January-March 2015

In this Issue

MAUSAM

... talking climate in public space

Let's Call Their Lies

In May 2014, the government in India changed. The NDA (National Democratic Alliance) government led by the BJP (Bharatiya Janata Party), while taking its seat in Delhi, took a swipe at the issue of climate change by extending the name and apparent responsibility of the Ministry concerned with environment and forests (MoEF) to Ministry of Environment, Forests and Climate Change (MoEFCC). The action, which was meant to showcase the new government's commitment to climate change, actually did the reverse: it reduced the all-pervasive and life-threatening phenomena of global warming and global warming induced climate change to something merely 'environmental', officially segregating it from the politically and economically more powerful ministries of mining, power, energy, transport or urban development. As if, instead of relentlessly influencing and usually aggravating runaway climate change, these issues are of no concern here.

When one reads the above with how for the last ten- odd months these 'important' ministries have been driving the MoEFCC to dismantle the very fabric of environmental legislations and regulations in India, the deeper devilry beneath the apparently benign decision of renaming the MoEF, emerges. From whatever little role it used to have in providing environmental safeguards in the face of the neo-liberal development juggernaut, the new MoEFCC has now become thoroughly docile and defanged. No more surprise denial of clearances to mining and power projects: the ministry is there to ensure that in future environmental concerns will not impede development. True to this promise, the MoEFCC is providing clearance to thermal power plants, big hydro, mining and road projects at breakneck speed. Add to this the by-now chronic efforts to dilute community powers to regulate development projects in the Forest Rights Act, and the new infamous land ordinance that does away with the necessity of getting community consent while acquiring land, and the brazenly pro-corporate direction of the present government's environmental policies becomes clear.

On the one hand, a free-for-all: doing away with environmental regulations altogether, opening up yet newer areas for coal mining and installing more ultra mega thermal power plants (UMPPs). On the other, dubious and discredited interventions like the REDD+(Reduction of Emission from Deforestation and Degradation of Forests) national strategy, the so-called Green India Mission, eco-restoration and conservation of biodiversity, wildlife and forests now increasingly funded by money from the CAMPA (Compensatory Afforestation Fund Management and Planning Authority) funds. During the first five months of its tenure, the MoEFCC has allowed diversion of more than 7,000 hectares of forests for infrastructure projects, instituted a high level committee to review the forest conservation laws and at one go recommended environmental clearances and forest diversion to the tune of 4,700 hectares for the huge proposed 3000 MW Dibang Hydroelectric Project in Arunachal Pradesh. Almost simultaneously, the government has started to put additional emphasis on compensatory afforestation and valuing forests. According to the new Minister, the one cancels/compensates/offsets the other. No net loss, as the offset sellers use to say.

It matters little that both these processes—the developmental and neo-liberal environmental— have so far only succeeded in marginalizing adivasis and other grassroots communities further. Ironically, it is these communities who are the first and greatest victims of climate change. The new climate change ministry notwithstanding, there is nothing to indicate that, learning a few hard lessons from recent disasters in Uttarakhand, Himachal Pradesh and Jammu and Kashmir or super-cyclones like Phailin or Hudhud, the

government has decided to be more responsive towards them. Or that it is mulling effective adaptive measures. Drought and extreme rainfall conditions, alternately and together, threaten and traumatize the greater part of India's populace. Yet all that will the Indian government and its MoEFCC have to say about climate change is that the country will keep on burning coal in the interest of the nation!

The lies must end. No government in today's world, irrespective of the electoral mandate it enjoys, can afford to ignore the very real menace of climate change. No sane policy can justify displacing and pauperizing entire communities in the name of economic growth, and burdening the earth's atmosphere with more greenhouse gases. If our government is not ready to admit of this home truth, it becomes our collective responsibility to shout it, on the strets and from the rooftops. Innumerable small and big resistances all over the country prove that people have already started doing so. Our forests, fields, oceans, rivers, coasts and mountains, and most of all, our climate system, must be defended both against the rising temperature and the governments and big corporations who are responsible for that.

