

When sun can dispel smoke

Solar irrigation and climate change in Bangladesh

MARIE-CHARLOTTE BUISSON and ARCHISMAN MITRA

IN 2020, climate disasters overstrained Bangladesh. First, the cyclone Amphan with winds up to 150 kmph crossed 26 districts from South to North on May 20. Then from July to August, the devastating monsoon flooded 33 districts of the country. These two events in only a couple of weeks suggest that climatic shocks' frequency and severity are on the rise due to climate change in one of the world's most climate-vulnerable countries.

The human and economic consequences of these climatic events are disastrous. Amphan killed 26 persons, damaged 149,000 hectares of agricultural lands, and affected more than a million people. A few weeks later, the floods submerged 159,000 hectares of agricultural land, affecting 1.2 million farmers directly and five million people in total. Unfortunately, the Covid-19 crisis and the resultant lockdown added to the climatic challenges by slowing down relief interventions, putting the displaced populations at risk of contracting the virus and increasing poverty for the most vulnerable.

Bangladesh contributes 0.22 percent of global carbon dioxide emissions, yet the country's engagement in addressing climate change is exemplary. In September 2015, in its Intended Nationally Determined Contributions (INDC) under the United Nations Framework Convention on Climate Change (UNFCCC), the country committed to reducing its Greenhouse Gas (GHG) emissions unconditionally by five percent by 2030 and conditionally up to 15 percent by 2030, if appropriate international support is provided. Building on previous targets for renewable energy, solar pumps for irrigation are one of the tools aiming to reduce GHG emissions in the agricultural sector by replacing diesel pumps as part of the country's engagement.

Early results from the Solar Irrigation for Agricultural Resilience project implemented by the International Water

Management Institute in partnership with the Infrastructure Development Company Limited (IDCOL) in Bangladesh indicate that solar irrigation pumps (SIPs) can meet the challenge of climate change: while it tackles climate change, it also potentially reduces poverty. Solar irrigation mitigates climate change by minimising GHG emissions and allowing farmers to adapt to the consequences of climate change. In addition, the SIPs are resilient to climatic and economic shocks and benefit vulnerable farmers. It means a win on four fronts of climate change: mitigation, adaptation, resilience, and equity.

There are in Bangladesh 1,969 operational solar irrigation pumps. Most of these (1,515) have been set up by IDCOL in areas with alluvial aquifers, located in Rangpur and Rajshahi divisions in the north-west and Khulna division in the south-west. From



PHOTO: COLLECTED

a survey conducted in 2020, SIPs irrigate an average of 7.6 hectares and provide irrigation to 42 farmers each, but they have the potential to serve even larger areas. The fee-for-service model has the potential to strengthen equity in access to irrigation services. Instead of privately owning a pump, buying water or renting a pump from neighbours, all the farmers from the SIP command area benefit from the same irrigation service at the same tariff. This tariff is set at a lower level than diesel-operated irrigation to benefit a larger number of vulnerable farmers. In the national figures, 24 percent of farmers in Bangladesh are tenant farmers, but from a representative sample of the SIPs which provided irrigation during the last two *khurif* seasons (one of the two distinct cropping seasons in Bangladesh), 36 percent of the farmers' beneficiaries were not owners of the land cultivated and irrigated, and were either sharecroppers (10 percent) or leasers (26 percent). In addition, 62 percent of them were tiny farmers cultivating less than 0.5 acres of land.

Second, solar pumps tick the box of climate change mitigation by minimising the risk of GHG emissions and climate disaster globally. Irrigation in Bangladesh depends on more than 1.4 million diesel pumps. According to our estimates, 3.5 million metric tons of carbon dioxide are emitted per year from the diesel pumps used for irrigation, corresponding to 4.4 percent of the total emissions. Solar irrigation, therefore, has the potential to slow down rising GHG emissions from the agricultural sector and ensure that the increase in energy access for farmers comes from renewable sources.

Third, solar pumps are also tools that can be used by farmers to adapt to climate change and minimise the losses from climate disasters such as those the country went through last year. When cyclones or floods hit, *khurif* harvests are at risk, but it is equally true in cases of droughts or irregular rains. Reducing the risks for the other seasons becomes, therefore, essential for food security and poverty alleviation. The solar pumps installed in Bangladesh are

designed to irrigate the water-intensive boro paddy cultivated in the dry season, but also to secure the harvests of more diversified cropping patterns. Hence, 49 percent of the SIP's gross irrigated areas throughout the year is cultivated with boro paddy, but a sizeable 22 percent is also cultivated with non-rice crops including maize, wheat, potatoes, tobacco and jute. This allows farmers to secure their paddy harvest during the dry season and diversify their cropping patterns, while accessing irrigation at a lower cost than with diesel operated pumps.

