

Tonima Tasnim Ananna's visionary aspirations

How the Bangladeshi astrophysicist made it to SN 10: Scientists to Watch

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The underrepresentation of women and girls in leadership positions and higher education in fields of science remains a systematic problem. However, over the last few decades, the scenario has changed significantly. Now, more than ever, women around the world are shattering centuries of misbeliefs and making noteworthy contributions in science.

One such young woman is Bangladeshi astrophysicist Tonima Tasnim Ananna, who recently topped the 2020 edition of *Science News* (SN) magazine's SN 10: Scientists to Watch, for her outstanding work and research on black holes. The American bi-weekly magazine is devoted to articles about new scientific and technical developments, typically gleaned from recent scientific and technical journals.

The scientists for this list were nominated by Nobel laureates, elected members of the U.S. National Academy of Sciences or previous SN 10 scientists. SN then chose ten people by reviewing their research content and impact in their respective fields.

Tonima's interest in astronomy grew from an early age when her mother told her stories about the Pathfinder spacecraft landing on Mars when she was just five years old. Since then, Tonima dreamt of becoming a scientist. "I wanted to be a 'scientist' without really knowing what the job entails. I could not visualise being anything else," she shares.



Tonima Tasnim Ananna

PHOTO: COLLECTED

She attended Bryn Mawr College for her undergraduate education in Pennsylvania, USA. Bryn Mawr, being an all-women college, shaped up Tonima's perspective as a feminist and helped her to truly mature as a person.

Currently working as a Postdoctoral Research Associate at Dartmouth College, Tonima was an intern at NASA and CERN. She travelled to the European particle physics laboratory near Geneva, and spent a year at the University of Cambridge.

Tonima has successfully captured the most complete picture yet of black holes across the universe, with the help of artificial intelligence. For her PhD from Yale University in 2019, her goal was to create a model of how black holes grow

and change across cosmic history.

The first project for her PhD thesis was to understand whether the objects detected through X-ray telescopes were black holes or star-forming galaxies, then distinguishing and calculating the distances between light coming from the galaxy and the area surrounding the black holes to their sources. Her second project was to gather data from telescopes to understand how the supermassive black holes grew, the environment in which they reside, and the impact they have on their host galaxies.

When asked about her goals as a scientist, Tonima shared that it is to further our understanding of the universe. "I want to make contributions that make

other people's work easier, and I want profound 'eureka' moments in my career," she says.

In her career, Tonima is deeply inspired by noted American physicist Richard Feynman and also by her PhD advisor Professor Meg Urry of Yale University. "In life, I look up to Begum Rokeya for her abrasive vision," shares the young scientist. "I am inspired by my parents for their fighting spirit and my life partner for being a true feminist."

Although women's education in Bangladesh is prioritised in most parts of the country today, household and familial responsibilities are still barriers for women who want to go out and work. "Time and again, I have seen female relatives give up on careers that they have worked very hard for to pay attention to their families, while no one ever expects or demands this type of sacrifice from men," says Tonima.

She asserted that unless we make a major shift in household dynamics, there won't be more Bangladeshi women aiming to build careers in science. According to her, the lack of research bases is also a major reason for Bangladesh's low contribution to science. Tonima believes that we need to be more supportive of our younger generation when they want to pursue unconventional career paths. Her outstanding work will inspire aspiring scientists across the globe for years to come.

The author is a freelancer and a night owl who loves binge-watching, reading and writing. Write to her at rasheekmondira@gmail.com



Members and ambassadors of Ek Takay Shikkha.

PHOTOS: COURTESY OF EK TAKAY SHIKKHA

Fulfilling dreams with 1 taka

SADIA TAHSIN

Ek Takay Shikkha, a social organisation, has been in operation since 2017 with a mission to ensure that one's financial condition does not restrict them from acquiring an education. It started in July 2017, when a group of Chittagong University students were hanging out, and some underprivileged children by the street asked them for money. The students realised that there were children around them who could not afford an education due to the financial limitations of their families. In order to change things, they took matters into their own hands, and started teaching those underprivileged children from the very next day. Eventually, they bought school supplies for the children and enrolled them at proper schools.

The founding members of Ek Takay Shikkha include Md Rizuan, Abdullah Md Saeed Safi, Md Hamidur Rashid Sohel, Md Istiak Azam, Nishat Soultana Chy, Bibi Asma, Md Zobaer Hossen, Bibi Mariam Snigdha, Tarannum Jamal, Shihab Jahin, Md Riaz Hossain, Md Akram Hossen, Mst Jannatun Naima, Syed Md Al Irfan, Morshedul Islam Rifat, MD Shamsudoha Shourov, Md Nayeem Uddin Bhuiyan, Md Safayet Ullah, Md Omar Kaisar, Nowrin Sultana, Humaira Tasrin Tania and Md Nurul Amin Khokon.

