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#ENERGY CONSERVATION

What's The Best Way To Store Carbon Dioxide

Switzerland has set itself an ambitious goal: To reduce the country's greenhouse gas emissions to net zero by 2050





carbon apturing dioxide from the atmosphere and storing it in recycled concrete aggr gate or geological eservoirs Iceland is technically feasible and also has a positive carbon

footprint Switzerland has set itself an ambitious goal: To reduce the country's greenhouse gas emissions to net zero by 2050 But this will require more than just a massive expansion

of renewable energies and saving measures. The federal government assumes that hard-to-abate CO2 emissions, e.g., from incineration plants, will amount to 12 million tonnes (about 13.2 million tons), a year. Some of the CO2 emitted therefore needs to be removed again from the atmosphere. The question is, how? And what should be done with it?

Researchers investigated these questions as part of a pilot project and explored two solutions for permanent storage of CO2:

Mineralization in recycled demolition concrete manufactured in Switzerland and min eralization in a geological reservoir in Iceland.

The project used carbon dioxide emissions from a waste water treatment plant in Bern. The researchers performed a life cycle analysis that covered the entire chain. from the capture and liquefaction of CO2 at the point of origin, to its transport and permanent storage. They also calculated how much new CO2 is produced along the entire chain. In addition, they explored different solutions for carbon capture methods and technologies for a waste incineration plant and a cement manufacturing plant. The project demonstrated that both pathways are techni-

cally feasible and have a positive climate impact. In all the

examples examined, the amount of CO2 stored exceeded the emissions produced

along the transport chain. When storing in recycled demolition concrete, the effi ciency and thus, the ratio between stored emissions and resulting new emissions is 90%, when transporting Swiss CO2 and then storing it in a geological reservoir ir celand, it's around 80%.

This efficiency should improve in future as most of the new emissions arise from transporting the containers by rail and ship, and some of these modes of transport still use energy from coal-fired power stations as well as fossil fuels. If in future, CO2 is to be exported on a large scale constructing a pipeline would be a potential solution.

They faced regulatory difficulties when trying to transport CO2 through several countries to Iceland. This was the first instance of cross-border carbon dioxide transport for storage.

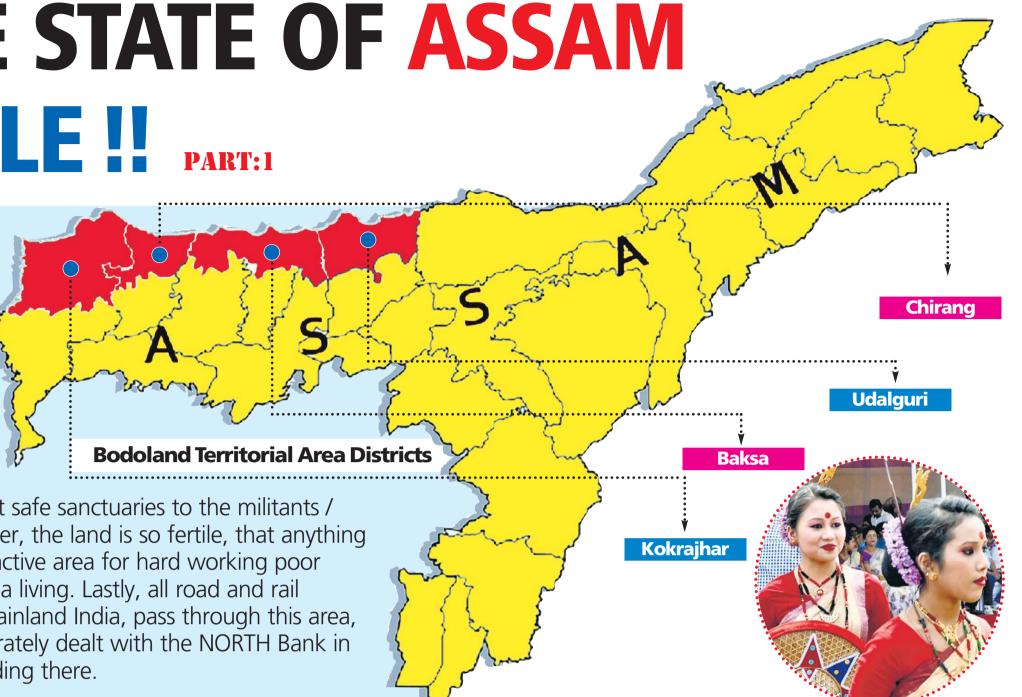
"A lot of CO2 is needed in the food production industry, and can be transported across borders without any problem, labelled as chemicals. But if the carbon dioxide is in the form of waste, as in our case, the regulatory environment is very unclear," says Marco Mazzotti, project coordinator and a professor at ETH Zurich.

