



A review of wastage rice mill water amount of nitrate in various environments especially in the Mahanadi River area

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Abstract

The analytical study about the wastage of water in the area of environmental pollution is the best way to judge water purity based on multiple components of water. The river is the best water source in the country for various uses like drinking water, agriculture, daily use, and others. And also this area is a broad platform for environmental pollution points through the way of water pollution by various wastage as well as toxic element adding in water resource.

The process of analysis about various wastage in water especially from the area of rice mill is affecting water resource heavily. Several toxic elements are making groundwater as well as river water polluted which is considered a negative impact on the area of environment. This topic especially focuses on the negative impact of wastage of rice mill water discharging in the amount of nitrate in the river of Mahanadi in Chhattisgarh state.

Keywords : Wastage, environment, pollution, judge, purity, component, source, agriculture, toxic, element, platform, rice mill, groundwater, nitrate, river, impact

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Introduction

The river is a large resource of water in the environment particularly used for drinking and also for agriculture purposes. And rice mill industry is the biggest firm in the area of the business market. India is a great example of a water resource country because numerous rivers are floating water into an integral part of business and also an area of agriculture. For this particular reason of huge water, resource agriculture is also growing in India. But in the number of huge water resources, pollution is a big challenge in area of the water environment. Through various industrial processes especially in the area of rice mill industry, many toxic components like nitrate, iron, chloride, and sulfate are released into the water that directly impacts the area of water purity by breaking the parameter of biological oxygen demand (B.O.D) and also the area of chemical oxygen demand (C.O.D) which effect on the quality of drinking water and also the part of agriculture water use.

The Rice mill industry is a large business industry in India. According to this analysis, the

paper researcher focus on the part of wastage rice mill water in the Mahanadi river area at Chhattisgarh. The bank of the Mahanadi River is a great area to grow agriculture, especially for paddy. The effect of rice mill wastage water how impact negatively in the water environment this particular study focuses on those parts. The literature part of this paper mainly analysis about the negative impact of wastage of rice mill water, and the process of water pollution through the rice mill industry, the methodology part signifies the particular method of analyzing water environment pollution through the rice mill industry, results and discussion part elaborate about the affect of water pollution in the environment and also the area of agriculture field. The recommendation part shows the various ways of solutions and the other hand, are of future scope focus into the discussion about the positive step towards controlling water pollution.



Aim and objective

- To find the process of water pollution through the industry of rice mill in Chhattisgarh.
- To find the toxic effects of nitrate amount to water pollution.
- Process of environment pollution through the industry of rice mill.
- Impact of rice mill wastage in area of the river of Mahanadi at Chhattisgarh.

Literature review

System of water pollution through the rice mill industry

The rice mill industry is a large hub to process a huge quantity of water for its various step of rice manufacturing. The process of rice mills is mostly dependent on the water resource and also this industry discharges a large amount of wastewater through its industrial process. As per the industrial pollution survey report 2002, the rice mill industry and its industrial water pollution is a big reason for water pollution in an area of water resource (Oelsner et al. 2019). The process of rice production wastage from the mill is nearly decreasing 20% of water quality in the area of the river as well as in groundwater. Mill industries are following multiple technologies for their products through this process several numbers of toxic elements are released into the water as solid wastage, amount of nitrate, carbon tetrachloride, multiple acids, mercury, lead, and also various harmful chemicals that are directly released in the area of the river. This process impacts negatively the water of groundwater, river, earth surface, and other sources of water as well as the environment. This way of water polluting the river of Mahanadi water resource is also polluted from the multiple chemicals and harmful wastage of rice mill at Chhattisgarh.



Figure 1 System of water pollution through the rice mill industry

(Source: Am et al. 2019)

Effect of nitrate in area of water pollution

A large amount of nitrate in the area of drinking water, as well as agricultural water, is an increasing risk factor for humans as well as for all living beings and also for the environment. Nitrate is mostly released from the particular industry of rice mil. In the process of various technical productionworks, a huge amount of harmful chemical nitrates are also highly mixing in water resources. A large amount of nitrate in drinking water and agricultural fields is very risky for human health that also causes cancer and various health issues. A high level of nitrate in water resources also has an effect on human skin like skin color, skin disease, damaging immunity power and also increasing weakness.