A few words about this issue

This latest issue of Mausam includes fresh reports from how communities on the ground are battling the harsh realities of a climate-changed world—the aftermath of the 2013 Uttarakhand disaster, the testimonies of climate oustees from the Sunderbans—as well as more analytical pieces on India's environmental and climate policies, the latest analysis of international climate negotiations, and an assortment of science and hard news.

This issue has been delayed but we begin this year with the hope that we can continue to publish subsequent editions promptly, sharing updated information, analysis and perspectives on varied aspects of climate justice. We invite contributions from readers on the issues related to climate change and people from across the country. We seek to facilitate constructive and creative debate and connect to and reflect on the local struggles around control over natural resources, against extraction of dirty fossil fuels, demanding rights of coastal communities, against alienation from land and for right to livelihood and food sovereignty.

We need to continue to search and support for alternatives that seek to make this planet safe for our future generations.

HOW NOT TO RESPOND TO A DISASTER:
20 months since the Disaster : Uttarakhand yet to get back on its feet

The Disaster

One of the biggest climate change triggered disasters in recent Indian history struck Uttarakhand (mainly the four districts of Rudraprayag, Chamoli, Pithoragarh and Uttarkashi and neighbouring Kinnaur district in Himachal Pradesh, as well as adjoining parts of Nepal) in the middle of June 2013. Anywhere between 4700+ (official estimate) to 11,000 or more (unofficial estimates) human lives were lost, along with countless animals and millions of trees that most likely went down, in the innumerable and massive landslides. In financial terms, the initial and extremely conservative estimate of the loss came to around Rs.4,000 crores, though in mid-July 2013, the Uttarakhand government sent an estimate for re-building assistance to the Indian government, asking for Rs.13,800 crores. The central inter-ministerial group sanctioned Rs.6,687 crores, with the understanding that 90% of the loan component from external development agencies will be paid back by the central government, leaving only 10% to be paid by the Uttarakhand government. There were some confusing reports about this Rs.6,687 crores being inclusive of the World Bank and Asian Development Bank loans of USD 250 million + USD 200 million. An initial – July 2013 – estimate by Indian insurance companies showed that the loss could be up to Rs.3,000 crores, and this is just tip of the iceberg, comprising only the probable life-insurance claims and payments for insured property (most of the houses and household goods and farms were not insured). The actual loss was far higher, as these estimates did not take into account the livelihood factor—loss of income from agriculture, livestock, fisheries, tourism (the major earner for the state), horticulture etc. This disguised but very real loss kept mounting because of stalled economic activities. In fact, the entire economy of Uttarakhand remained in a state of post-disaster torpor for many months. The Chief Minister had to be later removed in face of popular resentment. Non-functioning of the state government contributed a lot to the opposition party sweeping all five parliamentary seats in the state, in the last general elections.

Large sums of money to compensate and rehabilitate the stricken people came from the union government. The World Bank (USD 250 Million) and Asian Development Bank (USD 200 million) chipped in with sizable aids (both seem to be loans) sanctioned fairly quickly. The dysfunctional National and State Disaster Management Authorities – which faced all round condemnation and rightly so – had to wake up from their deep slumber. Several NGOs reached relief materials to remote villages.

What happened to the people in the disaster-affected areas? How did they cope with the trauma? What are the precise results of the relief and reconstruction efforts? Ever since the disaster, we kept on visiting the area, and tried to help the people, for whatever little that is worth. This is a fairly updated photo-report from the ground.

Reports from the Ground

We (led by Dr Malathi from Delhi University, some of her Post-Grad students/research scholars and her research staff, and I) have been working with about 22 affected villages in a long belt in the upper Bhagirathi valley in Uttarkashi district – one of the four badly affected districts - and some of the more remote locations. There were ten visits in the 15 months from August 2013,(below – some of the young field researchers working with us, interacting with affected villagers).