The project team therefore came to the conclusion that if Switzerland wants to store CO2 on a large scale and create incentives for companies in future, it needs to work with its European neighbours to agree on clear regulations

Even though, the tech nologies trialed in the project function correctly, much research is still needed in the area of CO2 management. It is also vital to make sure that the technologies are worked up to a commercial scale.

WHY IS THE STATE OF ASSAM **SO UNSTABLE !!** PART:1

A large number of tribes which are mainly DOMINATED by the BODOS who are the original domiciles of Assam and claim that "If not the entire Assam, at least the NORTH BANK, belongs to them." Apart from that, the maximum number of BANGLADESH migrants have settled there as well. The other features of significance are that the hills/mountains of Bhutan and Arunachal, which are in



close proximity to the north, provide excellent safe sanctuaries to the militants / miscreants. Also, all along the bank of the river, the land is so fertile, that anything can be cultivated there, making it a very attractive area for hard working poor Bangla peasants, to slowly creep in, to make a living. Lastly, all road and rail communications connecting Assam to the mainland India, pass through this area, giving it high STRATEGIC value. I have deliberately dealt with the NORTH Bank in greater detail, as the current trouble is exploding there.



et me open this subject on a spiritual cum philosophical note. When the almighty created this world, it consisted of two realities, nature's GEO-GRAPHICAL relief with fauna on it and life in the form of and other human beings. All these species were born

with two basic instincts: survival of the fittest, might is right, chartering a boundary for themselves with their own jurisdiction of authority. The humans also followed similar evolutionary instincts, but having been endowed with a thinking mind, used it to satisfy their inherent desire of uncontrolled greed. This single factor gave birth to the evolutionary process, which soon started to get recorded as HISTORY. To fathom the **GENESIS** of the **PROBLEM** therefore, it is vital to examine all current political problems against the backdrop of geographical location of that region and evolutionary history of its citizens. The continued insurgency/ instability in the entire NE as well as in ASSAM is a result of their UNIQUE GEOGRAPHICAL LOCATION and PECULIAR



DEMOGRAPHICAL CONFIGU-

RATION.

GEOGRAPHY

et me briefly dwell on GEOG-RAPHY first. Geographically, Assam is so isolated from our main land that if you ask a common Indian to name the seven sisters of the NE, he will fail. This remoteness has never been properly understood by our political leadership.

Coming to the actual geographical configuration of Assam, the state's dominating geographical feature is the mighty BRAHMAPUTRA RIVER. This has not only carved out its long complex history but also still controls all current events. WHY? Because, despite its three bridges and many unsafe ferries, it divides Assam into two distinct halves, the NORTH and the SOUTH. This division is politically significant, as the NORTH is checkboard /juxtapose of a large number of ribes, which are mainly DOMI-NATED by the BODOS, who are the original domiciles of Assam and claim that "If not the entire Assam, at least, the NORTH BANK belongs to them." Apart from that, the maximum number of BANGLADESH migrants have settled there as well. The other features of significance are that the hills/mountains of Bhutan and Arunachal, which are in close proximity to the north, provide excellent safe sanctuaries to the militants/miscreants. Also, all along the bank of the river, the land is so fertile, that anything can be cultivated there, making it a very attractive area for hard working poor *Bangla* peasants, to slowly creep in, to make a living. Lastly, all road and rail communications connecting Assam to the mainland India, pass through this area, giving it high STRATEGIC value. I have deliberately dealt with the NORTH Bank in greater detail, as the current trouble is exploding there. Now to the other part of the state, THE SOUTH BANK and THE BARAK VALLEY. The South Bank