As per this analysis, a large amount of nitrate released in the area of water resource from the rice mill industry in the river of Mahanadi in Chhattisgarh signifies the process of water pollution through the rice mill industry. Chhattisgarh is a great example of paddy production. So in this area, uncountable rice mills are located on the bank of Mahanadi (Rajpoot et al. 2021). Through the process of rice mill production work, a large amount of water is used, and also huge wastage of water is released into the river too. Through this process, nitrate is fixed in the resource of water which is for drinking purposes and for agriculture work. Through the rice mill, industrial process amount of nitrate is created a big reason for water pollution in Chhattisgarh in areas of drinking water and also areas of agriculture. As per economical survey 2020, nearly 300mg/L is releasing a daily basis in the river from the rice mill industry in Chhattisgarh which is very harmful to humans as well as to the environment.



Figure 2 Effect of nitrate in area of water pollution

(Source: Tao et al. 2019)

The negative impact of rice mill industry wastage in the area of the Mahanadi River

As per the economical report 2020, the industry of rice mills is a big reason for water-polluting and also for decreasing the quality of water level. Chhattisgarh bank of the Mahanadi River is a place of growing rice mill industry. This area, especially in the Raipur district, is a hub of industry, especially the rice mill industry. The negative impact of the rice mill industry wastage water in this particular area of the Mahanadi River is an example of mill Collision through the process of releasing wastage water through production work. The process of chemical release in areas of water resources is a big reason for water pollution. This particular process of water damage through rice mills is badly affected in the areas of groundwater at the river of Mahanadi. This process decreases the parameter of water quality as well as water level to use in the agriculture field.



Figure 3 the negative impact of rice mill industry wastage in the area of the Mahanadi River

(Source: Ochieng et al. 2020)

Multiple toxic components to pollutant water as well as the environment

From the area of the rice mill industry on the bank of the Mahanadi River at Chhattisgarh, various toxic components are released into the water apart from the harmful chemical nitrate. As per the environmental survey 2004, rice mills pollutants and multiple released chemicals are very effective and harmful to humans as well as to the environment. From the waterway of the rice mill industry in Chhattisgarh, various chemicals and toxic components are released into the water area that directly damages the system of the biological cycle, water resource, food chains, and also the area of environment (Sharma 2022).

From the system of water pollution from the particular platform of rice mill industry different

type of water, pollution is performing as like chemical pollution system, pollution of groundwater, pollution of oxygen - depletion and the other side this industry also responsible for the water pollution of surface water pollution. From the industry of rice mill on the bank of Mahanadi River, all chemicals, as well as pollutants, are released in water which all is like heavy harmful metal for humans as well as for the environment. Chemicals are mostly arsenic, mercury, sulfate, lead, cadmium, and mercury, all these poisons as well as toxic components of rice mill wastage are damaging the level of river water purity and are also responsible for the possess of toxicity in the ecosystem.

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Figure 4 multiple toxic components to pollutant water as well as the environment

(Source: Corroto et al. 2018)

Methodology

To analyze the particular area of water pollution through the wastage water of in rice mills along with the amount of nitrate in various environments especially on the bank of Mahanadi at Chhattisgarh following various methods or environmental tools to measure water pollution. In this particular area of assessment water pollution methods, area as TDS meters, salinity process, and also the process of conductivity are considering crucial role in measuring water pollution. These critical processes to assess pollution of water are like an instrument to indicate pollution levels, separating multiple chemicals from wastage water. The process or tool to measure water pollutants through the process of TDS meters and others is the best way to research it (Gupta et al. 2020).



Result and discussion

Various chemical and toxic components from rice mill wastage

The system of rice mill production especially in the area of any kind of water resource or river is facing a large challenge of water pollution. The process of industrial work needs a huge quantity of water, and also this process releases a large amount of wastewater also from the system of the industrial waterway. In this process of discharging wastage in water, the resource is included by multiple harmful chemicals like sulfate, cadmium, lead, arsenic, mercury, and others. To know or study about all these types of rice mill chemicals, their reaction in water, level of water damage, the negative impact on the human, environment as well as in the area of water resource and also in the point of agriculture field is very important to make a proper solution, focus to the point of reducing water pollution and also towards making harmless groundwater.

