

ARMIN ROSENCRANZ AND SHASHIKANT YADAV

Why fracking in India must be regulated

During the winter of 2010, people residing near American shale gas extraction sites complained that their domestic supply of water was "catching fire". Subsequent scientific investigations revealed that the water was contaminated with a highly flammable gas -- methane, a major component of shale gas. This revelation fuelled a debate over the costs and benefits of extracting shale (natural) gas via 'hydraulic fracturing' or 'fracking'. Currently, more than a dozen countries have banned fracking (including some states in the US). However, in 2020, India exempted industries from obtaining an environmental clearance before exploring natural gases through any method, including fracking.

Conventionally, natural gas is extracted from porous rocks that allow movement of gases. However, much natural gas remains trapped in the rocks that are too dense to allow their movement. Industries apply external force on these rocks to crack their surface and release the natural gas. In fracking, this external force is created through pressurised water. Usually, industries begin fracking by drilling the earth's surface and making wells in the non-permeable sedimentary rocks. The industry then injects a mixture of pressurised water, sand, and chemicals, known as shale fluid, into the shale rock through the wells. The shale fluid creates cracks through which the shale gas escapes into collection wells.

A single fracking activity may require 9 million litres of water (5 to 10 times more than conventional drilling). A part of the injected water flows back upward along with the methane-rich shale gas. This methane-rich flowback water (or the methane gas directly) can migrate to groundwater (GW) sources like aquifers, located near the shale gas fracking wells. These are often the primary source of drinking water and irrigation. Disposing of the 'flow-back water' is one of the most daunting challenges in fracking. India does not yet have a regulatory guideline specific to 'flow-back water' disposal or 'methane migration' during shale gas extraction.

If India could scale up its shale gas extraction process, it would be able to fill the current gap between natural gas demand and supply. In 2017, India spent \$120 billion in importing energy sources, including natural gas -- a large burden on the economy.

In 2013, India announced a "Policy Guideline for Exploration and Exploitation of Shale Oil &



Gas..." This draft policy allowed state-owned companies to start exploring shale gas reserves in their existing conventional oil and gas blocks.

India's would-be frackers believe that, over the next five years, India could commercially recover 63 trillion cubic feet (TCF) of shale gas reserves in 4 of its 26 sedimentary basins. In 2017, the Union government invited private players to explore and exploit their hydrocarbon resources, including shale gas, under its new policy, "Hydrocarbon Exploration and Licensing Policy (HELP)".

HELP removed the regulatory difference between unconventional and conventional oil and gas resources. Industries are no longer required to obtain separate clearances for exploring and exploiting unconventional hydrocarbon. Further, in August 2018, the cabinet passed a policy allowing shale gas exploration and production in areas that were primarily designated for exploring conventional hydrocar-

bon resources. To remove the legislative distinction between conventional and unconventional hydrocarbon, the parliament, in 2018, amended the definition of 'petroleum' to include 'shale gas.' This allowed industries to extract shale gas reserves within the regulatory framework that applied to conventional drilling.

This uniformity leaves a vast regulatory gap since shale gas extraction, through fracking, poses a unique threat to India's water resources. The Indian hydrocarbon regulatory authority (Directorate General of Hydrocarbon - DGH), in its guideline for 'Environmental Management During Shale Gas/Oil Exploration and Production' highlighted these regulatory gaps. It indicated that fracking may permanently change India's water dynamics primarily due to (1) the rate of water consumption throughout the process, and (2) contamination of groundwater due to insufficient fracking well construction and design. The same guideline, howev-

er, refrained from proposing a sector-specific environmental clearance process for fracking or a comprehensive risk assessment of the fracking sites in India.

India, in 2020, further relaxed the oil and gas regulations by allowing hydrocarbon industries to begin drilling and other exploration activities, including fracking, without conducting environmental impact assessments (EIAs) or public consultations. Moreover, beginning in June 2020, industries can monetize their explored hydrocarbon resources without waiting for their contractual commercial period to begin. The time between the exploration and commercial phase was critical to analyse the environmental impact of the extraction activities. These policy reforms have made shale gas fracking a practical choice for oil and gas companies in India.