We attempted not only to assess the magnitudes and nature of the loss and damages, but also plan future responses, with active participation of the affected communities. Such responses included developing community-centric strategies for food security and sustainable livelihoods in chronic disaster situations, and

to strengthen community capacity on multiple fronts - to cope and respond. Our experiences in Uttarkashi might provide an indicator to how Uttarakhand is coping, and to what extent the systemic (official /institutional) responses have been able to achieve – after 16 months of that shocking wake-up call.

Here are the main observations from our repeat visits:

1. Main road surfaces on the Yatra(pilgrimage) routes to Char Dham (Four main pilgrimage centres and tourist destinations, strategically important for the state's economy) and other major centres have been cleared of debris, but large amounts of detritus hang over the roads still, waiting to slide down. Alternative routes have been opened up in a few places like Kedarnath, where old the route had been completely washed out. Most people fear that a couple of days of heavy rains will bring down the overhanging rocks and mud, meaning that the "cleared and restored" (as the Government claims) roads would get once again be blocked. Precisely what happened—and repeatedly—during August and September 2014, with multiple land /mud-slides disrupting road communications (the monsoon rains were delayed, so July did not see too many landslides). As the parliamentary elections approached, one could notice more earth movers and bulldozers on the road-clearing job, but the task remains far from finished. (Below – dried up debris overhang near Gangori, above Uttarkashi town.)

2. Destroyed /damaged houses in many places not rebuilt or repaired. As the state government seemed to be busy re-opening the Yatra routes,, right inside Uttarkashi town (the district headquarters), the Joshiara area looked like a bombed zone(picture below, April 2014, 10 months after the disaster), constantly reminding people (and deepening the trauma) of their terrible loss.

3. Disregarding cumulative lessons from many disasters, the state government is again filling up river beds by dumping large number of truck-loads of debris – to "protect" the heavily built-up and hence perpetually vulnerable river fronts. The picture below (March2014) is of Bhagirathi river bed being filled up with debris in Uttarkashi town – bypassing the admittedly harder option of removing numerous river bed constructions.

4.Though the World Bank claimed that one of the priority areas for their funding is to restore 'bridle paths', or smaller roads/ tracks connecting villages, till the end of May 2014 (eleven months since the disaster and nearly six-months after the loan), most such paths have received no attention. The picture below (April 2014) is of such a damaged and dangerous path connecting two villages – Jashpur and Purali— to the motorable road, with large snow patches still visible. An old woman is seen crossing this with a big load on her back. People, including children and the sick, often carrying loads on their backs, have to cross such dangerous stretches, and accidents are not infrequent. (Villagers told us that there were two recent accidental deaths in this 'khad', both caused by lose boulders).Many 'bridle paths' have been damaged/ destroyed (picture below – such a damaged path to Chholmi village: Villagers themselves did makeshift repairs in most places, but do not have the wherewithal to do a more 'pucca' job. We could see that some of these tracks/ bridle paths were being repaired in April 2014.The pace of the repair works has slowed somewhat again once the general elections in May were over.

5. The angry rivers swept away many bridges during the disaster. Most of these have not been rebuilt. Fed up with government inaction, and desperate to save the long extra walks to markets, schools, and hospitals, villagers in many places pooled resources and built their own bridges (picture below:wood & wire/ rope bridge built over Bhagirathi river, to connect flood-ravaged Didsari village, by the side of the destroyed suspension bridge, end-March 2014). One doubts how many of these bridges will be able to withstand the increased monsoon flow of the rivers. However, for the few dry months at least, the villagers were not entirely cut off from the 'restored' motor roads on the right bank. By August 2014, we saw many of these remarkable examples of people's resilience (like the one in picture above), washed away by the increased flow of the rivers (the wood-wire-rope bridge connecting Didsari is no more, like several others).

