance of Jal Jivan Mission have not been known.

**CONCLUSION**

Water Sustainability has been an emerging issue since very long time but it has been emphasized much by Sustainable Development Programmes by not defining any target rather achieving it to the fullest. By surveying and observing the rural area of Hazaribagh, the actual ground reality of it is known. It can be seen that people over here are striving hard to manage the drinking water for themselves and their family. They have no future prospect regarding saving the water for future generation as they themselves are unable to get it. They have lack of awareness as well, of utilising the rainwater that they are getting as a gift from God. Villagers need the help from the Government at a massive scale to get their own right of attaining clean, safe, accessible potable water.

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