



West Bengal tango

The Election Commission has juked even the pretence of neutrality

From pleading helplessness before the Supreme Court in enforcing the Model Code of Conduct a month ago, the Election Commission has come a long way in asserting its powers. On Wednesday it took the rare step of ordering that campaigning in West Bengal's nine Lok Sabha constituencies that go to the polls on Sunday end earlier than scheduled. West Bengal had witnessed sporadic incidents of violence through the previous phases of polling, but on Tuesday tensions ran high after clashes during a roadshow of BJP president Amit Shah in Kolkata. The destruction of a bust of Ishwar Chandra Vidyasagar, the 19th century reformer and cultural icon of Bengal, by suspected BJP activists has put the party on the defensive in a State where it is making an all-out effort to expand its footprint. The EC may have had sufficient reasons to conclude that a 'fear psychosis' has gripped the State, and therefore campaigning must end prematurely. In TMC-ruled West Bengal, the entire government machinery, the district administration and the police, could quite possibly be at the service of the ruling party. However, the advanced deadline of 10 p.m. on Thursday to end campaigning was devoid of any logic or reason, other than being evidently partisan towards the BJP. The 10 p.m. deadline clearly accommodated Prime Minister Narendra Modi's last rallies in the State slated for Thursday evening. If in the EC's assessment campaigning could have led to violence, why did it not order its curtailment on Wednesday or early in the day on Thursday? Since the announcement of the Lok Sabha poll schedule, the EC's credibility has come under a cloud. The manifestly partisan decision on the campaigning deadline in West Bengal has further eroded trust in the institution.

Trinamool Congress leader and West Bengal Chief Minister Mamata Banerjee, who has been putting up a ferocious fight against Hindutva politics in the State, has expectedly found support from Opposition parties across the country. Most parties have been justifiably critical of the EC's conduct through this election, and it was not surprising that the latest provocation has revived their complaints. The Congress pointed out that the EC had dismissed 11 complaints it had filed regarding Mr. Modi's alleged violations of the MCC. The Samajwadi Party's Akhilesh Yadav said the decision went "against all norms of democratic fair play", while DMK president M.K. Stalin said there was a "BJP pattern" in the destruction of the Vidyasagar statue, connecting it to the vandalism of Periyar statues in Tamil Nadu last year. BSP chief Mayawati said Mr. Modi and "his stooges" were targeting Ms. Banerjee in a "dangerous and unjust trend". The BJP's assessment of West Bengal's importance for its chances of returning to power is understandable, but its strategy is threatening the peace in the State. The EC's action has only made matters worse, allowing Ms. Banerjee to play the angry victim in what is turning out to be the powder keg of India.

Slippery slope

India must not be a mute spectator as tensions rise in the Gulf

Iranian Foreign Minister Javad Zarif was in New Delhi this week as part of a regional outreach that includes Russia, China, Turkmenistan and Iraq amid rising tensions in West Asia. The U.S. has followed withdrawal of its sanctions-waiver for Iranian oil with a series of actions that it claims are in response to the perceived threat from Iran. It has recalled all non-emergency diplomatic staff based in neighbouring Iraq; sent an aircraft carrier, the USS Abraham Lincoln, missile defence hardware and B-52 bombers to the Gulf; imposed fresh sanctions on various Iranian entities; and slapped a terror designation for the Islamic Revolutionary Guard Corps. Iran has matched some of the rhetoric with threats that it would close off the Strait of Hormuz to trade and treat the U.S. carrier as a legitimate "target" if it came anywhere close to Iranian waters. Making matters worse, it is clear that the U.S. aims to pin on the Iranian government and military forces blame for attacks on two Saudi Arabian oil tankers over the weekend. U.S. National Security Adviser John Bolton's remark that "any attack on United States interests or those of [its] allies will be met with unrelenting force" gives the impression that the ground is being prepared by the U.S., aided by Saudi Arabia and Israel, for an escalation.