There is an interesting though sad tale here, of an unwanted impact of the World Bank loan, and of multiple actors intervening in a single zone, without clearly demarcated work areas. Because the Uttarakhand government has created a separate wing to handle and work on the World Bank loan, there was a tussle going on over reconstructing the Didsari cable-stayed bridge (there should be many other such cases). The PWD engineers overseeing the Bank-supported work want this bridge to be constructed from the loan (as this is not a motorable bridge – for which the WB has not given loan), while the state PWD wants it to be done with State /public sector funds. The total budget for this foot-animal-cart bridge over Bhagirathi is around Rs.3.3 crores (with the bridge itself estimated at Rs.1.7 crores), and one could hazard a guess about possible inducements for the local official-contractor-politician nexus. This inter-departmental feud is holding up the work on this

crucial connecting bridge, with fund for it lying idle, and disconnected villagers (including school children) trudging many extra kilometres extra on every trip.

6. Many villages threatened by landslides (picture below – April 2014) need to be relocated, but no visible action has been taken. The usual issues—land for relocating these, the financial resources —all these have been debated, discussed and noted in files. The desperate people have not been helped– many of whom live with relatives, or ramshackle one-room tenements.

7. Several villages in the upper reaches of Bhatwari block were not fortunate enough to merit visits by government officials in the first nine months after the disaster. Nor did any compensation for land, house or other loss/ damage reach the villagers. When we were doing a house to house survey in these villages (Jashpur, Purali, Sukki, etc) in March 2014, a couple of officials finally appeared – with helicopter and (covered) red-beacon car in tow. Villagers here did not even know (before we informed them and gave them copies of the Government Orders, in March 2014) that the government has announced fixed compensations for their losses. Only after repeated interventions, and the election announcements, things started moving. Very recently, from August-September 2014 onwards, government staff are seen moving in villages, forming committees in each Panchayat (the newly elected Panchayats here took charge in August), to take care of reconstruction work in these villages. Many are yet to receive the compensation money for lost/ damaged land and house . There are many instances of the Patwari(the revenue official) making an

appearance, surveying, and telling the villagers – "I am surveying the damages, but do not expect anything" (similar stories could be heard at Agora, a village in Assiganga valley , Purali in upper Bhagirathi valley and many others). In the badly damaged village in upper-Bhagirathi valley, the Sub Divisional Magistrate (SDM) rudely declared that he would deny any payment for cleaning/ restoration, because he got angry over a heated argument with the villagers over delayed response and false promises (made by the local MLA and the administration – that the villagers should clean up all the debris themselves – engaging labour and machines, and the reimbursement for that will be provided)! When the SDM visited (months after the disaster) and saw the houses are cleared of debris, he refused to accept that these were submerged by water and debris, despite enough evidence !

8. Notwithstanding the series of hydropower projects choking their rivers, and in many ways, propitiating and aggravating the disaster, most villagers get only a few hours of electricity every day. That too is often disrupted for days on end, as power lines are prone to damage by storms and heavy rains . However, one small positive development is that families in many villages have been given subsidised solar lanterns with mobile charging point, and these are proving very useful. Picture below – small solar PV panels hanging from wires in remote Purali village – facing the Sun, charging batteries. This can easily be scaled up, with significant benefits - with subsidised solar PV systems with three LED bulbs, mobile charging point and small TV running capability. Given the situation on the ground, this seems quite remote, though.

9. Several foundations owned by private corporations came with relief after the disaster, .More importantly for the disaster-affected villagers – they promised help in reconstruction and jobs to the un-employed youth. The Reliance foundation's paltry relief operations (loudly visible by the 'Reliance' marked T-shirts and caps) winded up, after a lot of showing up than any real help, even in terms of simple relief distribution. The TATAs promised long-term help like dozens of jobs from each affected district, saying that they would train up locals and later employ them. **Few of these trainings/jobs seem to have materialised.** The TATAs also promised to reconstruct the devastated Didsari village, and did a few ground-level surveys. This initiative grounded to a halt in the government indecision about whom to allot which village for reconstruction, and where the state itself will do the job.

