



The journey of Pontsho Maletsane, developer of an efficient irrigation system



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When South Africa won the Stockholm Junior Water Prize in 2005 through the 'Nocturnal Hydro Minimiser' innovation, Matobele Motshidi, Sechaba Semaketse and Pontsho Maletsane's dreams of becoming renowned water technology innovators were realised. WIN-SA recently met with Pontsho, who gladly took his time to share his story and allow us to understand his journey since winning this big national and international competition as a learner from Shaba Semaketse Combined School in the Free State Province.

Pontsho and his colleague Motebele have been involved in water projects and competitions since they started high school. Their journey started with water audits. The first ever competition they attended was



Pontsho Maletsane, Yellow Beast (Pty) Ltd

with the Department of Water Affairs and Forestry (now the Department of Water and Sanitation) and they went to, among others, Xhariep Dam and Clarens for the learner competitions. Since then they have been pushing for recognition in the water space.

Developing the 'Nocturnal Hydro Minimiser'

A 'Nocturnal Hydro Minimiser' system is designed to use water efficiently for irrigation by activating the water tap at night when evaporation levels are very low. It ensures that gardens are only watered when the soil has lost the necessary moisture needed by plants. This feature makes it more effective in saving water compared to some commercial models that provide water regardless of whether it is needed or not.

Pontsho says, "Our team entered the South African Youth Water Prize (SAYWP) competition with the hope of making it to another country outside of Africa. This was back in 2005. The idea was inspired by realising that at times after work, home owners in our area would prefer to irrigate their gardens at night. The evaporation levels are lower at night, so it makes water conservation sense."

"We made the realisation very early on that local challenges require local solutions. Even though this can be relative, it is likely the ones who go through the situation who can identify with what the target audience relates to as a challenge. That being said, because our idea was inspired by what we saw on a regular basis, it allowed us to ideate around that to come up with a solution," says Pontso.

"Another point was that sometimes when one goes to school, a neighbour's house would have a trail of water because the tap was not properly closed the night before. What we identified was that some users are not necessarily in touch with technology and that perhaps a solution was needed, and we came up with our idea for a water-saving device," he adds.

The 'Nocturnal Hydro Minimiser' is outfitted with four electrodes (metal bands) through which an electrical current is passed. The electrodes are inserted in the ground of the garden in order to detect the moisture levels that determine when the water tap is activated. The voltage difference is then measured between the electrodes. The greater the voltage difference, the lower the electrical conductivity of the soil which is in contact with the probe.

Pontsho says, "The 'Nocturnal Hydro Minimiser' has great potential to improve the lives of many rural communities in South Africa". Pontso adds, "We strongly believe that the project has prospects for commercialisation especially considering that it is much cheaper than other commercial models currently in the markets."

Bursary support after high school

Since winning the competition while they were at high school, Pontsho and Motebele have been working together

as a team. They realised the need to form a company, which they called Yellow Beast Technologies.

‘Our team has two civil engineering practitioners, one with a B.Sc in Engineering, the other with a National Diploma. Our career choices were informed by our interest in the supply of water in large quantities. We managed to get bursaries from several organisations including the Department of Water and Sanitation and South African Institution of Civil Engineering (SAICE).

Besides studying, Pontsho and Motebele have each augmented their professional training with voluntary work in associations such as SAICE (Pontsho) and the South African National Commission on Large Dams or SANCOLD (Motebele). These organisations have given us leadership qualities based on different experiences of the same fraternity.

Moving the technology to the next level

In some cultures, crisis and opportunity mean the same thing. It is simply a matter of perspective. Elaborating on how the journey has been so far Pontsho says, “In terms of developing a product from an idea, the biggest challenge we faced as youth from a historically (or currently, depending on one’s take) disadvantaged background is that ideas can hold a lot of valuable intellectual property, while at the same time requiring large amounts of initial capital investment, he confirmed”. “That being said, we struggled to get the most out of the novelty of our idea once we published it. Albeit that this was a frustration, it was not necessarily a setback. It has been an opportunity to learn, because although back then we struggled to get the idea off the ground, in today’s world of open source, it is easy to get information publicly, and then use it to develop an idea to a proof-of-concept, which in reality is the first foot in the door to barcoding the idea.”

Irrigation technology gets recognition in South Africa



Apart from winning the SAYWP and Stockholm Junior Water Prize in 2005, there has been further recognition of this magnificent irrigation technology by the Innovation and Incubation Programme of the Central University of

Technology (CUT) where Pontsho studied. The South African Breweries Kickstart Ignite event hosted in Braamfontein in 2016 saw Pontsho’s innovation getting first place, winning an amount of R400 000. SAB Ignite gave a chance to young entrepreneurs to showcase prototypes of their products. “Apart from Boost, which some readers may be familiar with, En-novate selected us as among the top 15 agricultural entrepreneurs in South Africa to go to Israel in February 2017”, adds Pontsho. “Lastly, AWARD/GAIA selected us as one of the top 30 AgTech startups in Southern and Central Africa in April 2017.

Pontsho has had the chance to speak about their journey on Power FM and at the Entrepreneurial Development in Higher Education (EDHE) event in March this year, and they were given a platform in June this year by the Department of Water and Sanitation and were also honoured to be invited by the Water Research Commission.

Getting the technology to market readiness According to Pontsho, the competitions they have participated in have raised enough capital for their organisation to develop further, through outsourcing a prototype based on a laboratory scale proof-of-concept to demonstrate the principle. Now, it is time for the prototype to be practically applied to a pilot programme so that they can test how their intended market will respond to it, keeping in mind that this is not a final product. “Therefore, the next phase is to raise more capital to roll it out to a small and controlled study group so as to extract enough data to not only improve our innovation for market readiness but to also innovate business models based on the data we will be extracting,” he says. “The biggest lesson we have learned is that there is never a time when one stops learning. It is even more beneficial to an individual to apply what they have learned so that they don’t repeat their mistakes.”

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