Given the signs of a gathering storm, India must consider not only its own interests in terms of its ties with Iran and with the U.S. and its allies, but also its position as a regional power. The External Affairs Ministry comment that the government would take a decision on Iranian oil imports after the elections appeared to be an attempt to buy time. The truth is that Indian oil importers have already stopped placing orders for Iranian oil in compliance with the U.S. diktat on "zeroing out" imports. India had been importing about 10% of its oil requirements from Iran, and the losses in terms of finding alternative suppliers in the face of rising oil prices are piling up. News reports also indicate that despite a U.S. waiver on the Chabahar port, banks in India and Afghanistan that planned to finance trade through the port are now being restricted by U.S. sanctions. Instead of being a mute spectator to the crisis that is building for India's energy bill as well as for regional stability, New Delhi must take the challenge head-on. One immediate priority is to work more closely with European countries in ensuring that Iran does not feel compelled to walk out of the nuclear deal, and to jointly build a sanctions-immune financial infrastructure to facilitate Iranian trade. It is necessary that the countries affected in the region meet urgently, as well as unitedly express concerns over a possible U.S.-Iran clash.

Why an industrial policy is crucial

No major country has managed to reduce poverty or sustain economic growth without a robust manufacturing sector



SANTOSH MEHROTRA

The contribution of manufacturing to GDP in 2017 was only about 16%, a stagnation since the economic reforms began in 1991. The contrast with the major Asian economies is significant. For example, Malaysia roughly tripled its share of manufacturing in GDP to 24%, while Thailand's share increased from 13% to 33% (1960-2014). In India manufacturing has never been the leading sector in the economy other than during the Second and Third Plan periods.

Core to growth

No major country managed to reduce poverty or sustain growth without manufacturing driving economic growth. This is because productivity levels in industry (and manufacturing) are much higher than in either agriculture or services. Manufacturing is an engine of economic growth because it offers economies of scale, embodies technological progress and generates forward and backward linkages that create positive spillover effects in the economy.

In the U.S. and Europe, after the 2008 crisis, the erstwhile proponents of neo-liberal policies started strategic government efforts to revive their industrial sectors, defying in principle their own prescriptions for free markets and trade. The European Union has identified sector-specific initiatives to promote motor vehicles, transport equipment industries, energy supply industries, chemicals and agro-food industries. The United Nations Conference on Trade and Development or UNCTAD finds that over 100 countries have, within the last decade, articulated industrial policies. However, India still has no manufacturing policy.

Focussing (as "Make in India" does) on increasing foreign direct investment and ease of doing business, important though they may be, does not constitute an industrial policy.

Even neo-classical economists accept government intervention in the case of market failures. Mainstream economists point to specific instances of market failure that require a government-driven industrial policy: deficiencies in capital markets, usually as a result of information asymmetries; lack of adequate investments inhibiting exploitation of scale economies; imperfect information with respect to firm-level investments in learning and training; and lack of information and coordination between technologically interdependent investments. These are good reasons why an economy-wide planning mechanism is needed in India. However, the Indian state should steer clear of the "command and control" approach that harks back to pre-1991 days

Key reasons for a policy

So why have an industrial policy in India now? First, there is the need to coordinate complementary investments when there are significant economies of scale and capital market imperfections (for example, as envisaged in a Visakhapatnam-Chennai Industrial Corridor). Second, industrial policies are needed to address learning externalities such as subsidies for industrial training (on which we have done poorly). In fact, industrial policy was reinforced by state investments in human capital, particularly general academic as well as vocational education/training aligned with the industrial policy, in most East Asian countries. However, a lack of human capital has been a major constraint upon India historically being able to attract foreign investment (which Southeast Asian economies succeeded in attracting).

Third, the state can play the role of organiser of domestic firms into cartels in their negotiations with



foreign firms or governments – a role particularly relevant in the 21st century after the big business revolution of the 1990s (with mega-mergers and acquisitions among transnational corporations). In fact, one objective of China's industrial policies since the 1990s has been to support the growth of such firms (examples being Lenovo computers, Haier home appliances, and mega-firms making mobile phones).