10. One of the biggest administrative blunders beyond the June 2013 disaster was that the villages in affected areas (or for that matter, even the concerned district officials) had no warning /information about the possibility of heavy rainfall over a very short period. The Uttarakhand meteorology department in Dehradoon gave a somewhat general warning of very heavy rainfall in these districts, but that information never reached the affected people. This was a reason for the central and Uttarakhand state governments, as well as the World Bank, giving high priority to setting up disaster warning systems across the state. The work to install the Doppler radars has started, and the World Bank loan has a specific component for strengthening disaster warning. However, the lackadaisical attitude of the administration became evident when in July 2014 – there was another warning of heavy rainfall, and a handful of lethargic police constables were seen pasting small hand written posters warning people not to go upstream, at the peak of the "Kanwar" Yatra (when lakhs of devotees carry water from Gangotri and walk down to Haridwar). Not many were stopped, and neither were the constables appeared halfway serious. We found this out by simply answering to their question – "how many bholay's (devotees/ Kanwaryatri) are there in the vehicle?", We said, "none, we are all Bhaley (good people)", and the constable coolly let us through without even looking inside the vehicle !

Several NGOs and 'experts' opined that - 'there were not even rain-gauges in the area, so how would a proper response be evolved'. Again, the reality is a little different, and an important lesson has been missed. We saw a few automated weather stations installed years ago, which still seem to be working – in some of the same villages struck by the June 13 disaster, and none of the villagers had any information or even inkling of what these were! The critical lesson that was not learnt, is that in a disaster situation, one of the first things to break is the long and hierarchical chain of information and command, and one of the best methods is to empower the communities themselves (a lesson the bureaucracy never likes).

11. The economy of the state of Uttarakhand has grown rapidly after it was carved out of Uttar Pradesh, and one major contributing factor is the rapid growth of tourism – both religious and nature/ adventure. It is often argued – and rightly so – that a state with a very fragile Himalayan landscape /ecosystem covering a major part of its geography, cannot sustain an annual tourist inflow of over two and a half times its total population of 11 million (1.1 crores), without harming its natural and human lives. The reality nonetheless is that tourism in Uttarakhand today generates a major chunk of the jobs and livelihoods, and contributes to over one-quarter of its GDP. That life sustaining tourist inflow has come down to a few million after the 2013 disaster (from about 30 million a year), and the severe economic impacts are there to see all around the state. **Over 90% of the small and middle-range hotels (built and run mostly by families) lie idle, the restaurants and dhabas have little income, hundreds of thousands earlier employed as hotel workers, porters, shop-keepers, guides,**

mule-runners now find it increasingly hard to carry on living. The large chain of service providers to the tourism economy – transport operators and workers, vegetable and milk vendors, priests and other temple workers all today face the same uncertain future. The scale of the continued disaster can be had from a simple arithmetic: take the 30 million tourists, each spending Rs.3000

on an average (before the June 2013 disaster). This means a revenue of Rs.9000 crores (nearly USD 1500 million) each year. This was reduced by anywhere between 75-80% or more! Of late, the government is trying hard to restart the mass religious tourism, by even advancing the Yatra opening dates and announcing that the Yatras will continue in winter – to the winter resting places of the deities, but the bad condition of the roads and the memories of the disaster prevents tourists from coming back.

more about their plan in Uttarakhand, we were told that the Bank's priorities are housing, rural connectivity, building mountain community resilience and technical capacity of the state to respond to such threats in future. This was reflected in the loan agreement papers. We were also told that none of its funding would be for restoring the damaged hydropower projects or major roads. Rebuilding damaged public and private houses and rural connectivity ('bridle paths") were said to be urgent steps, particularly in view of the 'coming winter'. More than one winter had come and gone the "urgently needed housing reconstruction" was hardly visible. When some of the "pre-fabricated" houses started getting built (large contracts to a few private companies to supply and erect them – a good example of how large-scale market capitalism takes opportunities like this to enter and distort/destroy local economies), the people protested and refused to accept these houses (mostly because of their unsuitability to local conditions and needs). As a result, in many places, the government is now giving the money to the families to build their houses themselves – a positive example of grass roots activism—saving local economies and taking control back.