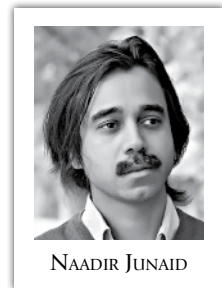
So, solar pumps have the potential to mitigate climate change and help farmers to adapt to climate changes, yet this prospect would be ruined in the case of climate shocks damaging the equipment, and if the service delivery became vulnerable to other shocks. The year 2020 has brought, in that sense, useful lessons. Out of a sample of 61 representative SIPs surveyed, only two among those located in Khulna had some damages due to the cyclone, and two located in Rangpur saw their command flooded. The Covid-19 pandemic also had limited effects on the operation of the solar pumps. Despite restrictions of movement during that period and challenges in selling the *rabi* harvest in 18 percent of the SIPs, the irrigation services were operational during the dry season. As a result, 92 percent of the due fees were collected by operators for the *rabi* season.

Ultimately, the objectives of climate change mitigation, climate adaptation, resilience to shocks and equity can converge by promoting solar irrigation where groundwater resources are renewable and not affected by arsenic contamination. Bangladesh, so far, has fallen short of the targets set in the 500 MW Solar Power Generation Plan and the Renewable Energy Policy of Bangladesh, but a push towards solar irrigation would help catch up and put the country on track.

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Did our independence decolonise our consciousness?



AT this time of celebrating the 50th anniversary of our independence, it is also necessary to think deeply about our success in eliminating the social and political injustices that existed in our country during the pre-independence

period. Careful examination is also necessary to perceive whether many people in our society had genuinely upheld the spirit of the Liberation War since our independence. Karl Marx regarded shame as a revolutionary emotion. For Marx, shame is a revolution in itself because this particular sentiment can transform temperaments by making people experience guilt and sadness for their misdeeds. People would only make attempts to rectify faults if they are ashamed of their wrongdoings. But if people do not have the consciousness of the necessity to reject greed, blind belief and prejudice, can we expect that they will ever become cognisant and ashamed of their unjust acts?

Our Liberation War against the Pakistani military regime signifies a resistance to tyrannical rule, communal hatred, and the ruthless oppression of innocent people. Sadly, social and political injustices did not cease to torment people after the independence of Bangladesh. Why do such problems perpetuate even after gaining liberation through a people's war? I remember a cogent statement from Argentine film theorists Fernando Solanas and Octavio Getino with regards to decolonisation: "The battle begins without, against the enemy who attacks us, but also within, against the ideas and models of the enemy to be found inside each one of us." Although we fought an oppressive regime for our independence, many of our politicians did not make conscious efforts in post-independence Bangladesh to rid their minds of the mental attributes of the Pakistani military-bureaucratic elite.

Military rule returned in our country within four years of independence. Even after the restoration of democracy in 1991, in order to reap political benefits, the two major political parties of the country maintained close cooperation with a former military general guilty of governing the country as an autocrat. In 1971, our countrymen emphasised Bengali cultural identity and religious harmony. But after 1975, the ban on religion-based politics was lifted and Islamist parties were allowed to take part in

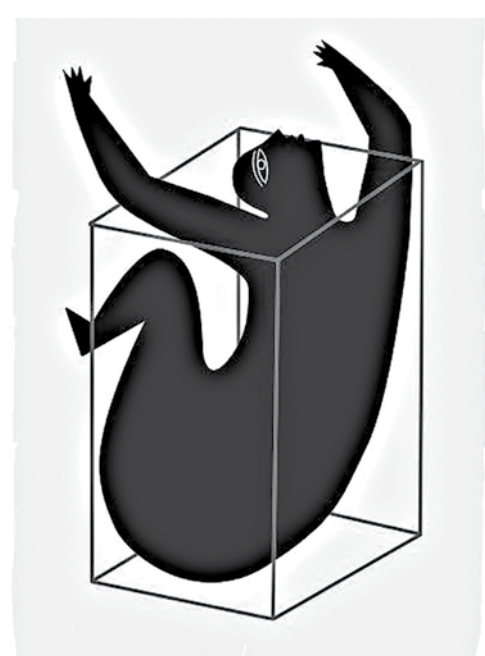


ILLUSTRATION: STAR

politics. The inclusion of religious idioms and rhetoric into politics appeared to be a regular phenomenon in Bangladesh since 1975. Despite their professed commitment to upholding the ideals of the Liberation War, the two major parties often appeased the communally-based political parties. Leaders of an Islamist party that sided with the Pakistani forces during our Liberation War also became ministers of a coalition

Economic development cannot be the sole marker of a country's success in ensuring the well-being of citizens.

government in Bangladesh. Over the past 30 years, terrorist atrocities by Islamist fanatics and attacks on minority communities took place several times in our country, revealing that certain groups of people subscribe to the ideology that is totally antithetical to the ideals of the Liberation War.

For eminent political thinker Frantz Fanon, it is not enough to merely achieve decolonisation—it is also necessary to decolonise the mind. He asserts that without instilling a change of consciousness in people, political freedom from colonial rule would just be a formal independence. It will not ensure actual freedom, and transgressions afflicting people in the pre-independence period would continue to persist in the independent country ruled by new leaders. According to Fanon, two requirements are to be fulfilled in order to achieve true decolonisation: the obliteration of the social, political and economic structures of the colonial regime, and the creation of a new people with a liberated consciousness.