Fourth, the role of industrial policy is not only to prevent coordination failures (i.e. ensure complementary investments) but also to avoid competing investments in a capital-scarce environment. Excess capacity leads to price wars, adversely affecting profits of firms – either leading to bankruptcy of firms or slowing down investment, both happening often in India (witness the aviation sector). Even worse, price wars in the telecom sector in India have slowed profits (even caused losses), which hampers investment in mobile/Internet coverage of rural India where access to mobile phones and broadband Internet, needs rapid expansion. The East Asian state managed this role of industrial policy successfully.

Fifth, an industrial policy can ensure that the industrial capacity installed is as close to the minimum efficient scale as possible. Choosing too small a scale of capacity can mean a 30-50% reduction in production capacity. The missing middle among Indian enterprises is nothing short of a failure of industrial strategy. Contributing to the missing middle phenomenon was the reservation of products exclusively for production in the small-scale and cot-

tage industries (SSI) sector (with large firms excluded) from India's 1956 Industrial Policy Resolution onwards. By the end of the 1980s, 836 product groups were in the "reserved" category produced only by SSIs (which encouraged informal enterprises). Astonishingly, in 2005, there were still 500 products in this category, 15 years after the economic reforms were launched. Thereafter the reservation of products of small firms was cut sharply to 16 products. By then, small scale and informality had gotten entrenched in Indian manufacturing. Incentivisation to remain small in scale cost India

beyond simple, manufactured consumer goods to more technology- and skill-intensive manufactures for export.

In this quest for increased exports, economies of scale are critical. Such economies were not possible with the policy-induced growth of micro-enterprises and informal units (the unorganised sector accounts for 45% of India's exports).

Lessons from IT taking root

If evidence is still needed that the state's role will be critical to manufacturing growth in India, the state's role in the success story of India's IT industry must be put on record. The government invested in creating high-speed Internet connectivity for IT software parks enabling integration of the Indian IT industry into the U.S. market.

Second, the government allowed the IT industry to import duty-free both hardware and software. (In retrospect, this should never have continued after a few years since it undermined the growth of the electronics hardware manufacturing in India.) Third, the IT industry was able to function under the Shops and Establishment Act; hence not subject to the 45 laws relating to labour and the onerous regulatory burden these impose.

The Asian story
The East Asian miracle was very much founded upon export-oriented manufacturing, employing surplus labour released by agriculture, thus raising wages and reducing poverty rapidly. This outcome came from a conscious, deliberately planned strategy (with Five Year Plans). The growing participation of East Asian countries in global value chains (GVCs), grad-

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Is the future of Indian democracy secure?

Procedural democracy may endure but the liberal spirit is in danger of extinction



MOHAMMED AYOOB

Over the past few months, while observing the discussions and rhetoric surrounding the parliamentary elections, I have been struck by the disjunction between the concerns expressed, on the one hand, by the liberal elite who write in the English press and engage in debates on the more serious talk shows and, on the other, the preoccupation of the majority of Indian voters who will decide the winner of the electoral contest.

This article does not attempt to denigrate the concerns of the latter; it merely seeks to highlight the disconnectedness between elite and mass concerns and bring out its implications for the future of Indian democracy.

Three concerns

Members of the liberal elite are greatly worried, and rightfully so, about the future of political institutions that the founders of the republic had nurtured with great care. Several of these institutions, including the Supreme Court, the Election Commission of India and the Central Bureau of Investigation, which are constitutionally mandated to be autonomous agencies, have recently come under a cloud because of their perceived

inability to work independently of the political executive or because of the lack of transparency in their performance.

The other major apprehension is the threat posed to the "idea of India" as a plural and inclusive polity by the rise of Hindutva and its political instrument, the Bharatiya Janata Party (BJP). The Congress party's pursuit of "soft" Hindutva, as against the BJP's "hard" Hindutva, has heightened such concerns. This is why many members of the liberal elite are greatly worried about the visible transformation in the ideology of India's Grand Old Party.