We saw hundreds of public and private (damaged/ destroyed) houses and buildings lying as they were in August 2013 (our first visit after the disaster) – all around Uttarkashi district. The picture above (April 2014 – same in Sept) is of a destroyed B.Ed College on way to Maneri.

The picture above shows a damaged private house in Bhatwari (the Block headquarters) bazaar, with the distressed owner partly visible (March 2014). These are right on the National Highway to Gangotri, so the state of houses and public infrastructure in interior villages can be imagined.

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School's Closed

At the Boatkhali Kadambini Pre-primary School in Sagar island in the Sunderbans, classes stop for five-six days each, twice a month, during June to August. Sea water invades the classrooms to a height of one-and-a-half feet, rendering teaching impossible. "It recedes after 2-3 hours, but it happens twice a day for a few days, so no classes are possible. Children only come for the mid-day meal," the teachers at the school said.

There are complex and multiple causes behind sea water invading lands in this vast deltaic ecosystem, and the submergence of islands such as Lohachara and Suparibhanga. The landmass itself is subsiding at 4 millimetres a year. There's erosion caused by river flows. Structures built by the Haldia port authorities have accentuated erosion many kilometres downstream, in Ghoramara and some parts of Sagar island. Having said all that, there's no doubt that the finger of global warming is beginning to press harder. Studies suggest that relative sea level rise, which was little over 3 mm a year between 1985 and 2000, increased during the first decade of this century, land subsidence included, to a staggering 12 mm a year.

The combined effects of these factors, human and natural, has meant for tens of thousands the abandonment of agricultural land and homes to the sea, and forced migration. All along the coasts in G-Plot, Sagar, Ghoramara and other islands of the Sunderbans, innumerable families are being forced to set up home elsewhere. It is an ongoing process, as people leave for more inland parts of Sagar island, or migrate to join the labouring poor in Kolkata, and as far afield as Kerala to do construction work. Others prefer to stay and change occupations to fishing so as to avoid having to migrate. Many farmers end up as agricultural labourers. Sunderbans confirms one of the tragic ironies of global warming: those least responsible for it end up as its greatest victims.

Those that remain fight a grim battle against the invading sea; in one house we stayed in at one edge of Sagar, packed sandbags were piled up to one side of the door, used as a barricade when the tide comes in during certain months. Their lands in front of the house had turned saline, the freshwater body rendered useless; all along that stretch of coast were abandoned homes and lands, broken trunks of dead coconut trees jutting into the sky creating a landscape one can only describe as surreal.

What's happening as a consequence of all this is a continued fragmentation of families and of communities. A couple of things differentiate the displacement happening here in the Sunderbans from displacement elsewhere in India: one, the number of times that people have been forced to shift. We met one old couple that have moved eight times so far. Three to four moves inwards are commonplace. And unlike earlier years, it's getting more difficult for people to find new land to till.

The second and crucial difference is a vastly reduced agency. Displacement from industrial and mining projects elsewhere catalyses local people coming together and resisting the process. In the case of displacement in the Sunderbans due to sea level ingress, such collective agency is largely absent. It is at best restricted to a form of climate adaptation to buy time. A repeated refrain across different islands was the demand for embankments, for higher embankments, for sturdier embankments made of boulders and concrete. One political party's poster in G-Plot in Patherprotima Block reflected this pent-up demand: "If you want a higher embankment," it went, "vote for us". How one can build resilient embankments and still allow for drainage and thereby avoid internal flooding is moot.

