

REIMAGINE CORN HUSKS AS ECO-FRIENDLY PACKAGING

NXplorers students in the University of San Carlos in the Philippines developed a method to repurpose corn husks and convert them into bioplastic, helping to solve the increasing problem of waste and plastic pollution in one of the country's largest and most highly populated cities, Cebu City.



Shell
NXplorers

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Waste management is one of the most pressing issues facing the world today. For highly progressive and heavily populated areas, like Cebu City, the use of plastic has aggravated this problem. Studies show that by the year 2050, the amount of plastic will surpass the number of fish in the world's oceans, with a ratio of at least 1:1, which inherently endangers our water supply.

Meanwhile, corn, a widely produced crop in the region used in both the food and feeds industry, adds to the waste problem. Each year, 4.4 million tonnes of corn waste is discarded and thrown away from corn production.

NXplorers students from the University of San Carlos saw an opportunity to develop a local and sustainable solution to this ever-growing global waste problem. They took abundant and readily available resources in their community – waste corn husks and seaweed – to produce bioplastic, a biodegradable version of the current plastics commonly used for packaging.

Students used NXthinking and the NXplorers toolkit, a set of tools and methodologies that help students think critically and creatively. These are the steps they followed...

REFRAME THE PROBLEM

The students saw their local community's growing waste management problem, which was caused mainly by the massive use of non-biodegradable plastic and aggravated by the additional corn husk waste from corn production. Instead of discarding this waste, they decided to use it as the main material for their zero-waste approach to a global problem.

REINVENT BIOPLASTICS

The NXplorers students harnessed the fiber from corn husk waste and combined it with another locally available organic material: seaweed, or 'guso' in local dialect. The carrageenan component of the seaweed acts as the binding and emulsifying agent that helps create a bioplastic that degrades much faster than commercial plastics used as



packaging. Both components in making this are locally sourced with almost zero to minimal cost.

RETHINK WASTE MANAGEMENT IN THE PHILIPPINES

This new corn husk and seaweed-based bioplastic offers an accessible and localized way to slowly replace commercial plastics. With its natural and degradable properties, this alternative poses no threat to the environment and contributes to the country's sustainability efforts. Promoting the use of natural alternatives would decrease the demand for non-biodegradable plastics and help ease the pollution challenges facing local communities today. Globally, it could pave the way to ending plastic dependency and prioritizing more sustainable solutions to waste management instead.



CONCLUSION

This project started with a waste management problem in the local community, but expanded to help solve problems of plastic dependency and water pollution. This project contributes to the UN SDGs 3, 6, 11, 12, 13 and 14.

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HOW THIS PROJECT CONTRIBUTES TO THE UN SDGS

3. Good health and well-being

Ensure healthy lives and promote well-being for all at all ages

6. Clean water and sanitation

Ensuring access to water and sanitation for all

11. Sustainable cities and communities

Make cities and human settlements inclusive, safe, resilient and sustainable

12. Responsible consumption and production

Ensuring sustainable consumption and production patterns

13. Climate action

Take urgent action to combat climate change and its impacts

14. Life below water

Conserve and sustainably use the oceans, seas and marine resources for sustainable development

