INTERVIEWS

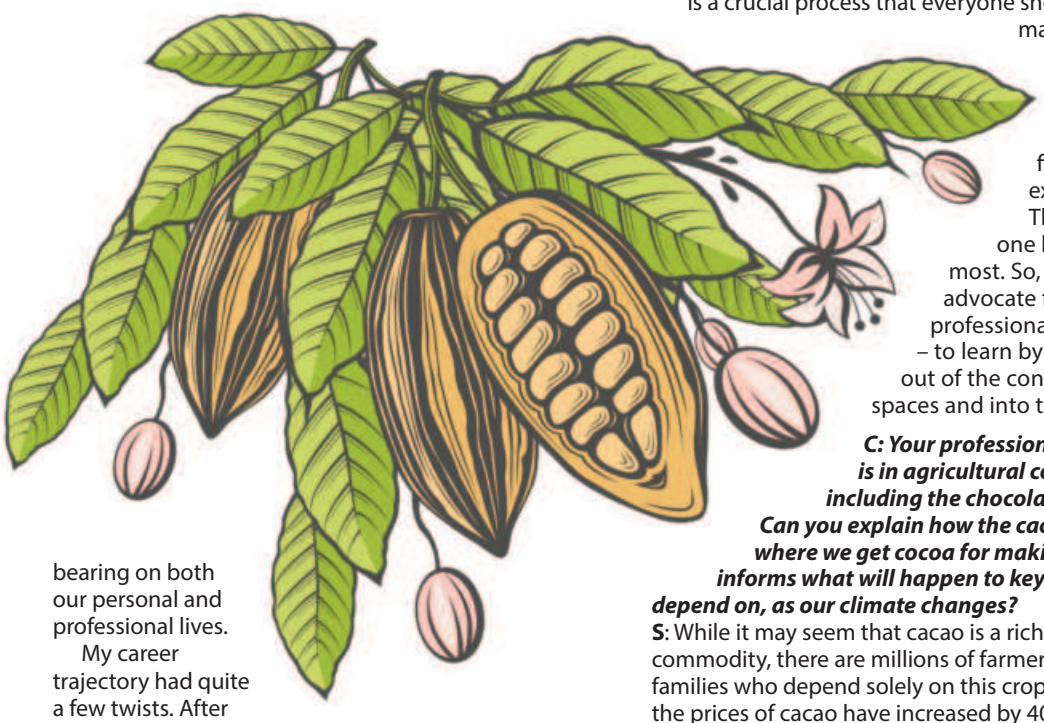
Carbon emissions, climate change, and the cacao tree

In conversation with Shams-il Arefin Islam

Shams-il Arefin Islam is based in the United States and works in the agricultural landscape, helping manage and design proposals for innovative solutions. He is a Yale Berkeley College fellow, and a former Global Scholars fellow. Shams is a classically trained tenor and has sung in concerts in Bangladesh and the United States. He is currently writing two books – one for children and another on the dangerous journeys made by Bangalis escaping the 1971 Liberation War.

Campus sat down for an interview with Shams where he talked about his work and shed light on how the cacao tree acts as an early climate alarm bell.

Campus (C): What led you to pursue a career in environmental management and climate? What were some of the challenges that you faced along the way?
Shams-il Arefin Islam (S): As a child, I was always climbing trees, and my favourite cartoon was Captain Planet on Bangladesh Television (BTV). The show, towards the end of each episode, would explain some of the immediate challenges that our planet faced – from waste to air pollution and what we can do to help reduce it. In retrospect, I believe the show had a significant impact on how I saw our planet. I strongly believe that being exposed to appropriate messaging during our youth, when we have a clean slate to work with, can have a direct bearing on both our personal and professional lives.



My career trajectory had quite a few twists. After receiving my degree in Business from the US, I was not able to immediately land a job due to the on-going global financial crisis back then. As a result, I had to leave within 60 days after my visa ended, which made me feel like a failure. However, I turned my fate around by listening to my parents. I furthered my education in Bangladesh, learned a new language, and gained distinctive and strong professional experience in a developing country which would be an asset to companies and organisations.