The third major concern is the discernible rise in populist and authoritarian tendencies in the country reminiscent of Indira Gandhi's Emergency that threaten to reduce India to merely a procedural democracy where elections are held primarily to anoint populist leaders. This outcome, if it occurs, will be antithetical to the democratic ethos enshrined in the Constitution that Mrs. Gandhi had tried to subvert unsuccessfully.

Although I deeply sympathise with these concerns of the liberal elite, it occurred to me that whereas liberal intellectuals have been fixated on subjects such as the erosion of institutions, the rise of majoritarianism and the proliferation of populist and authoritarian tendencies, most voters are unconcerned about these issues. Very few, except for the religious minorities, are worried about the erosion of the pluralist idea of India.

Their concerns as they relate to



the electoral process are limited to three types of issues: jobs and livelihood; caste and communal considerations; and demonstration of Indian strength especially vis-à-vis Pakistan.

The first is perfectly understandable since a substantial segment of the population lives just above the poverty line and is constantly worried that it may be pushed below that line. Even middle class Indians feel economically vulnerable in the absence of a social safety net and are incessantly nervous about job insecurity. This explains the attraction of underpaid government jobs that provide life-long security and the fight for and against reservations in the public sector. The economic distress in the agricultural sector makes the rural population even more acutely aware of threats to their financial well-being, indeed to their physical survival. It is these economic concerns that have made both the ruling BJP and the Congress emphasise economically ameliorative measures (although most of them are unlikely to be implemented) in their election ma-

nifestos.

Caste and community continue to play a very important role in Indian politics. Several parties are explicitly based on caste or sub-caste coalitions. All parties choose their candidates based on caste and community calculations within individual constituencies and engage in mobilising caste-based support for their candidates. Voting on caste lines is taken as a given in elections and political pundits frequently base their prognoses of electoral outcomes on the caste arithmetic. At the same time, right-wing parties such as the BJP emphasise the religious divide in order to take advantage of communal consolidation on the basis of religion.

Favoured strategy

One factor that appears to cut across caste and linguistic divisions is the attraction for many voters to hyper-nationalism, sometimes bordering on jingoism. Hyper-nationalism has always been the favourite strategy of populist leaders seeking to retain or to attain power. It is no coincidence that this has become a prominent feature of these elections. The Pakistan-engineered terrorist attack in Pulwama and the retaliatory air strike on Balakot have provided an excellent opportunity for the expression of hyper-nationalist sentiments.

The ruling party has very shrewdly used this action-reaction phenomenon for electoral purposes especially by projecting the Prime Minister's image as a strong

and decisive leader capable of teaching Pakistan a lesson. A combination of the factors outlined above – lack of concern for institutions, preoccupation with livelihood issues, obsession with caste and community benefits, and the propagation of hyper-nationalism – taken together facilitate populism, which, as history shows, can easily lead to authoritarianism. The danger of this occurring is reinforced by the fact that there seems to be an innate desire among many Indians that a "strong leader" should rule the country and that institutions are redundant when it comes to people's daily concerns. In fact, many argue that the liberal elite's obsession with institutionalising the policy process is a luxury that a country in a hurry cannot afford and that a decisive decision-maker is preferable to the complicated mechanism of institutionalised decision-making.

The constellation of these factors, especially as depicted during the run-up to the elections, does not bode well for the future of democracy in India. Procedural democracy in the form of periodic elections may endure but the liberal spirit undergirding democracy, so cherished by the drafters of the Constitution, is in danger of becoming extinct.

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LETTERS TO THE EDITOR

Letters emailed to letters@thehindu.co.in must carry the full postal address and the full name or the name with initials.

Talking points

The unmistakable shift – from the real issues concerning the masses to the issue of majoritarianism by the ruling party – is palpable this general election (OpEd page, 'Single File', 'Rhetoric over real issues', May 16). The intrinsic hatred towards the minorities that has been carefully sown in the minds of the vast majority has grown to such an undesirable extent that it might determine the outcome of the general election – the last thing the country needs and also

marker to differentiate the BJP government led by Atal Bihari Vajpayee and that by the present incumbent. The venom spewing now is in stark contrast to what it was earlier when the minorities never felt so threatened as they are now. What it is that has appealed to the electorate will be known shortly. True patriots do hope that better counsel has prevailed upon those who have voted and that they have thought of real development in this great democracy.

