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STATEMENT OF THE PROBLEM

OBJECTIVES

HYPOTHESES

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

FINDINGS

RECOMMENDATIONS/SUGGESTIONS

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WATER CRISIS AT COAL CAPITAL OF INDIA: A PRAGMATIC STUDY OF ROOT CAUSES, IMPACT AND SOLUTION OF WATER CRISIS IN REGIONS OF WORKING COAL MINES OF BHARAT COKING COAL LIMITED DHANBAD

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ABSTRACT

Blessed to be a prime mineral belt the geography of Dhanbad is similar to a Peninsula which is surrounded by water from three sides. In North is in touch with Maithon Dam, a reservoir for hydro electricity. In south it is River Damodar and in west it is touching the beds of River Barakar. The demography of Dhanbad is a fusion of rural and urban both in a composite scale. As many developed portions are in cluster of developed colonies and many large population are residing in the rural areas of the District of Dhanbad. But still the crisis of Drinking water is prevailing at a high scale in surroundings of Dhanbad. The main reasons for water crisis are lack of technological re-engineering, weak administrative control of local law and order, delay in implementation of policies. These all results the water crisis for drinking as well as for the Industrial demands too.

KEYWORDS

Dung-water, Single sided cease-fire, Post-dated Cheque, Public private partnership, Rider-check.

INTRODUCTION

Water is the most important element for all Industries to perform smoothly and efficiently. Water is the ingredient of ensuring the better Quality of Work life for working personnel. Further all the **"Core Sector Industries"** are fully dependent on water for their efficient performance for contribution to the Gross Domestic Production of National Economy. Article 21 of Constitution states the **"Right to Life"** is a constitutional right to every citizen of India. For the same all elements which are the basic needs to lead the life are provided under constitutional umbrella.

REVIEW OF LITERATURE

The Industry is spine of any Nation's economy. And the same is with the coal Industry in India. Since the coal production generates 68% of the total energy consumed all over the Nation for the same the Coal-Industry is considered as the backbone of all the running industries. And any minor hurdle in the coal production as well as its processing will surely result into a huge fluctuation in the economy. Many times the relation with employees gets tensed due to crisis of basic amenities as of water. And at such point of time the Management is helpless to do anything. The situation of both the employer and the employee is just like a soldier in the battle field of **"Single sided cease-fire"**. And every assurance made by Management is considered as issue of a **"Post-Dated Cheque"**. At such point of crucial time it is extremely necessary to continue with mutual harmony to maintain healthy **"Industrial Relations"**. To solve the basic day to day problem of workforce of any Industry is to provide clean and hygienic **"Drinking Water"** as well as hygienic Sanitation and Drainage facility too. And the same can be done by better and modern **"Water Resource Management"**. If proper access of Drinking water will be provided to the works men then a huge percentage of conflict can be eliminated out. It was found that due to dispute on crisis of Water on "Christmas" on 25-12-2012, finally the local Police has to intervene under supervision of then Superintendent of Police of Dhanbad District, Shri.R.K.Dhan Sir. The shortage of electricity can be sustained for even a fortnight, but the scarcity of water is the issue which can't be neglected even for minutes. At grass root level the day to day stress hampers the efficiency of the employees of the Industry[Coal Industry]. And the Industry which directly supports the 75% of the GDP growth must be given special attention to solve the problems of basic amenities. Another major option is the participation of every stratum of workers in framing of the policies. As the **Workers' Participation in Management in Policy making** can help them very swiftly and at large scale in uplifting the **"Quality of their Work Life"**. As a part of healthy participation the workmen themselves have to be vigilant enough at their locality so that there must be absolute zero **"Man-Made"** problems. The problems caused by the natural hazardous can be easily removed out by Technological innovation.

IMPORTANCE OF THE STUDY

The Issues of Drinking water can be easily solved in any portion of India as Mother Nature has blessed the Indian Sub-continent with surplus clean and hygienic drinking water resources. Only the best assimilation of the innovation, water resources available, technology, healthy **Workers' Participation in management in Policy Making** as well as their swift implementation, mutual Industrial Co-operation among the employee and the employer must be fused together.