Much as land subsidence has been a weightier factor here historically, that won't be the case for long. The IPCC's latest *Summary for Policymakers* said that sea level rise in this century could be as much as a metre. Subsequently, a group of 90 scientists from 18 countries who research sea level rise said it would be even higher. The pre-eminent climate scientist James Hansen has been writing for years that 21st century sea level

rise will occur at an accelerating pace due to a nonlinear melting of the great ice sheets on Antarctica and Greenland. We are talking about sea level rise this century that would be anywhere between five to 15 times the rise we've had thus far.

What's deeply worrying – or ought to be, at any rate – is that what we are seeing today in the Sunderbans are glimpses of India's future. Sea level rise in much of India's 7,500 kilometre coastline would very likely be as much as Sunderbans' present thirty years from now. Kids all along India's coast may be delighted that their schools have unscheduled holidays, but we are facing coastal erosion, the destruction of agricultural lands, salinity in groundwater bodies, storm surges, forced migration, and potential conflict, on a scale too horrifying to contemplate.

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CLIMATE VOICES:
Testimonies from Climate Refugees from the disappeared Lohachora Island

The sea has been nibbling away at the Indian landmass for decades, none more so than in the Sunderbans, the vast deltaic ecosystem straddling eastern India and Bangladesh. For reasons relating to the shape of the landmass and ocean currents, the rate of relative sea level rise here is well over twice the world's average rise.

As always with climate change, the poorest and those least responsible for climate change face its consequences the most. Sea level rise has meant for tens of thousands the abandonment of agricultural land and homes to the sea, and forced migration. Below we present **voices from former residents of Lohachora island**, one of the islands in the Indian Sunderbans that was swallowed by the rising waters. (For reasons mentioned below, it resurfaced slightly in 2009.) What comes clear from these interviews, conducted in 2011, is the desperation and the people's limited agency in the face of relentless sea level rise, and that such forced displacement pushes them even further into abysmal poverty. It is disturbing that these grim voices of Lohachara today will be echoed by tens of millions of people along India's coasts in the years to come as sea level rise becomes faster and faster

As with all impacts of climate change, multiple factors come into play, it's never climate change alone. Nor should climate change factors be viewed in isolation. For one, the entire landmass along much of India's east coast is subsiding, accentuating the rising sea levels. Two, changing patterns of river flows and erosion caused by the Ganga contributed to Lohachara's submergence and reappearance a few years ago. Man-made structures built by port authorities have also contributed to erosion many kilometres downstream near Lohachara and other islands.

But the fact of the matter is that sea level rise is in recent years acquiring greater and greater urgency and weight. Relative sea level rise, which was little over 3 mm a year between 1985 and 2000, increased during the first decade of this century, land subsidence included, to an alarming 12 mm a year. Many respected scientists worldwide, including the world's most famous climate scientist James Hansen, has made the point that future sea level rise in the 21st century will be non-linear and will speed up, and that IPCC predictions are an underestimate. We ignore sea level rise at our own peril

– *Mausam* editorial team

VOICES

Varatmani (middle-aged woman)

The island was quite big...many people lived there...when that went to the river...people left...some came here...about 70-80... at a time 10-20 bighas went

The land is washed away...the tide...current was so strong...the area was sandy...land caved in...when there is no longer any livelihood to be had from there...the place where our home was, there is no longer any island...it's finished...no traces left

Gopal Bhnuiah

..Now I am 68...erosion from 1965 onwards...within next 30-35 years, the island's gone. ..

land started disappearing...20-30 bighas a day...then 100 bighas,,,land became scarce..and so did people...they scattered everywhere...when water started seeping in, we shifted to our boats, then the government built a dyke...thus it went on

Ghoramara was a large area...there were 16-18 villagers in Ghoramara...if you go there you will see a buoy...that was Lohachora boundary..to its east...to the south was Superibhanga...that too is gone...

