'We need to use water to our advantage and learn to live with it'

Marina Tabassum, *a seasoned architect who won the prestigious Aga Khan Award for Architecture and the Jameel Prize for designing the Bait Ur Rouf Mosque in Dhaka, talks to The Daily Star's* **Naznin Tithi** *about the future of housing in flood-prone and coastal regions as well as the importance of local knowledge for a sustainable solution to housing.*

Climate change is now very much real in Bangladesh as we have been witnessing increasing incidents of natural disasters such as cyclones and floods. This year's flood has inundated more than one-third of the country and it is feared that around 75 lakh people would be affected. Millions of people could also become climate refugees, losing their homes because of the projected sea level rise due to climate change. Given the situation, what kind of housing is needed or would be sustainable in the flood-prone and coastal areas?

One thing that needs to be kept in mind is that floods in northern Bangladesh are not always directly connected to climate change. Quite often, the cause is misregulating the natural flow by our neighbouring country. That doesn't, however, mean that we're not vulnerable to climate change. Also, housing cannot be viewed as a singular action. We need a multidisciplinary, holistic approach to the crisis anticipated due to climate change.

The first step to address the climate crisis would be to accept water as an integral part of our future. As such, we need to learn to use and manage it to our advantage and learn to live with it. Ours is a waterscape and any line we drew to define water's boundary has failed miserably for decades. We are located on the Ganges estuary and two-thirds of our land mass is created by progradation into the sea. So, what we consider land was historically part of the sea. In addition, we are climatically in the subtropical region where monsoon is predominant. So, our perception of a land-based country must go through a process of reorientation. There is no example in the world for us to follow. We have to create our own examples.

With sea level rise, we can anticipate unfamiliar occurrences and changes. As such, our investigations need to focus on living with water. The positive side of our story is that we are resilient as a nation and we can adapt and appropriate. As such, our research must focus on amphibious structure, mobile structure for both living and farming.

You have recently exhibited, at the Sharjah Architecture Triennial, lightweight houses made from locally sourced materials that perch on stilts and can be moved when the waters rise. Tell us more about your research on such houses. Also, as these houses are easy to assemble and disassemble, can these be built at an affordable price for the coastal communities?

For the Sharjah Architecture Triennial, we were commissioned to research the rights of future generations in the dynamic landscape of the tide-dominated Ganges Delta. We focused on Haimchar in the lower Meghna where the delta is active. Our multidisciplinary team included architects, geographer, landscape architect and historian, and the objective was to have a holistic understanding of the phenomena of erosion and accretion. Our investigation also looked into Bengal Tenancy Act imposed by the British colonial rule on a dynamic riverine delta in order to collect revenue from the local inhabitants through a cadastral subdivision known as the CS map. This saw an imposition of a practice of dry culture on the wet culture of the Bengal Delta. We talked to local inhabitants and documented their stories, some of whom left Haimchar as landless migrants to Dhaka. We will see many such climate migrants moving to cities for opportunity in the years to come.

The houses that people built in these belts that follow the Brahmaputra trajectory originally followed a knock-down system. You can find houses that have moved seven times in the last 60 years and are handed down from one generation to the next. It's not something we invented but we highlighted and suggested a few simplified solutions to enable quick disassembly and assembly. The houses have frame structures with knockdown façades. The cost can vary according to the choice of materials.

In recent years, large furniture makers like IKEA came up with a flat pack system of houses that can be moved to different locations, which became news in architecture journals and magazines. Our vernacular architecture addressed mobility for over hundreds of years out of necessity of movement. This was also an underlying message to the world of architecture to look into local wisdom of building.

Marina Tabassum

Tell us about your low-cost housing project in the char areas…

Part of Haimchar resurfaced as a char some years ago. It is not yet ready to be inhabited by the landowners. Generally, they wait for four years for the char to settle. As it is a multidisciplinary holistic research project and we believe in minimal intervention, our investigation and study continue. We are looking into sociocultural aspects, the culture of building, the affordability and economy of the inhabitants.

How can local knowledge and materials help in building sustainable houses?

From years of engagement with rural communities, my understanding is that sustainable solutions come from local knowledge of building. As architects we can help with intelligent design solutions that can enable the communities with better living. It needs to be a collaborative process where one is enriched by the knowledge of the other and the outcome is generally a sustainable solution of housing.

I believe architects must opt for bottom-up processes rather than taking a presumptuous top-down process that quite often fails to relate to the needs of people. As such, the prevalent construction technique, availability of material and resource, basic requirements and aspirations of the people must be kept in focus.

What is your view on the flood-resistant floating house built by a team of Brac University students for the flood-prone areas?

Any initiative that is trying to provide solution to natural phenomena such as flood and cyclone is positive thinking towards resilient housing. We must acknowledge that ours is a waterscape instead of landscape. We must focus on how we can build up a symbiotic living relationship with water, and floating houses can be a viable solution for the future in flood-prone areas.