To sustain its fracking projects, India must address fracking-specific water issues. To begin with, the central and state authorities must work

together with environmental regulators to identify and assess the structure of aquifers close to proposed shale gas sites and ensure proper casing of shale wells. Due to its amount and composition, flow-back water cannot effectively be disposed of through standard wastewater regulations. India must formulate a water regulation policy on fracking. Corporations must disclose water data. Extractors of groundwater should use digital smart meters, as the National Green Tribunal noted in its July 2020 order. India's chemical regulation policy is still under deliberation. "Methane" as a chemical is underregulated. Before scaling up fracking projects to a commercial level, India must regulate methane migration.

Regulating fracking may leave serious regulatory gaps, inviting another tragedy similar to the Baghjan oil well blow-out. Unregulated fracking may have long term impacts such as water depletion (India, at present, has the world's highest groundwater depletion rate), poisoning of water (India falls at 120th rank, out of 122 countries, on water quality index), and collapsing environmental justice (over 212 environmental activists were killed in India last year for seeking environment data).

Escalation of fracking operations at commercial level in India could mend the demand and supply energy gaps; however, authorities must identify and regulate the fracking-specific water issues in India. India should reconsider its decision allowing industries to start exploratory fracking without any environmental clearance. Assessing exploratory fracking can reveal several scientific uncertainties concerning sustainability of fracking in India, eventually helping regulators to identify and fix fracking-water issues before scaling up the operations. Lastly, India must establish dynamic water data system with digital smart meters and replenishment mandates to help state and non-state actors track the utilisation of groundwater resources.

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NOW AND AGAIN

The buzz of a lockdown

SHOVANLAL CHAKRABORTY

They say 'distance makes the heart grow fonder'. Though I feel my wife and I may have been better off living on separate planets, I am willing to wave a peace flag during these endearing times of staying at home.

But for the moment I have planted my flag in the living room, while the bedroom is her territory. Ergonomically, that's the farthest we can be from each other and I say that with a glint in my eye. I am kidding, of course, we love each other despite having only one television at home.

I recently learned that the word quarantine comes from 16th-century Italian 'quaranta giorni' literally meaning '40 days' and refers to the period a ship suspected of carrying disease is kept in isolation. The introverts are living it up. This is their moment. Vilified all along, they can now hold their heads high as they virtually pioneered social distancing.

It is incredible the things we learn when we spend more time at home. My wife now understands that a game of football lasts 90 minutes. And importantly why men should not be interrupted between one. My daughter has figured out that a mouse can also mean a piece of computer equipment. She calls mine 'Minnie'.

Every moment is truly a miracle in itself. There is joy in every mundane occurrence. For example, growing facial hair is as natural as birth to a baby - though arguably they may vary in effort. While I am genetically indisposed to experiencing the latter, I can speak confidently on the former. For the uninitiated, it must be noted that growing a beard is much like having a baby, in fact like having many follicular babies - caring and nurturing each of them, allowing them to grow and shape their future.

And that brings me to Jake. He regaled us with his visits around meal times. Very jovial, he always had a buzz about him. But then, with advancing age, he seemed to get weaker and slower - we felt that time was running out for him. He did enjoy the attention my daughter gave him. She even started a 'Save Jake' movement, contributed to by her friends and myself, and thus created a fund for his care.

Some days ago, despite the valiant efforts of my daughter and I, he passed away - apparently murdered in cold blood. Jake is a housefly. Was a housefly. Houseflies are carriers of disease, my wife says. We now believe she may have a hand in Jake's sordid end. No, I am not arguing with her for the moment, and will keep my distance. May the heart grow fonder, right?

100 YEARS AGO

SERAIKELLA AND KHARSWAN

To The Editor Of The Statesman
SIR, - The two States of Seraikella and Kharwan, containing 457 and 149 square miles, were part of Porahat Raj but have been separately recognised by the British Government in 1820. Since 1837 Singbhum formed a separate District and the affairs of the two States were under the direct supervision of the Deputy Commissioner of Singbhum as Assistant Political Agent under the Commissioner of Chota Nagpore as Political Agent, and this was much to the advantage and convenience of the Chief as well as the people, as the headquarters at Chaibasa were only 13 and 16 miles from the respective headquarters of the police court. The appeals from decisions and orders of the Chief and his sons and grandsons were heard and disposed of by the Deputy Commissioner of Singbhum in his capacity as Assistant Political Agent after full hearing from the parties. In this way the people used to get speedy and impartial justice at their doors at a minimum expense.