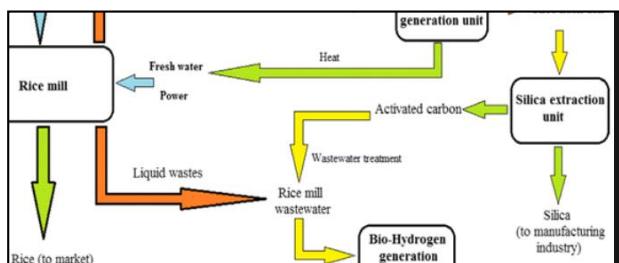


Figure 5 various chemical and toxic components from rice mill wastage

(Source: Lakra et al. 2022)

Importance of identifying harmful rice mills' chemical

The process of identifying harmful rice mill chemicals is a very important aspect to according to the process of reducing water pollution and saving all water resources. The Earth's surface is mostly covered by water. The water level is very important to continue the environment healthy as well as continue the safety of groundwater and drinking water. Identifying chemicals is also important for the work of agriculture. Because of wastage water is heavily damaging the area of agriculture cultivation that badly effecting human body. The system of rice mill production is important for the business industry but all these functions are directly related to the process of water pollution. The study on the

particular industry of rice mill and its wastage chemical to pollutant river or water resource is helping to understand about a variety of harmful chemical, their negative effect in water as well as in environment and also about the importance of reducing water pollution.

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Focus on the area of water pollution through the rice mills industry

As per the environment report 2002, the rice mill industry is mostly responsible for the process of water pollution in areas of rivers or other water resources (Fahad et al. 2021). This analysis paper is totally focused on the area of rice mill industry wastewater on the bank of the Mahanadi River at Chhattisgarh. Study about the topic of rice mill wastage element role, to water population is important to understand the system of water resources especially river water pollution in the industrial area of rice mill. Chhattisgarh is a rising state of paddy cultivation so here most of the rice mill industries are also available. Throughout this whole analysis, the paper researcher shows the reason behind water pollution from the particular industry of rice mill, type of wastage chemical as well as elements responsible to make pollutant water, knowledge about harmful rice mill chemical to aware about that and also focusing into the area of reducing water pollution, also this study focusing into the part of human effect as well as an environmental negative effect through the process of water resource pollution, various disease in human body and skin, shortage of pure drinking and also agriculture water. The whole study is discussed all these aspects along with some positive steps towards reducing waste pollution and making the water environment healthy.

Conclusion

The whole study of wastage of water released in the area of rivers as well as in water resources, various harmful water wastage, chemicals, toxic elements negative effect on water area and also the particular rice mill industry responsible for water resource polluting is a brief overview of the role of rice mill industry at Chhattisgarh to make pollutant the river of Mahanadi, including nitrate multiple harmful chemical and toxic elements of rice mill production wastage in

water. This study also focuses on the area of negative effect on the water environment especially in the river of Mahanadi, the way of measuring water quality in the area of drinking water, and also for agriculture purposes that all help to gain knowledge about reducing the process of water pollution in the particular zone of rice mill industry.

Recommendation

Focus on the surrounding water resource as well as river areas of the rice mill industry to decrease water pollution.

- Follow the major harmful chemical and its effect on water and also the environment to continue water healthy for the ecosystem.
- Follow multiple processes that are helping to reduce wastage water, especially from the area of rice mill industry, this process can help out from water pollution cycle.
- Understand clearly the reason for water resource pollution from the platform of rice mill, focus on the part of reducing the process of water pollution, and also awareness about the importance of water, various water resources, and the importance of biological chain, ecosystem for human life and also for a healthy environment.

Future scope

This analytical study is fully based on the area of wastage water negative impact from the industry of rice mill to the pollutant water resource. The aim of this particular research is to elaborate on the negative aspects of rice mill water in the process of water pollution and also focus on the area of various harmful chemicals of rice mill released. This paper also mentioned about recommendation part to signify the area of awareness about water pollution and enhance knowledge of the environment. Through the following path of recommendation part, this study identifies a way of solution from water resources and also reduces the process of rice mill wastage.

References

Oelsner, G.P. and Stets, E.G., 2019. Recent trends in nutrient and sediment loading to coastal areas of the conterminous US: Insights and global context. *Science of the Total Environment*, 654, pp.1225-1240.

AM, A.S.B.D.S., Samanta, S., Koushlesh, V.K.R.C.S., Das, S.K. and Mohanty, D.M.H.S.B., 2019. Prospects for fisheries development in dead rivers: Case studies in the state of Odisha, India.

Rajpoot, R.S., Bajpai, R.K., Shrivastava, L.K., Kumar, U., Tedia, K. and Mishra, V.N., 2021. Evaluation of Soil Physical and Chemical Properties under Rice-based Cropping System in Alfisols of Northern Hill Region of Chhattisgarh. *Int. J. Curr. Microbiol. App. Sci*, 10(01), pp.2748-2761.