G.B. SIVANANDAM,
Coimbatore

Battleground Bengal
It is no surprise that the bitterly contested Lok Sabha election in West Bengal has been ravaged by violence, the likes of which has not been seen anywhere else in the country. Violence and brutality seem to be running in the veins of West Bengal's politics. The political players in the news are equally responsible for letting their workers run riot. Stone-pelting, an exchange of blows and torching of vehicles are now par for the course. Politics in West Bengal, it

would seem, is destined to be distorted by the cult of violence.
J. AKSHOBHYA,
Mysuru

Remark and reaction
The Mannargudi pontiff's reaction to actor-politician Kamal Haasan's remark about Nathuram Godse is unfortunate (Tamil Nadu, 'Kamal won't have freedom of movement, says Jeeyar', May 16). A religious leader of stature should be restrained. One should not give too much publicity to what Mr. Haasan has said. We must remember the

words of E.M. Forster: "In public affairs... something much less dramatic and emotional is needed, namely tolerance".
C. RAJASEKARAN,
Kumbakonam, Tamil Nadu

Self-harm
What is the world coming too? It was deeply distressing to read the report, "Teenager takes own life after Instagram"

CORRECTIONS & CLARIFICATIONS:
The report, "EC doing BJP bidding: Trinamool chief" (May 16, 2019), erroneously referred to Nirmala Sitharaman as Union Home Minister. It should have been Defence Minister.
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POLL ("Life" page, May 16). Rising suicide rates and mental health issues among young people need to be taken seriously. It is unfortunate that a young life full of potential has been lost in this manner. I hope that social media platforms have safeguards.

V. LAKSHMI,
Bengaluru

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Is coalition government worse than single-party rule?

PARLEY

On the successes and failures of the various kinds of coalition governments at the Centre

As India approaches the last phase of the general election and talks on potential post-poll alliances pick up, Suhas Palshikar and Irfan Nooruddin discuss the successes of coalition governments, their contribution to economic growth, and why post-poll coalitions are popular in India. Edited excerpts from a discussion moderated by Srinivasan Ramani:

The BJP, which leads the coalition government at the Centre, terms the initiatives of the Opposition to form a coalition as "mahamilavat" (hodgepodge) or "khichdi". Has that been the case with coalition governments in India?

Suhas Palshikar: To begin with, as you pointed out, this government is also a coalition government. As Professor E. Sridharan has argued, this is a "surplus coalition" government featuring a party that already has the strength to form a government but has taken on board other coalition partners. This labelling of the Opposition as "khichdi" is not new.

The real question is, what is the experience of coalitions? At the Centre, you have had a number of coalitions since the 1990s. We have had three Congress-led governments which were able to complete their full terms. Former Prime Minister Atal Bihari Vajpayee was able to complete his full term as the head of a BJP-led coalition. The criticism that coalition governments are inherently or necessarily unstable is not borne out by facts.

In the "surplus coalition" government, the BJP has had minimal ideological differences/principle differences with its coalition partners unlike, say, in the UPA which was supported by the Left Front from outside in 2004. Does this kind of distinction matter in the success of a coalition?

Irfan Nooruddin: In comparative politics literature, we tend to distinguish between 'ideological coalitions' and 'governance coalitions'. Characterising the current NDA as

an ideological coalition is not quite right. It is not quite clear what those ideological principles are that hold this coalition together. But what is true is that the BJP's strength and the nature of Prime Minister Narendra Modi's leadership have left very little room for the coalition partners to place their differences. If they disagree, they are no longer needed to be part of the coalition. That is the power of a surplus coalition. It is not necessarily ideological coherence, but the power of the surplus coalition that defines this regime.

