

Against all odds: Joel Ltilitan Bargul's journey from a nomadic life to a scientist



*Born in a Kenyan nomadic pastoralist family, **Joel Ltilitan Bargul** beat odds to attend school. In the interview below, Bargul, who is currently a PhD student based at icipe, narrates his academic journey, his ongoing research on the tsetse-transmitted African trypanosomes and his dream of setting up an animal diseases diagnosis facility within his community.*

I was born in Laisamis, a drought stricken region some 400 kilometres northeast of Nairobi City. I belong to the Rendille community who are traditionally nomadic pastoralists. Although in recent years this society has begun to settle down, when I was growing up in the 1980s we were frequently on the move, spending several weeks here and there depending on availability of pasture.

In addition, the value of education was poorly understood within the community. At the time, the main incentive for Rendille families to send children to school was the free lunchtime meals provided by most institutions. Indeed, many youngsters would be enrolled in school during the drought season, only to be removed when the rains came and food was more readily available. As such, most children did not learn in a regular manner. Moreover, the pastoralist lifestyle made it difficult for learners to attend one particular school continuously.

In my family, I was the only one of six children to go to school. I have no idea how old I was when I enrolled. When I was in class three, I dropped out of school for a whole year. Fortunately, a certain teacher spoke to my parents about the value of education and from then on, my mother made sure I stayed in school, resisting my father's attempts to assign me to fulltime goat-herding duties.

In 1997, I sat my Kenya Primary Certificate of Education (KCPE) examinations and qualified for admission to St Paul's Secondary School in Marsabit, the nearest major town to Laisamis. I worked extremely hard, driven by the goal of passing examinations rather than a clear career vision. When I took my 'O' levels in 2001, I attained an A- score, setting a new performance record at St Paul's at the time. I was admitted to Jomo Kenyatta University of Agriculture and Technology (JKUAT) in 2003 to pursue a BSc degree in biochemistry. During the four years of this course, I was continually awarded the Babaroa Trust Award, which is conferred annually to top performing students in each department across the JKUAT faculties. Further, after graduating on top of my class with a first class honours, I became the recipient of a scholarship set up by the then JKUAT Vice Chancellor, Prof Nick Wanjohi, which enabled me to commence MSc studies.

The MSc course was a huge turning point for me. First, I gained some clarity in terms of my career and how my work could directly benefit the Rendille community, opting to focus my research on the tsetse fly menace, which is a huge problem in Laisamis. Second, I was accepted to the *icipe* Dissertation Research Internship Programme (DRIP), which enables postgraduate students registered in any university in the world to conduct their research at *icipe*. My internship was based in the Molecular Biology and Bioinformatics Unit (MBBU), which is a leader in tsetse fly research in Africa.

Tsetse flies are the vectors of the devastating trypanosomiasis disease, which afflicts people (sleeping sickness) and domestic animals (nagana). Currently, there is no promising vaccine in the horizon and treatment efforts are constrained by increasing drug resistance by the parasite. Therefore, alternative methods to control trypanosomiasis and its transmission are needed.

In my MSc research, conducted under the supervision of Dr Dan Masiga, the head of MBBU, I concentrated on the role played by a putative water channel protein identified in the salivary glands of tsetse, *Glossina pallidipes*, in relation to the vector's feeding and survival. The salivary glands of tsetse are extremely important, as it is in them that the trypanosome parasite develops into its infective metacyclic stage. Moreover, the tsetse's saliva allows the parasites to mature and also acts as the vehicle for their transfer to the host through a blood meal.

Immediately after completion of my MSc. in 2011, I enrolled for a PhD, still based in *icipe*'s MBBU. My research, which is ongoing, focuses on African trypanosomes. I am registered at University of Wuerzburg, Germany, under the supervision of Prof. Markus Engstler. My research project is a collaboration between the University of Wuerzburg and *icipe*, and it aims to understand the biology of trypanosome, the parasite that causes trypanosomiasis, so as to identify novel targets for the control of the disease.

Being at *icipe* has placed me in a unique position of advantage. I have been able to contribute to the advancement of knowledge towards the eradication of the tsetse fly menace. I have also acquired significant scientific skills and techniques in molecular biology that not only advance my own capacity as a scientist, but which could enable me to make a real difference to the Rendille community.

One of the problems that I would like to address is the lack of proper diagnosis for livestock diseases in Laisamis. Often, when animals fall sick, farmers purchase drugs over the counter without any clear idea of what they are ailing from. Many times the animals do not survive. My vision is to help set up a diagnosis facility in Laisamis, so that farmers can obtain the right treatment for their animals and minimise livestock losses. In recent years, more and more young people in the region have been attending school. My dream is to continue developing my own ability as a scientist, while nurturing this emerging resource to manage such as facility, towards safeguarding the livelihoods of people in our community.

(Story by Liz Ng'ang'a, *icipe*)

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