I see many young architects in our country focusing on community-based projects not only in the flood-prone areas but all over Bangladesh, which is very positive. The pioneer of such projects in Bangladesh, in my opinion, is architect Hasibul Kabir who is based in Jhenaidah. He has taken up many community-led projects in that area which are inspirational. He teaches at BRAC University too and has been instrumental in creating a generation of dedicated community architects. Any project that suggests a paradigm shift must include the communities in the design process. Only then can it have wider acceptance and a long-lasting effect. Kabir's approach of co-creation in that regard appropriates local needs and empowers local communities by engaging them in the process.

A case for 'counterfactual' thinking in policymaking

Nusrat Jahan

"COUNTERFACTUAL" is an arcane term in our vocabulary, sometimes even for someone with higher education. It is the language of science, understood and used by scientists. If we are not scientists, why do we even need to bother about counterfactuals?

In the simplest possible terms, counterfactuals tell us what could have happened but did not. More specifically, it is about what could have happened in the absence of a phenomenon. For example, a counterfactual question would be to ask what would have been the unemployment rate in Bangladesh in July 2020 had Covid-19 not happened. On the surface, it seems to be an inconsequential question, almost silly. Why should we care about something that could have happened when it did not happen in the first place?

In reality, counterfactual is one of the most fundamental concepts of science, used in determining cause and effect. Does a certain medicine cure a certain disease—in other words, does it cause the remission? What would happen to the disease without the medicine? Does a foreign degree cause your income to go up—what would happen if you do not get it? Does a school-feeding programme cause children's grade to improve—what happens to their grade without the school meal? Does a shock like the Covid-19 outbreak cause agricultural productivity to fall—what would happen to productivity in the absence of the pandemic?

Some of the answers may seem obvious. For example, we see foreign degree holders get highly paid jobs all the time, so we can safely bet on its efficacy. If we find that this year's agricultural productivity has increased from that of the last year, we will have a reason to believe that Covid-19 did not have any adverse effect on productivity.

But if we think counterfactually, we will realise that the answers are not always so simple. For example, what if those who study abroad are also more likely to be rich and have powerful friends and relatives? How would we conclude that their highly paid job is the result of their foreign degree, not the other factors? How can you decide on studying abroad, costing an arm and a leg, if you are not reasonably sure about the value of your degree? Can you know the value unless you do it yourself?

Similarly, the impact of Covid-19 on agricultural productivity may be confounded by many other factors. For example, if the weather this year is more favourable than the weather last year, agricultural productivity may increase. It is also possible that this weather-induced increase is so high that it offsets any loss of productivity that Covid-19 may cause because of labour shortage or inability to purchase inputs due to the financial crisis created by the pandemic. In this case, if we compare the productivity of this year with that of the last year, we may believe that Covid-19 did not have any negative impact on productivity.

Finding out the effect of something that did not happen seems impossible, right? But scientists have developed many clever and sophisticated techniques, such as Randomised Control Trial (RCT), to "simulate" the counterfactual scenarios and determine causal relationships.

> *With limited resources and too many problems to solve, policymakers always have to critically think about the what-if question.*

In a recent survey conducted by BIGD, Brac University, on the impact of Covid-19 on the Boro farmers in Bangladesh, we have found that Boro productivity this year is indeed better than that of the last year. Boro rice production in 2018-19 was 1,653 kilograms per acre (Bangladesh Bureau of Statistics, 2020). From our national survey, we estimate the per acre production to be 1,738 kilograms this year—about five percent higher than the production last year. But as it is clear by now, higher productivity this year does not mean that Covid-19 did not negatively affect productivity. That is why, applying our counterfactual thinking, we asked the farmers how much production they expected if Covid-19 did not break out. Then we asked them how much production they have got, or going to get (in case they have not yet harvested) in reality. Comparing these two estimates, we found that the approximate loss of production per acre caused by Covid-19 has been about seven percent.

To understand how Covid-19 affected Boro production, we asked the farmers about how the pandemic affected their production. They talked about labour shortages, delays in buying inputs (possibly because of disruption in transportation) and inability to purchase adequate inputs (possibly because their household income sources collapsed during the pandemic). These are all plausible reasons why productivity might have gone down. But if we did not think counterfactually, we would have simply compared the productivity this year with that of the last year and concluded that Covid-19 did not have any impact on Boro productivity! Of course, our calculation of the loss of productivity is imprecise as we had to rely on the mere estimate of the farmers about the counterfactual productivity. Yet, this estimate is better than mistakenly concluding that Covid-19 had no impact at all on productivity.

It is important to think counterfactually for better decision-making even if we are not scientists or researchers. Though in many cases, our good sense is good enough to make a decision. For example, we cannot let our children go hungry, and so nutritious school meal, especially in a poor region, is generally a good idea. But counterfactual thinking is crucial in too many cases of our personal and collective lives. Particularly, for policymakers, the implications of counterfactual thinking are astronomical. Whether to spend billions of dollars on a bridge, whether to invest in early childhood education, whether to tighten the monetary control—these are all counterfactual questions. With limited resources and too many problems to solve, policymakers always have to critically think about the what-if question.

In most cases, we cannot run scientific experiments to learn the cause and effect. But thinking counterfactually gives us a critical perspective that helps us make better decisions.

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