Regarding Suhas's point, while it is true that the criticisms about coalitions not lasting their terms is not borne out by evidence, coalitions of convenience tend not to have coherent policy agendas and tend to be divided from within. Whether they can manage to put up a working Cabinet are two separate but important issues that matter to a working coalition. Coalition governments can get a lot of things done, and when they do that, they stick together too. But at the same time, coalitions of convenience tend to more likely be corrupt and spend more money than those that are ideological because everyone has got a hand in the pot.

While there is indeed a distinction between coalitions of convenience and those based on ideological cohesion, it is also true that coalitions bring in a certain degree of diversity and plurality of views. In an ideal world where political parties represent certain interests, a coalition of different parties could be more democratic, right?

SP: Coalition governments are not necessarily truly democratic, but they can at least be plural in the views that they represent. That possibility also arises when the parties are not adequately representative of the larger public, but only of smaller sections, regions, communities. In that situation, you need a coalition that allows for better representation. And historically, in India, coalitions only emerged when the Congress's ability to be representative of



RAJEEV BHATT

Coalitions are associated with periods of greater economic growth, less economic volatility and more foreign investment. There is more credibility to the government's policies, because it is harder to make radical changes.

dependent on the coalition partners in order to fuel its majority.

That said, Suhasji's point about India's coalitions being more of convenience is quite right. Given the nature of India's States, coalitions have been about regional pluralism. It is not only that the BJP won the majority of the seats in 2014 with only 31% of the vote share. Those votes were deeply concentrated in some areas of the country. To form a nationally representative government, it was required to bring in regional parties in the east and in the south into this coalition. This is not necessarily democratic but more representative of the country. It is true that the previous governments were able to carry out economic reforms, but some would say this was because their backs were to the wall – one would recall that the 1991 reforms were enacted under duress as there was a balance of payments crisis. So, it could be true that coalition governments are unable to make reforms of choice. In sum, we could say that coalitions are able to act when they have to, but they make fewer big changes. For some that is frustrating and for some that is safety.

Do coalition governments featuring regional parties that

represent sectional interests manage to do well on the redistribution front?

IN: Evidence from Western Europe shows that coalition governments tend [towards] greater fiscal spending. Some would say that is due to redistribution, while some would argue that this is due to lack of fiscal discipline – smaller parties could extract more than their fair share as they could threaten to walk out.

In the Indian context, Pradeep Chhibber and I published a paper 15 years ago that suggested that two-party competition or tighter competition would result in greater public goods spending, while in a fragmented party system, there would be greater distribution of 'club goods' which would involve spending for specific communities represented by smaller parties in some States. This is at the State level. So, yes, you would get redistribution, but not necessarily in the way you would ideally want it to be.

Why is there a reluctance to form pre-election coalitions despite a larger commonality of interest and a greater inclination to form post-poll coalitions in India?

SP: The simple reason is that in India, there is one national-level player and several regional parties. In both cases, the national party seeks to expand its geographical reach across and within States. In such situations, these parties seek to keep their cards closer to their chest and play them after the elections based on the outcome. If there was a situation where there were only State parties and no all-India party, this would have enabled pre-election coalitions. Besides this, there is an absence of ideological coherence (at least in the last 25 years or so) that would bring parties together for a pre-election coalition.

IN: What it means to be a party in India is to allocate tickets. For pre-election coalitions, parties will have to tell constituents – people who have worked for a party for years and expect a reward in the form of a ticket – that they won't get tickets to contest. This causes unhappiness and bickering. So it is much better to say, take your ticket and contest

and we will form a coalition later based on how many seats we have.

Would a prospective coalition that could come to power do so on the basis of a common minimum programme?

SP: Neither a BJP-led coalition nor a Congress-led coalition would do that. If it is a BJP-led coalition, the BJP will be in a pre-eminent position and wouldn't require any ideological coherence and would want to keep its ideology. It would still want to keep its partners intact for the time being – the Shiv Sena, the JD (U), and so on.

In a non-BJP coalition, there would not be any ideological coherence because they wouldn't have probably given enough thought to what kind of governance programme they would have if they come to power. Their single unifying agenda would be to remove the present incumbent from power.