of governance. Earlier, it was Sibsagar and now, it is Dispur. Politically, it has remained com paratively more stable than the North bank, because it has been dominated by the AHOMS, who ruled Assam, for almost 600 years. This single fact has and continues to remain a flash point of conflict between the settlers of North and the South Banks. The South Bank has a number of tribes also but since they are confined to the Hill Areas of Karbi Anglong Hills. North Cachar Hills and the Meghalava Hills, their interference in South Bank affairs therefore is limited, thereby not creating con-

has always remained the location

flict situations like those on the North Bank so many tribes of different origin The BARAK VALLEY is an entithe Barak valley is comparatively ty by itself. Though a part of the more peaceful than other parts o state of Assam, still quite different, Assam. This is a very relevant real ethnically and demographically ity of that region Situated along vet another majo With this brief geographical river BARAK, it is separated from and demographic profile of the existing scenario in Assam, let us Assam by the NC Hills and the analyze the influence of history Meghalaya Hills. The population there is more akin to the Dimasas which has resulted in this configu Garos, Jaintias, Khasis and Mizos ration. However, just before that in contrast to the ones along the let us list out the prominent factors Brahmaputra valley. In addition. of influence, which will help us they have a large number of analyze the current conflict situa **Bengali** permanent settlers because tion better. These are listed below: of close proximity with erstwhile a) Assam's basic attraction origiundivided BENGAL. Because of its nally lay in the fertile distance from Dispur and a mix of Brahmaputra valley. Later,

WE GET TO DRESS IN



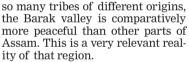




Wear Your Pearls Day



earls are a timeless style statement for anyone of any age. In fact, each individual pearl is not only beautiful in its own right, but it also comes along with an incredible backstory. Because the pearl has a history that includes a grain of sand starting out as an irritant for an oyster, it's a lovely reminder that adversity in life can often produce something beautiful, over time. Rather than saving them for a special occasion, the idea for 'Wear Your Pearls Day' is that anyone can pull out their pearls to feel special – on this day or really any day of the year!



fighting with each other. Karbi

Anglong and NC Hills are live

examples. Same is the case among

Bodos, where BLT and NDFB are

fighting each other since sixties.

when the region has a mix of addi-

tional tribes and other communi-

ties. To add further to this com-

plexity, when demarcation of

fresh boundaries is done which

transgress over traditional land

holdings of earlier legal residents.

the conflicts assume a more seri-

ous dimension. In Bodoland, a

much more serious reason for

perennial conflict has been added

INFLUX OF A LARGE NUMBER

OF BANGLADESH ILLEGAL

IMMIGRANTS. It is this CON-

THE UNCONTROLLED

Such animosity is extenuated

#STATECRAF1 however, when the tea planta

- tion was introduced and rich oil and mineral resources were discovered, its importance ssumed a new dimension. The valley is surrounded by
- high mountains and hill which lends it natural security The demography is a checkboard of tribes mixed with men of the Indian mainland, mainly
- Bengalis, Kochs, Biharis and Adivasis The original domiciles of the d) valley are only BODOS. e) Ahom are actually from Yunnan
- province (China). After their entry, they have dominated

FLICT, WHICH IS CAUSING n he Bodoland crisis is akin to any other crisis in the NE PERSISTENT VIOLENCE states, exposed to insurgency, such THAT IS BEING ANALYSED as Nagaland. Manipur and so on. FURTHER. The Bodoland agitation start-Why go so far? Within Assam. there are similar problems, where ed sometime in 1960 in the form of two or more militant groups are

an armed struggle for the recognition of their ETHNIC IDENTITY. Two organizations, namely BLT and NDFB, started this agitation with two separate agendas. The BLT demanded a separate autonomous Bodoland within the state of Assam, while NDFB wanted Bodoland as an independent autonomous state under the Constitution of India. This agitation slowly took the form of an armed insurgency. All attempts to bring about a negotiated peaceful settlement with them, failed. Finally in 2003, the now famous ASSAM ACCORD was signed with only BLT as NDFB's conditions were not accepted by the Govt. The relevant features of the accord which have a bearing on this continued conflict and vio-