Tao, H., Al-Khafaji, Z.S., Qi, C., Zounemat-Kermani, M., Kisi, O., Tiyasha, T., Chau, K.W., Nourani, V., Melesse, A.M., Elhakeem, M. and Farooque, A.A., 2021. Artificial intelligence models for suspended river sediment prediction: state-of-the-art, modeling framework appraisal, and proposed future research directions. *Engineering Applications of Computational Fluid Mechanics*, 15(1), pp.1585-1612.

Ochieng, H., Odong, R. and Okot-Okumu, J., 2020. Comparison of temperate and tropical versions of Biological Monitoring Working Party (BMWP) index for assessing water quality of River Aturukuku in Eastern Uganda. *Global Ecology and Conservation*, 23, p.e01183.

Sharma, R.K., 2022. *Environmental Science*. KK Publications.

Corroto, F., Gamarra, O. and Barboza, E., 2018. Multivariate assessment of water quality in the Utcubamba Basin (Peru). *Tecnología y ciencias del agua*, 9(5), pp.33-57.

Lanjwani, M.F., Khuhawar, M.Y., Jahangir Khuhawar, T.M., Lanjwani, A.H., Jagirani, M.S., Kori, A.H., Rind, I.K., Khuhawar, A.H. and Muhammad Dodo, J., 2020. Risk assessment of heavy metals and salts for human and irrigation consumption of groundwater in Qambar city: a case study. *Geology, Ecology, and Landscapes*, 4(1), pp.23-39.

Sharma, T.R. and Ravichandran, C., 2019. A Study on Identifying the Key Threats to the Water Quality of Selected Tributaries of River



Cauvery in Tiruchirappalli District, South India. *Climate Change in Water Resources*, p.106.

Raimi, A.R., Ezeokoli, O.T. and Adeleke, R.A., 2019. High-throughput sequence analysis of bacterial communities in commercial biofertiliser products marketed in South Africa: an independent snapshot quality assessment. *3 Biotech*, 9(3), pp.1-12.

Gogoi, P., Chanu, T.N., Sinha, A., Ramteke, M.H., Tayung, T., Roy, A. and Das, B.K., 2022. Fish assemblage pattern, seasonality and their interaction with environmental variables: insights from canals of Sundarbans, India. *Tropical Ecology*, pp.1-18.

Brahmachari, K., Sarkar, S., Santra, D.K. and Maitra, S., 2019. Millet for food and nutritional security in drought prone and red laterite region of Eastern India. *Int J Plant Soil Sci*, 26(6), pp.1-7.

Gupta, S.K. and Gupta, I.C., 2020. *Drinking Water Quality Assessment and Management*. Scientific Publishers.

Lakra, K.C., Mistri, A., Banerjee, T.K. and Lal, B., 2022. Analyses of the health status, risk assessment and recovery response of the nutritionally important catfish *Clarias batrachus* reared in coal mine effluent-fed pond water: a biochemical, haematological and

histopathological investigation. *Environmental Science and Pollution Research*, pp.1-26.

An, X., Zong, Z., Zhang, Q., Li, Z., Zhong, M., Long, H., Cai, C. and Tan, X., 2022. Novel thermo-alkali-stable cellulase-producing *Serratia* sp. AXJ-M cooperates with *Arthrobacter* sp. AXJ-M1 to improve degradation of cellulose in papermaking black liquor. *Journal of Hazardous Materials*, 421, p.126811.

Fahad, S., Sönmez, O., Saud, S., Wang, D., Wu, C., Adnan, M. and Arif, M. eds., 2021. *Engineering tolerance in crop plants against abiotic stress*. CRC Press.

Goswami, A.P., Das, S. and Kalamdhad, A.S., 2021. Assessment of possible pollution risk using spatial distribution and temporal variation of heavy metals in river sediments. *Environmental Earth Sciences*, 80(19), pp.1-15.

Chungopast, S., Yodying, P. and Nomura, M., 2021. Effects of Cellulolytic Bacteria on Nitrogen-Fixing Bacteria, 16S rRNA, nifH Gene Abundance, and Chemical Properties of Water Hyacinth Compost. *Journal of Soil Science and Plant Nutrition*, 21(1), pp.768-779.

Rais, S. and Salam, M.A., 2020. Water crisis in India: challenges and implications. *India 2020: Environmental Challenges, Policies and Green Technology*, p.9.