

# Reinforced concrete deterioration caused by contaminated construction water: An overview

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## Resumen

Over the years, there were cases of building failures in most developing countries of the world that have led to the loss of lives and property. Yet, most investigations conducted on the causes of building failures have suggested poor design, inadequate supervision, and the use of inferior materials as the factors responsible for the failures. However, not so much emphasis has been placed on concrete mixing water as a contributing factor to the failures. Therefore, this review summarizes the effect of the type and composition of mixing water on the properties of concrete. Different sources of water that can be used to mix concrete were explored, alongside with the effect on fresh and hardened properties of concrete. The fresh properties of concrete, such as setting time and slump, were examined, while the hardened properties focused on the strength and durability of the concrete. A brief statement on the available regulation and standards for mixing water was also reported. This review shows the viability of using water from different sources, such as wastewater, to mix concrete successfully. However, the treatment of some types of water might be required to ensure that excellent strength and durability properties are achieved while preventing any threat to human life and the environment. Area for future research was also suggested, which, among other procedures, could help proffer solutions to the challenge of building failures in developing countries.

**Palabras clave:** Concrete, Mixing water, Building failures, Reinforced concrete, Workability, Strength properties.