I had a unique opportunity to work on social business initiatives, and then for two Schwab Foundation fellows on waste-to-resource conversion projects. It gave me a lot of insights not only into recycling but also into soil health which is critical for agriculture. After work, I would study under professors Mizan Khan and Nurul Amin in Dhaka, both of whom had a wealth of knowledge to share on development and economics. Eventually, I went back to the US, where I pursued a master's degree, and started working with US companies sourcing agricultural commodities from developing countries.

C: What was your experience of working in Bangladesh? Can you provide some insights into this field for our readers?
S: While not unique to Bangladesh, a critical challenge here is that policy and law lag far behind the pace at which technology moves and what our society immediately needs. By the time there is policy approval through a complex process to adopt an efficient agricultural practice or piece of technology, years may have passed. Furthermore, the lack of long-term vision and unnecessary politicisation of society's existential needs can have far-reaching consequences on the farmers to the end consumers and the national coffers.

I strongly feel that if you want an entire generation to suffer, then stall the quality of education. Finding excellent teachers and gaining professional experience is a crucial process that everyone should properly map out.

Moreover, there is nothing better than field-level experience. That is where one learns the most. So, I strongly advocate for students and professionals – at all levels – to learn by venturing out of the confines of office spaces and into the fields.

C: Your professional experience is in agricultural commodities, including the chocolate supply chain. Can you explain how the cacao tree – from where we get cocoa for making chocolate – informs what will happen to key crops that we depend on, as our climate changes?
S: While it may seem that cacao is a rich man's commodity, there are millions of farmers and their families who depend solely on this crop. Even though the prices of cacao have increased by 400 percent recently, farmers, sadly, only receive around six percent of the final sale of a chocolate bar. The price increase has little positive impact on farmers or consumers, who end up paying more for less chocolate. Many companies are responding to wrinkles in the supply chain by using less cacao solids and more artificial fillers and flavours to make up for deteriorating cocoa quality and supply.

But there is more to the chocolate problem. I take the cacao tree as a litmus test that we must not ignore. The tree acts as one of the early climate alarm bells. It informs heavily how other key agricultural commodities, like rice, wheat, and bananas, will

respond to rapid changes in our earth's climate.

The cacao ecosystem grows in the Goldilocks zone – 20 degrees above and below the equator and very sensitive to Earth's climatic changes. The cacao plant is extremely sensitive to heat, humidity, water, and soil conditions, and new trees require around three years to produce fruit. To make matters worse, there are rapidly moving diseases such as the cacao swollen shoot virus which thrives in a changing climate. Its production output and quality can foretell the sensitive parameters of our key crops that the world's population depends on.

We have seen around 14 percent reduction in cocoa supply in just the past year and we can see that farmers are already increasing their use of chemical fertilisers and pesticides. Since we have already breached the 1.5 degrees Celsius limit, the prognosis of this new tipping point is a risk to all our food commodities replicating what we are seeing with sensitive cocoa plants.

C: You are also focused on this relatively new term of "insetting" within the agricultural supply chain. Can you explain the difference between "insetting" and "offsetting" of carbon emissions?
S: Offsetting is a common term used to balance carbon emissions after an emission has already been made. This can be done through, for example, carbon capture technology that can either be mechanical or natural such as afforestation. The key word here is "after" the emission has already been made.

Insetting, on the other hand, means stopping the carbon emissions even before they have a chance to be released into our atmosphere. This is done by focusing on mapping a commodity's supply chain and using tools such as regenerative agriculture to significantly reduce the possibility of emissions. Therefore, if companies can reduce their emissions at the source before it is released, then we benefit both from increased agricultural output due to improved farming practices and reduce the need for offsetting later.

We cannot move forward to address global emissions without offsetting and if we do not adopt rapid insetting, then we will have to offset to perpetuity. Thus, we need both mechanisms in our toolbox to address the deteriorating climate.