MAHESWAR SINGH DEO.
Seraikella.
REGISTRATION OF SERVANTS
To The Editor Of The Statesman
SIR, - With reference to your correspondent's letter I quite agree that some drastic steps should be taken to prevent so many thefts taking place in private dwelling-houses by servants. I have also suffered considerable loss owing to the dishonesty of my servants and can therefore sympathise with Badly Bitten. My experiences were, in January, 1919, we left our house at 5-30 P.M. one evening and on our return at 7-30 P.M. we found that one of our almirahs had been forced open and a jewel case containing jewelry and cash to the value of Rs 6,000 had been carried away, but neither articles nor culprits were traced. I quite agree with Badly Bitten that servants should be registered. In South Africa every servant must have a registration ticket bearing his name and country address and name and address of employer. If the system was introduced in Calcutta I feel certain there would be fewer budmashes in the city than at present.

VICTIMISED.
Calcutta.
AMERICAN PRESIDENCY
To The Editor Of The Statesman
SIR, - In reference to the nomination of Senator Harding as Republican candidate for the American Presidency, two points may be of interest to some of your readers. It will be remembered that President Wilson was a "compromise candidate" in the 1912 elections. The two big nominees who could not get the requisite majority and whose claims were compromised to let him in were Senator Champ Clark and Mr. William Jennings Bryan. Should President Wilson seek re-election, whether successful or not, he would be the first on record to ask the country to return him thrice in succession. Washington refused a third nomination for very good reasons and since then all Presidents have done the same, this being practically an unwritten law. I should say that President Wilson would not seek re-election this year, but if he did he would alienate much of the sympathy of his friends.
C.J.
Calcutta.

POLITICAL DIARY | KALYANI SHANKAR

Another NDA ally feels the strain

The resignation of the lone Shiromani Akali Dal minister Harsimrat Kaur Badal from the Modi cabinet on Thursday opposing the three controversial farm bills was not a surprise. The Akali Dal was pushed to the decision because of pressure from its core constituency of farmers and pressure from the Congress chief minister Captain Amerinder Singh. He has been taunting the SAD for not protecting the interests of farmers though Harsimrat was sitting in the cabinet when the ordinances were okayed. The Punjab Legislative Assembly also passed a resolution against the ordinances on August 28.

Farmers' protests against the bills are catching up not only in Punjab but in other states also. The three offending bills are the Farmers Produce Trade and Commerce (Promotion and Facilitation) Bill 2020; The Farmers' (Empowerment and Protection) Agreement of Price Assurance and Farm Services Bill 2020 and the Essential Commodities (Amendment) Bill 2020, which were passed by Parliament this week. Amid widespread protests, the SAD has latched on to the issue in the state.

The SAD has chosen an emotive issue as it might come in handy at the time of the next Assembly polls scheduled for 2022. Party chief



Sukhbir Singh Badal said in the Lok Sabha on Thursday the proposed laws will "destroy" the 50 years of hard work put in by successive Punjab governments and farmers to build the agriculture sector, and recalled Punjab's contribution to the Green Revolution.

Though Harsimrat Badal has resigned, the SAD has not yet decided whether to pull out of the NDA. The party has only two M.Ps. - Harsimrat and Sukhbir Badal - besides

three members in the Rajya Sabha.

This is not the first time there has been friction between the BJP and other NDA constituents. The party had differences on several issues earlier also but it never ended up in this manner. If the SAD decides to part company, it will be the second oldest ally to sever connections with the BJP.

The ruling party's oldest ally, Shiv Sena, had parted company after the 2019 Assembly polls. BJP

tried to expand in Maharashtra as the fight between the two was for political space. The same thing is happening in Punjab too.