IN: The Congress has spent five years of near irrelevance in the legislature. This is a rebuilding exercise for it. The notion that it has a common programme to articulate, and that it will use that to bring a lot of other parties on board, is hard to imagine. There is just a single-point agenda: to keep the BJP out.

In either case, there will be a coalition. It will be difficult for the BJP to replicate its 2014 success in this election. Now the question is whether it will be a coalition in which the BJP will bring 250 seats to the table or whether it will bring 210-220. If it's closer to 250, it will be able to push its own agenda. But if it's 210-220, then it would have to make some compromises with its coalition partners. And it will be interesting to see how Mr. Modi and BJP President Amit Shah manage that – ceding authority to coalition partners unlike the centralised scenario we see today.

SP: I think even if the BJP wins 210, it will buy the support of its partners by giving them various ministries, promising special packages for their States, etc. Concentration of authority and power within the Prime Minister's Office will still continue, and Mr. Modi will act exactly the same way as he has acted in the last five years.

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SINGLE FILE

Encourage citizen science

New models are needed to supplement the traditional scientific method

MANU RAJAN



Science advances by making discoveries and developing new ideas. But our scientific institutions are yet to implement new ways of developing and transmitting knowledge. The idea that there is only one scientific method of obtaining scientific results – a method in which most scientists in academic settings are trained – is not adequate for the new information age of Big Data, crowd-sourcing and synthetic biology. The hypothesis testing approach made sense in an era of information scarcity. New models are now needed to supplement the traditional scientific method.

Our institutions of science need to adapt to the reality that informally trained individuals are just as able to contribute to our knowledge of the world as those with formal academic training. These "citizen scientists" face many barriers that institutionally funded individuals take for granted. Scientific institutions need to engage with the external community recognising that knowledge exists both in the institution and the community and not just as a one-way act of philanthropy. Collaborative learning needs to be adopted as the core model of pedagogy. If scientific research is conducted solely by individuals trained to be successful in academia, we are potentially biasing and limiting scientific questions and interpretation of results.

Creative experimentation and asking unfamiliar questions are as important as funding and infrastructure. Technology has made it possible to conduct even big science by operating on a small scale. The promise of citizen science is that if you can make a task small and simple enough for someone to do it in his or her leisure time, you can aggregate a lot of talent. There are several instances where research problems have been repackaged into online multi-player games. Ordinary citizens can help transform a modest PhD project into a path-breaking global science initiative. Galaxy Zoo, the pioneering online citizen science project, became successful because the academic scientists involved in the project overcame their inclination to keep their discoveries private until they were ready to publish. Earthwatch Institute India is a leader in implementing the citizen science concept. Their volunteers have taken part in biodiversity enumeration, collection of data on pollinators and studies related to lake conservation in Bengaluru. However, there is scope for much more in terms of scale and complexity. The U.S.-based Citizen Science Alliance is nurturing new citizen science projects in disciplines ranging from data engineering to oceanography. The University of Oxford, Johns Hopkins University and the University of Minnesota, amongst others, are part of this alliance. It is time that our scientific institutions took the lead in collaborative learning and knowledge production as part of a larger reform process, not just with others within their own scientific community and discipline but also with the larger external community.

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NOTEBOOK

The polluted water bodies of Kanyakumari

An unbelievable transformation has taken place in just a few decades

B. KOLAPPAN

Nanjal Nadu, a large part of Kanyakumari district in Tamil Nadu, was the rice bowl of erstwhile Travancore before it was annexed to Tamil Nadu. Its importance is explained by Manonnam Sundaram Pillai, the author of the Tamil prayer song *Neeradum Kadai*, also known as the *Tamil Thai Valthu* (Invocation to mother Tamil). In his verse-drama *Manonnam*, Pillai says there is hardly anyone who does not know about the fertile lands of Nanjal Nadu.

Anyone who travels the length and breadth of the district will agree with Sundaram Pillai. The district, which benefits from the South-West and North-East monsoons, is covered by acres of emerald green paddy fields, and banana and coconut groves.

