

## **Rehabilitation and cleaning of urban rivers: case study githurai river, kiambu county**

### **Abstract**

The Githurai River faces severe environmental degradation due to improper waste management and pollution just like many urban rivers. With the adverse challenges posed by rapid urbanization, industrial activities, and inadequate waste disposal systems have led to extensive contamination, affecting water quality, aquatic ecosystems, and public health. The presence of dumpsites, e-waste, industrial waste, and heavy metal pollution has led to environmental hazards, necessitating urgent intervention.

Open dumpsites along the riverbanks contribute significantly to pollution, as unregulated disposal of household and commercial waste leads to the leaching of toxic substances into the water. Also the improper disposal of e-waste introduces hazardous chemicals such as lead and mercury into the environment, endangering both aquatic life and human populations. Industrial activities also discharge untreated effluents containing heavy metals like chromium and zinc further deteriorating the river's ecological balance.

The contamination of Githurai River by heavy metals poses a significant threat to aquatic ecosystems, leading to bioaccumulation in fish and other aquatic organisms. This in turn affects biodiversity and increases health risks for communities that rely on the river for domestic use and food sources. Sustainable waste management strategies including proper segregation, recycling and treatment of industrial effluents are essential to mitigate these impacts. Strengthening regulatory frameworks enforcing strict waste disposal laws and promoting community awareness can enhance pollution control efforts.

To restore the Githurai River, an integrated approach involving local authorities, industries, and community participation is needed. Implementing eco-friendly industrial practices will help reduce pollution levels and safeguard water resources. Addressing pollution and waste management challenges is crucial for maintaining environmental sustainability and ensuring a sustainable ecosystem for future generations.

**Author:** KAMUCUGU, Solomon (Student)

**Presenter:** KAMUCUGU, Solomon (Student)

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