Assam till the advent of the Brits. Strategically, the only link with the Indian mainland is through the narrow SILIGURI CORRI DOR which is controlled by the NORTH BANK which lends special status to BODOS, who dominate that area.



t is well known that in the evolutionary process of the world, all races were seeking settlements along RIVER VALLEYS, where basic human needs of living. FOOD and WATER were available Migration to the rich BRAHMA PUTRA VALLEY by various tribes/races was therefore no exception. Many tribes from the PATKAI HILLS of BURMA migrated into the hills contiguous to these hills (Nagaland, Manipur, Mizoram, Karbi Anglong, NC Hills and Meghalava) and Ahom from YUNAN PROVINCE of CHINA. migrated mainly into the Brahmaputra valley. The Ahom being more powerful and organized clan, took total control of the VALLEY. On the North Bank, they subdued the warring Bodos and the Koch, and on the South Bank, they pushed all the tribes of Burmese origin into the HILLS. THAT IS THE REFERENCE **POINT IN THE 13th CENTURY** WHEN THE NOW FAMOUS 'AHOM KINGDOM' WAS ESTABLISHED IN ASSAM, WITH ITS CAPITAL AT SIB-SAGAR, AND RULED ASSAM FOR 600 YEARS Many attempts were made by

first the MUGHALS, then the BURMESE to ENTER ASSAM. but they failed to unseat the early settlers. Finally, with the advent of the British, the administration of the ASSAM was slowly taken over and remained with them till 1947. when INDIA achieved its INDEPENDENCE. Post-Independence is a very

significant turn in the history of Assam, the scars of which, continue to influence events till date. Let us examine those.

During the British rule, Assam was loosely administered from Calcutta, more through their armed might, rather than any established civil infrastructure. When Independence came and partition was in the offing, two options were being mooted for Assam, either join East Pakistan or become an independent state. Fortunately. Assam had a tall patriot like GOPINATH BOR-DOLOI. totally in league with Mahatma Gandhi, WHO MADE THE HISTORICAL DECISION TO STAY WITH THE UNION OF INDIA and that ushered the **NEW CHAPTER in the HISTO** RY OF ASSAM. It is against that

background that we have to trace the current and future events in the state. On the eve of Independence, a

quick look at the existing profile of Assam is pertinent to under stand the turbulence that followed, after its decision to be with the Indian Union. To simplify, let me list them out: a) Assam was a large state which

included the present Nagaland, Mizoram, Manipur,



Tripura, Meghalaya and Arunachal. The configuration of these was loose because the Brits were administering the state first through their military might and later, slowly using the most covert weapon. RELIGION, by converting innocent tribes Christianity. (Surprisingly, this process is still on, MAS-TER MINDED from Delhi)

- On account of their primitive tribal existence and simple nature, except for the Ahom. (who got cultured by imbibing Hindu religion and with interaction with the highly cultured *Bengali* Society), most of the other tribes continued to remain uneducated and totally unaware of political developments in the region.
- Because of (b) above, except for the minor educated Ahom society, political awareness was totally lacking in the larger section of the state. As a result, when the rest of India was involved in a fierce freedom struggle, except for a small Congress party, under the leadership of Shree Bordoloi, the rest of the Assam population remained ignorant of the developments in the rest of the country. As a result of this continued isolation, the current political
- unawareness still prevails. On the eve of partition, the Congress party took all the credit of retaining ASSAM with India and since then has **CONSIDERED ASSAM AS** THEIR PERSONAL FIEF-**DOM** (as subsequent events will reveal).

This now brings us to the post 1947 developments. The monolithically Congress party, which has been ruling the country since Independence, realized that the NE was an isolated region because of the following reasons: a) Distance from the mainland. Region totally lacking in polit-

ical awareness. c) The state being of a fragmented structure, due to a large number of tribes having their own individual culture, traditions and a mental attitude to remain inde-

nidden away in safe sanctuaries for operations, and enroll disgruntled BLT cadres into their ranks and CONTINUE THEIR OPERATIONS BY EXTORTION. INSIGHTING COMMUNAL DISCORD AND VIOLENCE TO HUMILIATE

pendent.