Md Rizuan, the Founder and President of Ek Takay Shikkha, came up with the idea that even if each person donates one taka daily, with a large enough group of contributors, they could ensure the education of several underprivileged children.

With the motto "Give one taka daily, change Bangladesh gradually", Ek Takay Shikkha has now grown into an organisation with around 2,000

registered members and more than 200 active members and ambassadors. The organisation's team has helped around 4,000 children so far.

Ek Takay Shikkha's team currently operates in Feni, Cox's Bazar, Patuakhali, and Barishal, but they hope to spread their initiatives across all 64 districts of Bangladesh. They started with renting a room in Chattogram, where volunteers ran academic classes and



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co-curricular activities for the children. "One taka may seem insignificant, but it makes a difference for a student in accomplishing their dreams," says Md Mobassherul Azim, an active member of the organisation.

However, in the initial days, these children were unwilling to commit, and often dropped out, since they could not ensure their daily bread and water. Subsequently, the organisation

reached out to those who were struggling financially and were unable to pay the fees for their examinations, and helped them to continue their classes. Moreover, they provided financial support as well as mentoring for students who were planning to apply to universities.

Several of these students are now studying in Dhaka University, Chittagong University, and other institutions across the country. Tarannum Jamal, Joint

Secretary of Ek Takay Shikkha says, "The blessings that we receive from the students and their families, we don't need anything more than that to be happy." "Project Agaami", an initiative by Ek Takay Shikkha, aims to inspire students to pursue higher studies in the future. For that, the organisation's team has arranged seminars about the importance of higher studies, in many rural areas. "The inquisitive mindset of the students

motivates us to keep going", shared Asma Kaspi, Assistant General Secretary of Ek Takay Shikkha.

Moreover, they provided school supplies to many institutions in rural regions around Bangladesh. Even during the Covid-19 pandemic, their volunteers tried their best to support those in need, providing 2,500 hand sanitisers for free to several social organisations, and also supplying food for those who are not financially solvent. They also contributed to a project that provided PPEs to healthcare professionals and doctors during the pandemic.

Ek Takay Shikkha received the Best Idea Award in the SDG Genius competition and was recognised as Chittagong's Best Social Organisation. Nishat Soultana, General Secretary says, "Winning the Joy Bangla Youth Award 2020 was a huge motivating force. Now, the main idea of our organisation has spread all across the country."

Ek Takay Shikkha now has a working website, where donors can not only see how much money they have invested into the project, but can also see for which purpose their donations are being used. Interested donors can register on the website. Through their initiatives, Ek Takay Shikkha's team hopes to contribute to the 4th Sustainable Development Goal to provide quality education for all. "We have received praise as well as criticism during our journey, but my belief is that we will continue our endeavors because of how they spread unconditional happiness," concludes Abdullah Md Saeed Safi, Senior Vice President of the organisation.

The author is majoring in Marketing at North South University, with the aim of becoming a marketing mastermind someday and furthering her career in academia. Reach her at iloverachelgreenclub@gmail.com.



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YOUTH OPPORTUNITIES

BookPecker Fellowship Programme 2021 | PeaceX Literacy Project

Project BookPecker aims at providing education to the most marginalised. They welcome individuals who wish to join a global network of emerging impact leaders and those who believe in education being the instrument that can aid in bridging the gaps and divides in all milieus, be it social or economic. With an opportunity to interact and learn from teachers, academicians, leaders and humanity from diverse backgrounds, the BookPecker Development Fellowship aids not just the thousands of lives you touch, but also your very own self.

DEADLINE: January 25, 2021 | Fellowships



CISCO Global Problem Solver challenge 2021

Cisco Global Problem Solver Challenge aims to recognize new business ideas that leverage technology for social impact from early-stage entrepreneurs around the world. Our goal is to advance early-stage projects that are beyond the concept or idea formation stage, but which have not yet generated over \$1M USD in funding and/or revenue. Applicants may be nonprofit or for-profit business entities, or they may not yet have formed a legal business entity.

DEADLINE: January 30, 2021 | Awards

Call for Submission: TED Global Idea Search 2021

TED Global Idea Search is now open for fall 2021. TED is hosting two global idea searches in 2021 with a mission: to hear big, bold ideas from every corner of the world. TED is looking for ideas that are new, unique, and can offer an insight or a new way of thinking to a very large audience. A TED Talk usually has a topic and an idea. A topic is a high level — the general direction you want to take the talk. Topic example: We need to fix the opioid crisis.

DEADLINE: January 21, 2021 | Conferences