STATEMENT OF THE PROBLEM

The crisis of Drinking water is prevailing at a high scale in surroundings of Dhanbad. The Dhanbad coal Belt produces the finest form of coking coal for the production of steel of Bokaro Steel Processing Plant which is located at a distance of the 30 Kilometre from the operational coal mines of Dhanbad. The Produced coking coal is being washed before being sent to the Steel Processing Industry. The enormous water is being consumed to wash the coking coal to settle down the dust particles of the coal. The produced coal is washed with heavy splash of water before the coal being dispatched to the Steel Plants. The water left after use is called as **"Middling"** of washery coal water. And the same **"Middling"** is released in river Damodar and Barakar. And this pollutes the river water. Though the water finally flows in Bay of Bengal but still the particles hampers the filtration process by making heavy damages to drinking water supply. Also the dust granules hamper the filtration process by making heavy damages to filtration pumps. Further the underground water comes in a huge amount from the coal being excavated out from the coal being excavated out from underground pits (working mines). This water is mixture of many minerals diluted in water. Generally this water is named as **"Dung Water"** by local people but in actual state it is mineral full water. This water is extremely enriching for crops and farming after minor filtration and little processing with chemicals. On the other hand this water is extremely dangerous for human consumption. But unfortunately still thousands of people are still daily being dependent on this water. And this water has already affected lives of thousands of people in nearby area. Generally people use to get **"Gastro-Intestinal Disorder"** and **"Urinary Disorders"** too at a large scale.

OBJECTIVES

To identify the Prime causes of Water Crisis in the Coal Producing Belt of Dhanbad Region.

HYPOTHESIS

To identify the best possible proven technological Re-engineering methodologies to make the best possible utilization of the water resources being available.

RESEARCH METHODOLOGY

The research was done with absolute primary data with visiting and collection of data and feedback by making field visits to various coal producing region of Dhanbad as Kendua, Katras, Jharia and other operational working mines of the Dhanbad Region.

RESULTS & DISCUSSION

The major cause of water crisis in the mineral belt of Dhanbad is mainly due to following reasons.

[1] Leakage for underground level water causes cracks in the ground crust due to continuous underground mining explosions. The innermost crust of ground is dismantled due to serial explosions.

[2] The damage in the joints of the drinking pipelines use to occur due to very powerful blasts being done in order to excavate out the coal. And due to the same the leakage in the pipelines creates water outflow and it changes into a huge pipeline breakage very soon due to enormous water pressure.

Further Due to heavy rainfall the water level of River Damodar, Maithon Dam and Panchayt Dam rises abruptly. The ample collection of water may solve the drinking water crisis, but it is resulting as a worst curse. The heavy rainfall itself causes the drinking water crisis. The main reason is that due to overflow of water the pumps use to dwell down and stops functioning. The second most important reason is mud and clay which comes with water and damp the pumps. Also in summer season due to excess heat the water level goes very down. And generally pump fails to supply the water from such a low level as well as the pumps generally burn due to excess load and heat in summer. These all factors create tremendous shortage of drinking water in whole of Dhanbad region. And it continues on frequency of every 2-3 days for more than 5 months every year during summer and monsoon season.

FINDINGS

The supply pipelines are being intentionally being broken even after regular repair by the local anti-social elements. The prime motto is to collect water from the broken pipes and then to resell it. These shroud mentality of local inhabitants has created a lot of problem for the supply of the drinking water. In addition to this the local people also don't want to get these pipeline repaired as their source of income will be surely snatched. While interviewing a man filling water, he replied that if the pipelines would be repaired then he would be in loss as due to the same his livelihood will be snatched as he can't resell the water coming out from the broken pipes. So they don't want it to be repaired. It has been identified by visiting field that in a single kilometre there are almost 30-40 pipeline breakages. These are the major cause of slow speed of flow of the water. In addition to this the water uses to get contaminated due to the same. And it cause occasionally multiple numbers of health casualties due to epidemic. Many times the huge pipelines are being broken even before they are implanted by the local people. For the same these pipes are being kept in nearby periphery of local Police stations so that no locals may disturb them. The same situation was found in the locality of Kenduadih, where the hundreds of pipes which are to be implanted for maintenance of the broken pipes are kept in secured portfolio of local Kenduadih Police Station of Dhanbad District. This expresses the fear and weakness of local administration from the anti social elements that may create sabotage.