With this brief backdrop of the *Bodoland* militancy as well as the demographic scenario, it is easy to identify the flash points of violence which can be ignited These can be surmised as under: a) The Bodo Accord has not

- solved the problem, but instead, has accentuated it because of the following rea-The BTAD jurisdiction has
- trespassed on traditional settlers who were living in peace in their habitats since ages. This has caused them avoidable hardship and consequent frustration.
- ii. BTC is ruled by militants and

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THE BODOLAND CRISIS

lence are a) A Bodo Territorial Area District (BTAD) will be formed consisting of four contiguous districts of Kokrajhar, Baksa, Udalguri and Chirang. In addi tion, territory will be carved out also from the neighbouring districts of Bongaigaon, Barpeta, Nalbari, Kamrup,

Darrang and Sonitpur. b) All BLT cadres will surrender their arms



(BTC) will be formed after election and it will administer the BTAD. The Assam Govt, will allot

selected subjects to be administered by the BTAD After being hounded by the



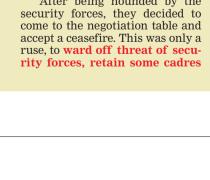




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d) Creation of East Pakistar after partition and the loom ing threat from China and Burma had increased the strategic importance of that region further, more so because of restricted communication link through the nar row Siliguri corridor True to her character of place ing party interests above the Nation, the then PM, Mrs. Indira Gandhi took some drastic polit ical decisions to maintain a hold to her power. These were as under:a) Shying off from politically contesting the insurgencies that erupted in states of Nagaland, Mizoram, Manipur and Tripura, she ushered the BALKANISING process of the **REGION** by creating the now famous 'SEVEN SISTERS' and handing over the responsi bility of quelling the insurgen cies to the ARMY. This **Balkanization process still** continues as an accepted norm in the NE, especially in the Mother State ASSAM. Creation of autonomous districts of Karbi Anglong, NC Hills and later, the BTAD is an

> that, the emergence of AASU, AGP and ULFA (after the influx o Bangladesh refugees post 1971 war), was also a fall out of this NE REGIONAL **PSYCHE OF DEMANDING** ETHNIC AUTONOMY. To a sensitive observer. the undercurrent of this sim mering psyche of that region can still be perceived.

example of this. Not only

o) After the 1971 war, Mrs Gandhi realized, that to maintain the Congress hold on ASSAM (The Mother State of the NE). its DEMOGRAPHY must change. In order to achieve that, she opened flood gates for the influx of Bangladesh Muslims who were only waiting for this opportu nity to move in and take advantage of the fertile tracts of Assam land. THESE TWO POLITICA

BLUNDERS OF THE CON GRESS LEADERSHIP HAVI NOT ONLY FRAGMENTED THE NE AND LEFT IT ON A **BOILING POT OF CONSTANT** VIOLENCE, BUT AT THI SAME TIME. MADE ITS INTE **GRATION INTO THE MAIN** LAND INDIA THAT MUCH DIF

THE CURRENT VIOLENCE AND CRISIS IN BODOLAND IS A DIRECT RESULT OF THESE GEOGRAPHICAL HISTORI CAL and POLITICAL MANIP ULATIONS, that have been discussed above.

TULT

trators.

NDFB.

OF

not by experienced adminis iii. The subject of 'Law and Order' is vague and diffused between

BTC and the state govt. iv. The NDFB, though under ceasefire agreement, is more at large, to ignite violence under its 'protection'.

The breakaway BLT cadres are having a free run as they are being used for extortion, inciting violence and other nefari ous activities by both BTC and

vi. The so called 'Refugee Camps' are not only like slums but also, are secure sanctuaries for militant operations. vii. To add to these simmering violent conditions, the unimped

ed ILLEGAL IMMIGRATION BANGLADESH REFUGEES has acted like 'ADDING FUEL TO FIRE. To be continued....

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By Jerry Scott & Jim Borgman