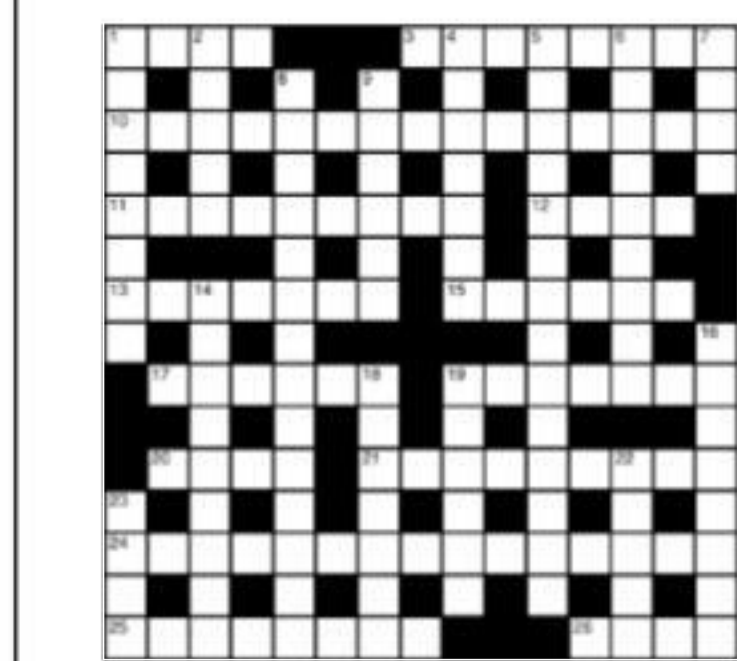
BJP's message to the SAD now is "go if you want". The BJP and SAD are natural allies. The two had complimented each other for long. The Akali base is the Sikhs and rural voters while the BJP depended upon the urban and Hindu votes. That is how their consolidation began - the rural Sikh and the urban Hindu.

There is a churning in the SAD. Both the BJP and SAD have changed from the earlier days. Prakash Singh Badal is more than 90 and he has left control of the party to his son, Sukhbir. There is a view in the party that the SAD has become the family fiefdom. The BJP is trying to tap the anger within the Akalis.

The strain between the two developed gradually. When the BJP started giving tickets to Sikhs and the SAD to Hindus in 2017, the cat was out of the bag. However, the arrival of the Aam Admi Party in 2017 gave jitters to the established parties like the Congress, Akalis, and the BJP. Behind the scenes, they had come to an understanding to check the AAP. Their public position was of adversaries but in practical terms, they did not work against each other. But all of them worked against the AAP.

CROSSWORD

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SOLUTION FOR 13 SEPTEMBER



ACROSS

- Small, pale bird (4)
- Axeman might use this initially entering copse, trying resolutely to cut tree (8)
- Below par when Arthur teed off - gripping end to game (5,3,7)
- Add seasoning to fish - European, posh restaurant might insist on this (5,4)
- Son - stir flipping drink! (4)
- Well-behaved soldier (7)
- "Labour with vigour" - a new catchphrase (6)
- Adult who's lost east of American city, carelessly (6)
- Gold record-player with no ordinary remote (7)
- Food sent back - some chocolate fudge (4)
- Cue, holding a rest (9)
- Angry talk to confuse what you're doing? (9,6)
- Bare bottoms in England are very overdue (8)
- Unimportant fish in Loch? On the contrary (4)
- Queen wearing blue right next to group of soldiers (8)
- Confuse movement of a duck with taking off (5)
- Unruly large women getting in beer on ship (7)

DOWN

- Aware of standing close to terrific girl, awake (5-9)
- Concerned about heat and dry? Frantically do this (9)
- Basic in some respects (4)
- Don't tries to break actual drill (5,9)
- Conservative welcoming the man's idea (6)
- Treachorous rogues and rebels (9)
- Rescue from deep river, swimming out of depth (8)
- Come off train (4,3)
- Group of military vessels are made at docks - every stern (6)
- Father adopting type of Buddhism, almost bewildered (5)
- Ill-natured American police department (4)

NOTE: Figures in parentheses denote the number of letters in the words required. (By arrangement with The Independent, London)