RECOMMENDATIONS

1. The pipelines chosen for water supply must be of thick flexible polymer pipelines covered under the tough quality cement pipelines so that they may not get damaged due to shock from the underground mining explosions. Further they can be repaired as soon as the outer crust is found to be damaged.
2. Still there are only about a dozen of filtration plant are established, but this is an insufficient number as per requirements of the population. So more filtration plant must be established on every population of ten to fifteen thousand of population. As this is a costly arrangement, for the same role of private firms and "Public Private Partnership" must be enhanced.
3. Underground water drainage system must be such designed that the waste water and the residue of reused water must directly be disposed off to either Bay of Bengal or at some barren place.
4. Technological advancement must be adopted for proper distribution as well as to stop the waste of drinking water.
5. Technological innovations such as "Electronic Water Bills" will keep a proper "Rider-check" form supply source to receiving end, so that a big loss of water can be saved. And also this will automatically enforce the authorities to get assured of adequate water supply.
6. The supply of water must be continuous and arrangement must be done that though even if there is shortage of electricity, there must not be any problem is distribution of water. A convenient option is to arrange for emergent battery backup required to pump the water to the destination.
7. Strict disciplinary action must be taken against all the anti-social elements who creates sabotage to the water supply channel. Zero tolerance to any damage to the channel of drinking water supply and Industrial Supply support too.

CONCLUSIONS

1. Due to scarcity of water, a number of strikes and "Gheraos" are happening and it leads to a tremendous loss to overall profit of the organization [BCCL, Coal India].
2. A sudden blockade use to occur in day to day work due to scarcity of drinking water.
3. A huge sum has to be paid by the local people to buy water.
4. Ample water is available for drinking consumption as well as for Industrial needs, only strategically swift water resource management policies are to be framed and implemented.

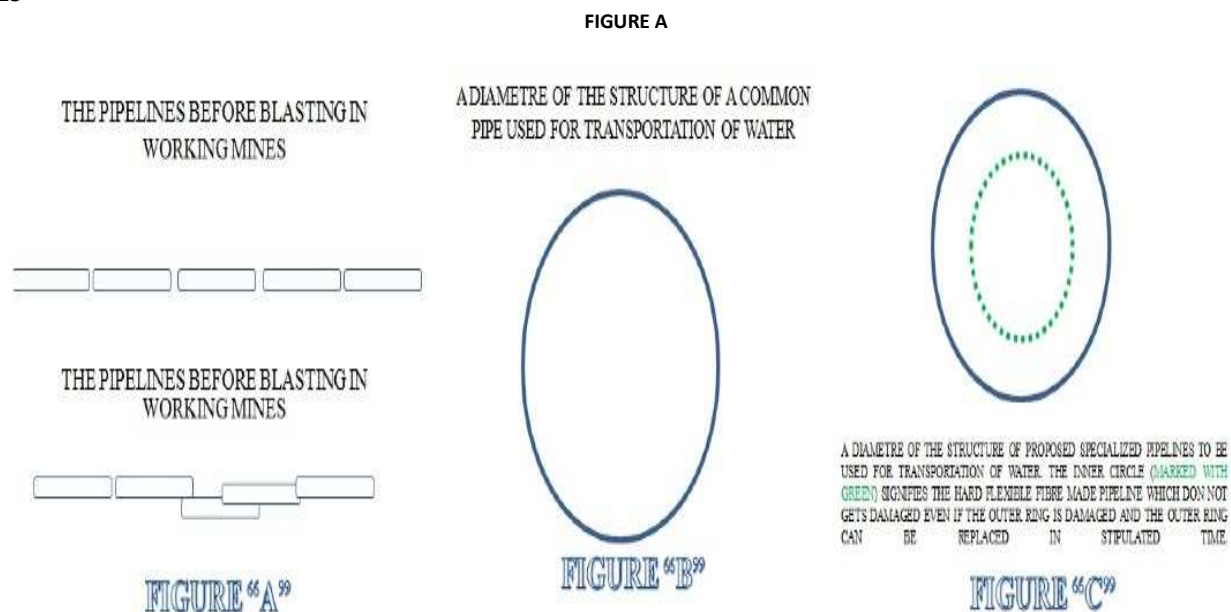
SCOPE FOR FURTHER RESEARCH

The flow of "Dung-water" coming out with the excavated coal must be filtered and must be distributed for farming and cultivation of farm lands as per the percentage of nutrients available for the agricultural practices. As the complete Jharkhand belt lacks the healthy amount of water for cultivation. So this option can be more suitable for reutilization. Only a little effort is to be given for re-filtration of this mineral enriched water for farming. In this way the natural sources will be conserved for human drinking usage instead of usage in farming. It has been found that many filtration plants are established in some of the areas but still much more number of requirements of such "Pressure-filter" Plants are required.

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FIGURES



The arrangement of the pipelines (Figure "A"), The present used structure (Figure "B") and The proposed modern form of pipelines (Figure "C").



The Pipelines kept in front of Kenduadih police station in large number for being protected from sabotage from anti-social elements.

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