Project Healthy Children is working in Nepal and East Africa to bring fortified food to the hardest to reach and most vulnerable populations.

Despite the increasing adoption of large-scale fortification programs as a means of addressing micronutrient malnutrition throughout the developing world, a large portion of individuals living in rural and remote areas do not have access to centrally processed foods. Without access to these foods, individuals do not benefit from large-scale fortification efforts. And with rural and remote populations often being the most vulnerable and in the greatest need of strategies to combat micronutrient malnutrition, addressing this gap becomes critical.

With this in mind, in 2008, PHC began working to design an effective model that would allow small-scale, village-level mills to cost-effectively and sustainably fortify their grain.

Understanding the Situation

In 2006, a first-of-its kind fortification device was developed and piloted by the Micronutrient Initiative in Nepal. Powered solely by gravity, the device automatically dispenses correct amounts of iron, folic acid, and vitamin A to cereal grains being milled. Despite its success, however, there was a clear need for a more cost-effective and streamlined model to get micronutrients to the rural poor. PHC decided to take on the challenge.

PHC has since developed a next generation device that is robust, low in cost, and completely automated. Suitable for the mid to small scale milling industry, this new device is built as a "one size fits all" dosifier and fits seamlessly into any type of mill hopper with no modification to the existing mill and with minimal installation time required. Currently being field-tested in Nepal and East Africa, the lightweight device is estimated to cost around US$500.

By providing a practical means of fortifying staple products at the village level, PHC hopes to leverage its current program to serve as a model for other regions across the globe.

Designing an Effective Model

The dosifier functions similar to an electronic scale and consists of a grain hopper and fortificant dispenser. The grain hopper sits on 4 load cells that detect the loss in weight as grain pours into the mill. A simple computer module take into consideration the weight of grain flowing into the mill to activate the premix dispenser and release a predetermined quantity of vitamins and minerals. Programmed firmware allows continuous checking of weight change, adjusting the premix as necessary. The dose threshold can also be adjusted dependent on what fortificant concentrate is being used.
Progress to Date

PHC’s new electronic device is in the last stages of field-testing and the initial stages of being streamlined for large-scale rollout. The accuracy of the load sensors and dispenser has been improved ensuring the ratio of premix to grain dispensed can be adjusted for different types of cereals and concentrates of premix. Converting the device’s material from metal to ‘injection mold’ plastic is also being pursued. This option would not only decrease costs but also allow for a lighter weight design and ensure uniformity once mass-produced.

PHC has initiated a pilot project in Nepal to enable village level mills to efficiently and cost-effectively fortify their grains. Currently there are 30 devices installed in extremely rural conditions in order to stress test the technology. The feedback from the community, especially the millers, has been very positive. The aim from the start has been to build a low cost and simple, yet robust enough device to work accurately for long periods of time in rural conditions. Statistical test results fall well within the industry recommended +/- 10% accuracy.

We have named our device “Niko.” In the Nepali language this means “healthy, or to heal.” The Greek meaning of Niko is “victory of the people.”

Next Steps

Once the ‘injection mold’ option is explored and the device is finalized, the design of financial and logistical models for large-scale rollout and fundraising and advocacy campaigns for global expansion will be drafted. PHC will simultaneously identify and collaborate with partners across the globe interested in independently sourcing the device.

By reducing capital and operating costs and developing a sustainable scale-up model, PHC hopes to provide the global nutrition community with the technology and know-how to reach the millions of people who still do not have adequate access to centrally processed fortified foods.

About PHC

PHC is a small nonprofit that assists government, civil society, and industry in designing and implementing both countrywide and small-scale food fortification programs. Founded in 2000 in Honduras, PHC has since expanded and currently operates projects in Nepal, Rwanda, Malawi, Liberia, and Burundi.

For more information please contact Project Healthy Children at info@projecthealthychildren.org.