

Rising Above Challenges: Youths Solution to Clean Water Access

The Inspiring Journey of Youth Innovators behind the Pori Eco Drill: Bringing Life-Saving Water Solutions to Underserved Communities.

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From Adversity to Innovation

In the heart of Tanam, Wampar LIG, Lae, Morobe Province, a group of passionate and resourceful youths has ignited a ripple of change. Faced with daily struggles to access clean water, these young innovators decided to rewrite their community's story by creating a life-saving solution from salvaged materials. Their invention, the *Pori Eco Drill*, is not just a machine; it is a light of hope for underserved communities and a testament to the power of creativity, resilience and teamwork.

The Problem That Sparked a Vision

Water scarcity has long been a pressing issue in rural areas. Women and girls often bear the burden of this crisis, walking long distances to fetch water, a task made even more discouraging by the dry season. Communities relying on rainwater face dire shortages, while the high cost of imported drilling machines further limits solutions. For the youths of Tanam, these challenges became a call to action.

Guided by the vision to empower communities through affordable, sustainable water access, the group embarked on an ambitious journey. Under the mentorship of community development advocate Luke Abor, they set out to create a portable, low-cost borewater drilling machine that could transform lives.

Introducing the Pori Eco Drill

Named with intention and satisfaction, the *Pori Eco Drill* symbolizes grassroots creativeness. "Pori" means "tool" in their local language, "Eco" emphasizes sustainability and "Drill" reflects its core function. Every component of the machine tells a story of resourcefulness:

- **Car Differential:** Repurposed from an old vehicle, this crucial part provides the rotational force needed to power the drill.
- **Drill Bits:** Crafted from flat iron sheets and damaged exploration bits, these are adapted to tackle various soil types.
- **Drill Pipes:** Engineered to transfer rotational force and flush debris during the drilling process.
- **Chain Block and Pulley System:** Ensures efficiency and ease in raising and lowering the machine's components.
- **Engine Head:** Powers the entire operation while maintaining portability.
- **Drill Tower:** Constructed from galvanized steel pipes, it combines durability with a lightweight design for transportability.

By combining traditional knowledge, technology like geographic information system and with the availability of resource information data, the team has enhanced their ability to locate underground water sources, minimizing wasted effort and maximizing success.

Impacting Lives

The *Pori Eco Drill* has already brought transformative change to communities. Its affordability, portability, and simplicity make it accessible to even the most remote villages. Here are some milestones achieved by the group:

- **Church and Community:** Supplying clean water to the Pentecostal Apostolic Church in Kamkumung and its surrounding area.
- **Residential Use:** Supporting homeowners in Igam with reliable water access.
- **Agricultural Support:** Assisting farming projects, including poultry, piggery, and proposed inland fishery initiatives in Markham Bridge and Tanam.
- **Water Assessments:** Conducting surveys in Labu Butu, Morobe Province, You, East Sepik Province and Erima, Madang Province.

Each borehole drilled is a step closer to alleviating water scarcity, empowering communities, and fostering self-reliance.

Challenges That Shaped Their Resilience

The journey to innovation was not without obstacles. With diverse backgrounds—from unemployed youths to secondary school students and vocational trainees—the team had to overcome limited technical expertise, material shortages, and design hurdles. Aligning the car differential with the engine and optimizing the machine for varying soil types required ten (10) months of trial, error, and collaboration. But their determination never wavered, proving that innovation thrives in the face of adversity.

Scaling the Ripple of Change

Having proved the impact of their invention, the group is now looking to scale their efforts. Their plans include:

- **Expanding Partnerships:** Collaborating with NGOs, local governments, and development organizations to bring clean water to more underserved areas.
- **Community Training:** Conducting workshops to empower other communities to adopt and operate the *Pori Eco Drill*.
- **Enhancing Technology:** Integrating solar-powered engines and improving water-locating accuracy.
- **Broadening Reach:** Targeting additional rural regions where water access remains a critical issue.

Inspiring a Movement

The story of the *Pori Eco Drill* is more than a tale of innovation; it is a call to action. By addressing a fundamental need with ingenuity and collaboration, these youths have shown that local solutions can address global challenges. Their journey is a powerful reminder of the untapped potential within communities, waiting to be nurtured and unleashed.

As the *Pori Eco Drill* continues to transform lives, it also inspires others to dream, innovate, and act. Together, we can create ripples of change that grow into waves of progress, proving that even the smallest tools can make the biggest impact.

Contact

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Photographs



Front row (L-R): Elijah Kreml, Emmanuel Monup, Junior Lloyd Maraisek. Back row: Seth Kalem, Isidor Makis and Hillary Stone with their PORI ECO DRILL machine.



Borewater drilling



Installing borehole casing



Installing deep well water pump



Bore | well water from underground