

## ABSTRAK

Batik merupakan warisan budaya Indonesia yang diminati oleh banyak orang. Seiring dengan meningkatnya jumlah peminat batik, limbah yang dihasilkan pada IKM batik juga mengalami peningkatan. Limbah cair batik yang dihasilkan pada produksi batik mengandung COD, BOD, TSS, TDS, pH dan kekeruhan warna yang tinggi sehingga dapat menyebabkan kerusakan ekosistem di dalam air. Penelitian ini dilakukan untuk mengurangi pencemaran lingkungan yang disebabkan oleh limbah cair batik dengan cara melakukan perancangan dan pengembangan produk alat pengolah air limbah batik sesuai dengan kebutuhan IKM batik.

Penelitian ini dilakukan dengan pendekatan pengembangan produk yang diawali dengan identifikasi kebutuhan melalui wawancara dan observasi di IKM batik Daerah Istimewa Yogyakarta serta dilanjutkan dengan penyebaran kuesioner. Penentuan prioritas teknis dilakukan dengan metode *Quality Function Deployment* (QFD) untuk mendapatkan spesifikasi produk. Kemudian dilanjutkan dengan pembuatan dan pemilihan konsep. Konsep yang terpilih akan dijadikan sebagai dasar pembuatan produk.

Hasil dari penelitian ini adalah prototipe alat pengolah air limbah batik yang mampu mengurangi kandungan COD, BOD, TSS, TDS, pH, dan kekeruhan warna dengan spesifikasi bentuk bak silindris dengan 4 ruang, dimensi 69 x 69 x 87 cm<sup>3</sup>, daya 60 watt, material penyusun *polyethylene*, kapasitas 215 liter, tingkat kebisingan 40 dB, dan memiliki fitur pengaliran limbah dari bak pewarnaan dengan pompa *submersible*.

Kata kunci: pengembangan produk, alat pengolah limbah batik, *quality function deployment*

## ABSTRACT

*Batik* or known as Indonesian traditional cloth is a cultural heritage which is highly demanded by many people. However, this leads to a condition to the raise of the waste from *batik* production in the Industries as the amount of people interested in batik is increased. Batik's wastewater contains COD, BOD, TSS, TDS, pH, and the high level of color turbidity that can cause damage in the surrounding water ecosystem. Thus, this research aimed to reduce the environmental pollution caused by the wastewater from batik's production by designing and developing a product *batik* wastewater treatment plant which suited the needs from the *batik* Small and Medium Industries.

This research was conducted with a product development method which started by doing a need analysis and interview while observing the *batik* Small and Medium Industries in Special Region of Yogyakarta, and followed by distributing questionnaires. The data processing method used in this study was Quality Function Deployment (QFD) with the goal was to get the product specifications. Furthermore, concept generating and selecting were conducted as the following steps. The chosen concept was then used as the base for the product development.

The result of this study was a prototype of a *batik* wastewater treatment plant which could reduce the amount of COD, BOD, TSS, TDS, pH, and the high level of color turbidity with the specification of a cylindrical-shaped with 4 rooms, 69 x 69 x 87 cm<sup>3</sup> dimension, 60 watt power, *polyethylene* material composed, 215 liter capacity, 40 dB noise level, and completed with a waste drainage feature which allowed the waste to flow from the coloring vessel using a submersible pump.

**Keywords:** product development, batik wastewater treatment, quality function deployment