I remember from my childhood innumerable water bodies, both big and

small, being full of water and covered with lotus plants. The place looked like a painting. I used to see crystal-clear water oozing from the foundations of every house back then. Brooks lining the streets of Parakkai, my village, housed carps, tilapia, eel, snakeheads, panchax, fresh water prawns, water snakes, frogs, crabs and snails. I would go fishing every day. I would then transfer the fish into a small pit dug near my house. It was a visual treat to watch the snakeheads, both male and female, guard golden yellow-coloured fishlings in the water bodies around the village. Eels would catch frogs and small fish. The air was chilly back then. Ceiling and table fans had not yet made an entry into every house.

The introduction of sewerage canals in every street and bylane changed the picture gradually. The situation was further aggravated

when concrete streets and bylanes were paved. All this affected the groundwater table. Till then, the water that was used to wash clothes and vessels would flow till the coconut and banana trees that stood in the backyard of the house. Slowly, the backyards were paved with concrete and, in many cases, accommodated new construction. Wells were converted into septic tanks, and the waste water was let out in the sewerage canal. It joined the clear unpolluted water flowing in the brooks. The brooks, in turn, flowed into water bodies used by many generations for cultivation and community bathing. Every household today depends on the water supplied by the village panchayats and local bodies.

Today, almost all the water bodies in Kanyakumari district are polluted beyond belief. Gallons of untreated sewage enter

them, making them unfit for use. Of course, farmers still use the water for cultivation. But it is unsafe to drink from and bathe in many of these water bodies. Paddy fields and wetlands are being converted into plots at a frenetic pace. In 2016, Lal Mohan, convener, Nagerccoil chapter of the Indian National Trust for Culture and Heritage, told me that the district is losing about 1,000 hectares of paddy field every year.

When I stroll along the banks of the polluted Cooum river in Chennai in the evening, I cannot stop myself from visualising a similar situation for the water bodies of Kanyakumari. Pachaiyappa Mudaliar, the merchant and dubash whose wealth was used to lay the foundations of many educational institutions, used to bathe in the Cooum every day. Can anyone do that today? A similar fate awaits the water bodies of Kanyakumari.

FROM The Hindu ARCHIVES

FIFTY YEARS AGO MAY 17, 1969

Soviet spacecraft lands on Venus

The Soviet inter-planetary station, Venus-5, made a soft-landing on Venus this morning [May 16] after uninterruptedly transmitting information for 53 minutes as it made a parachute descent to the planet's surface, Tass reported. The Soviet news agency said Venus-5 took 130 days to cover the 350 million kilometres to the planet. Another space station, Venus-6, launched five days after Venus-5, was approaching the planet and would enter its atmosphere tomorrow morning (at 11:33 hours I.S.T.), the Agency said. Venus-5 was launched on January 5 this year. Venus-6 took off on January 10. The two spacecraft are following up the mission of Venus-4, which made history in October, 1967, by parachuting through Venus's atmosphere and transmitting 90 minutes of data back to earth.

A HUNDRED YEARS AGO MAY 17, 1919

League of Nations.

Lord Grey has furnished Reuter with his views as regards the Covenant of the League of Nations. He is delighted that much has been accomplished, having feared that the Conference would achieve much less. It has proved the downfall of Germany and convinced the Allies and associated Powers that the national development of each could be better assured by security or permanent peace than by attempts to promote separate national interests. The Covenant has made a good beginning respecting labour, disarmament and responsibility for backward races, which Lord Grey opined were the three essentials. It was good that the Covenant accepted the provisions of the Labour Convention. The most effective reduction of armaments would come from the security of the League and they would diminish as the League grew strong and vital. Consequently, public opinion within the League must secure the utmost publicity on the question of reducing armaments.

POLL CALL

Coalition government

A coalition government is one in which multiple political parties come together and often reduce the dominance of the party that has won the highest number of seats. Coalition governments are formed when a political party wins the necessary number of seats to form the government on its own. In India, the first coalition government to complete its full-term was the Atal Bihari Vajpayee-led National Democratic Alliance from 1999 to 2004. While some say that coalition governments generate more inclusive policies, others believe that coalitions impose constraints on policymaking.

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