

## Plastiki Rafiki: ISK Students Empower Communities to Clean the Environment



ISK's fabrication lab creates products out of recycled plastic, sharing these designs with community members and creating employment (photo: ISK).

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Plastiki Rafiki is a non-profit student-led club at the International School of Kenya (ISK) that is committed to cleaning up our local environment, while at the same time economically empowering communities by supporting them to develop unique recycled plastic products.

Plastiki Rafiki, which started in early 2018, has grown from a "proof of concept" to a fully functional social enterprise that has expanded beyond the school walls, encouraging others to see the value of collecting and repurposing discarded plastic, working towards a cleaner and greener Kenya for all.

Plastiki Rafiki creates recycled products using a range of plastic molding and subtractive manufacturing processes. With the help of the Open Source Plastic Recycling Community, ISK students build all the machines and create all the product designs in the school's Fabrication Lab.

The focus is on plastic trash collection from natural areas, where it can make the most significant visible difference, keeping these spaces pristine and discouraging future pollution. Plastiki Rafiki product "collections" are based on different locations where the plastic rubbish was collected. For example, a keychain that is part of the "Kenya Coast Collection" will have been made from discarded plastic collected from local beaches, while products from the "Mt. Kenya Collection" will have started off as plastic collected from mountain trails.

All profits from the sale of Plastiki Rafiki products go towards the further development and design of low-cost plastic recycling machines, product design, and the promotion of grassroots plastic collection and recycling in Kenya.

### Experiential learning and collaboration

Plastiki Rafiki and Students for the Environment (another student-led club) came together during the annual International School of Kenya Intercultural (IC) Trips to lead a rubbish collection and awareness drive on Mt. Kenya. During their five-day trip, students from the high school were able to bring back over 50 100-liter bags of mixed rubbish from the mountain. Of these, the equivalent of 32 bags were plastics that were processed into unique products. Among other products, Mt. Kenya-themed keychains were injection-molded and given as gifts to the park wardens and others who helped with the Mt. Kenya clean-up.

Having realized the scale of the littering problem in the area, ISK students are hoping that this cleanup drive can become part of future Mt. Kenya trips, as well as be expanded into other school trips. In addition, the club members are looking at long-term solutions, including planning to fundraise (through the sale of Plastiki Rafiki products) for bins and, eventually, a recycling facility in the area. In the short term, they are planning to install signage, reminding hikers to carry their rubbish out and not to litter, as part of a "carry-in-carry-out" policy that urgently needs to be enforced on the mountain.

High school students are currently running the plastic recycling workshop; however, the aim is for it to be a space that can benefit the wider community. In the last year, Plastiki Rafiki has hosted over 20 local and international organizations, leading tours and organizing workshops within the space. In the school club, members have collaborated with Kindergarten students to build birdhouses that were hung around the school as part of their Homes Unit, and helped the Grade 2 students extrude discarded plastic to create tree planters as part of

their unit on "matter," offering examples of true cross-divisional collaborations.

### Community outreach

In order to expand the impact of the club, Plastiki Rafiki is working on setting up community plastic recycling workshops around Kenya, with the hope they can help both to clean up the environment and provide much-needed employment. One of the workshops was in the informal settlement of Mathare. Being one of Nairobi's lowest-income areas, with no formal waste collection facility, creating a facility for plastic collection and recycling makes excellent sense.

The club partnered with Fútbol Más, a local after-school sports and wellness program, whose team mobilized the community to create a business plan, establish a location for the workshop, and start collecting and sorting plastic. All that remained was for us to help with the machines and conduct the relevant training.

Beginning in November 2019, the Mathare community is now

able to clean up their environment by recycling plastic waste and, through the sale of recycled plastic products, financially support the Fútbol Más sports and wellness program.

Diani beach, on the Kenya Coast, was chosen as another project area for a partnership between Plastiki Rafiki, the Kwale Plastic Plus Collectors (KPPC), and the Nomad Marine Education Centre. The machines were built, and molds were manufactured in the ISK fabrication lab.

Over the school holidays, two Plastiki Rafiki club members volunteered their time and traveled to Diani to help set up the workshop, train KPPC on how to work the machines, and conduct marketing research. In doing so, club members hoped to provide opportunities for local employment and help clean up some of Kenya's most beautiful beaches.

### Looking towards the future

Following the successful piloting of the Diani and Mathare workshops, we are now in the planning

stages of setting up other workshops to empower communities in different parts of Kenya. Our goal is for the school's fabrication lab to continue to innovate and create products out of recycled plastic, sharing these designs with community workshops who can then make the products on a larger scale, creating local employment, and cleaning up the environment in the process. Some of the new products being developed in the lab include mathematical education packs for rural schools, low-cost and durable football shin pads, and prosthetic feet.

The dangers of plastic pollution are all too real. As a club, we hope to raise awareness about the dangers of single-use plastics and drive the innovations and behavioral shifts we need to end their use. ●

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