Instead of incorporating mindless entertainment or doctrinaire statements, cultural ingredients in the newly-independent society should include edifying, socially-meaningful messages that appeal to the people's intellect. Art and culture should be used as instruments of education, prudence and social awareness to bring about revolutionary change in the individual's way of thinking. Due to the absence of the colonial political and administrative structures and through the influence of radical cultural creations and activities, a new

species of socially-conscious people would emerge who neither indulge in immoral acts nor put up with the attempts of political leaders to mimic the misdeeds of the former rulers.

Over the years, our country made substantial economic progress. But economic development cannot be the sole marker of a country's success in ensuring the well-being of citizens. Despite economic improvement, serious issues such as the lack of good governance, indifference to democratic principles, religious fanaticism, and maltreatment of ethnic minorities continue to jeopardise the social and political fabric of our country. Such problems perpetuate because sincere attempts were not made since our independence to bring forth a radical restructuring of consciousness via transformative cultural and political practices. The state did not instruct cultural producers to use their creations as instruments for raising a critical consciousness. Film, one of the significant components of mass communication, was not used in the newly-liberated country to reinforce the revolutionary spirit. On the contrary, the majority of our films retained the long tradition of offering escapist entertainment, thereby conditioning people's taste by triviality and shallowness. Lack of concern demonstrated in different decades by the government as well as the intelligentsia about the persistence of a pleasure and profit-driven culture can be seen as indicative of the leaders' failure to embrace ideas marked by a new consciousness.

Fanon also argues that political structures do determine political behaviour. The political and administrative structures of the colonial regime are specifically designed to ensure the privilege of the ruling few. Important ingredients of an egalitarian system such as accountability, transparency, rule of law and inclusiveness are disregarded within colonial rule. Therefore, in a country liberated from a colonial system, it is necessary to completely destroy the colonial structure instead of carrying out mere

structural reform of the polity. We struggled against the Pakistani colonial system, yet after liberation, we did not dispense with the colonial administrative and political structures. Didn't this indicate our adherence to "the ideas and models of the enemy" and our failure to decolonise our psyches? If political leaders are seen prioritising the protection of their own power and privilege rather than setting an example of selfless service to the people, there is a danger that the temperaments of their followers will be influenced by such greedy attitudes. Due to the lack of critical consciousness and political education, the masses will also dream of becoming privileged in a class-divided society, rather than realising the necessity to dismantle colonial structures that perpetuate social injustice.

Long-standing problems continue to persist in our society since 1971 due to the absence of new citizens with a revolutionary consciousness. We can keep discussing and complaining about continuing exploitation and injustice, but such evils will never cease to exist unless measures are taken, culturally and politically, to generate a psychic change among people. Such a change will enable them to be ashamed of their immoral acts and to oppose all kinds of oppression. As serious social and political issues exist in our country even after 50 years of independence, we should be aware of the necessity to transform our people into responsible, socially-aware citizens. Fanon rightly realised that the task of decolonising the mind is more difficult than achieving freedom from a colonial power. Just after independence, it was easier to create new people and to have an entirely new political system free from the undesirable traits of the colonial regime. Now, the task of decolonising the mind will be harder, but the challenge must not be avoided because only by attaining a liberated consciousness can individuals achieve true freedom in an independent country.

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QUOTABLE Quote

GEORGE SANTAYANA
(1863—1952)
Philosopher

Intolerance is a form of egotism, and to condemn egotism intolerantly is to share it.

CROSSWORD BY THOMAS JOSEPH

ACROSS

- 1 Collar insert
- 5 Criticize harshly
- 9 Cabaret charge
- 11 Distress signal
- 12 Past plump
- 13 External
- 14 Came in first
- 15 Pulling with effort
- 17 Timber business
- 19 Scottish denial
- 20 Make sport of
- 21 — relief
- 22 Stock unit
- 24 Driving aid
- 26 Game units
- 29 Actor Affleck
- 30 Ankle-to-waist

DOWN

- 1 Disapproving look
- 2 In addition
- 3 Get even for
- 4 Agreeable answer
- 5 Wallop
- 6 Bilingual woman, maybe
- 7 Sports spots
- 8 On-ramp sign
- 10 Really like
- 11 Veme's traveler
- 16 Left on the plate
- 18 Shocked sound
- 21 Ice chunk
- 23 Hardy
- 24 Grazing spot
- 25 Soft wool
- 27 Kidman of film
- 28 Medusa's hair
- 29 Spills the beans
- 30 Wasn't honest
- 31 Grain to grind
- 33 Dreary shade
- 37 Catch some z's

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BEETLE BAILEY

BABY BLUES

YESTERDAY'S ANSWERS

T	E	A	P	O	T	C	O	L	A
O	L	D	A	G	E	H	U	E	S
M	I	D	D	L	E	E	A	R	T
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A	W	O	L	I	T	A	L	I	A
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BY MORT WALKER

BY KIRKMAN & SCOTT