Nimai Jana (middle-aged man)

The island was huge...if it is in existence today, there wouldn't have been any poverty...people were not poor there...but if the island's no longer there, what to do?

Unnamed villager (male)

The Lohachar land—island's washed away...the entire island...had about 20-25 bighas of land...it subsided...within 2-3 years...Govt erected a few dykes here and there...came here 20-22 years ago.

Ranjan Jana (female)

The island's gone because of the dyke they put up...the current's diverted...and the island's washed away...now ships pass there.

600-700 families lived there...think how many people

We lived there for many years...many people...many families...when the houses went one after another...everybody fled...why won't they? How can I tell you why? If the river takes it...how can people live? Won't they flee, or won't they?...

Unnamed woman

Some people and animals died in the slide...there were eerie sounds...we ask what? Then..suddenly...the land went just like that...thus the island..the river's not going to listen...

Only a small creek separated Lohachora from Ghoramara...people crossed over everyday...Lohachora went to the river, Ghoramara is about to go...it won't be there longer...this land Government gave to us refugees..to the homeless..it's called Colony Para

Our 40 bighas land was gone...in front of my eyes...during the tide...one could see that the cracks had appeared...unless you see it you won't know what erosion is...

...salt water entering the fields...yes, when it happened the crops were ruined...then where else the dyke was breaking...the Government then gave us alternative land...

What happened when the water came...what's the point in talking about that suffering...you'll feel like crying...days went without food...here too

it is difficult to grow anything...you'll think how could people suffer so much and yet live?

Anil kumar Mondol (elderly man)

I was a student...used to go to school...when the school went to the river, then I went with the boat...when our homestead had gone we shifted to the dyke to stay...then we came here...first 25-30 families, then others from Lohachora...I have been working as a boatman for 30-32 years...

Sabita Pal (middle-aged woman)

We are from Ghoramara...our land went to the river...then we came here...the island's sliding to the river...huge chunks of lands went at a time...we had 25 bighas of land..now nothing.

Unnamed woman

My parents were in Lohachora...sea has eaten it...I don't remember. When I was a child my parents came here...to Sagar...it is just water there...no habitation any more...just water

Unnamed woman
We were in Lohachora...is there any Lohachora? The sea had eaten it...how could it exist anymore?...my mother-in-law could have known...she is dead

Unnamed woman
Lohachora...somehow we survive...children have gone elsewhere for work...had 40 bighas there...the waves...Government couldn't do anything...they gave just this land—now nothing...see this road..a pregnant woman will die any time...relatives all are dead...how long will I live?....no drinking water here, neither good crops...salt water comes...our pond is ruined...water is salty...the river-water comes in...

Robikanto Paik
Slide after slide...chunks of land disappearing...how could people live? We stayed there...within 7-8 years the island disappeared...

Sekh Amanat
We were in Lohachora...that is gone into the river...kept on shifting...all those places are in river...

Uttam Kr. Pramanik
here we had to toil

Jaytun Bibi
We live in utter distress...they built some dykes..

Sajed Khan
our home is lost..forever
Purnima Mondal
people are migrating…Can we do something to prevent it? The erosion?

Pratima Mondal
People migrate.. Because our lands are under water...we live like beggars... we had to go without food...Many lands were gone...so was mine...king-like people were turned into paupers

Unnamed woman talking about Cyclone Aila (2009—interviewed in September 2011)
Our home is in the river...the present home breaks every-time the tide appears...we escape to the school.

Sukumar Maiti
This place is submerged because the riverbed's higher...the tidal currents strong...many lived here...they all left...river is coming in all the time...people had to go...

Unnamed very old woman
When our house fell, government has settled us on this less-than-an acre plot...less than an acre, and not a bit more...not a bit more. We came here 30 years' ago, and they gave us only this thatched house...and nothing else. No cemented house for us...What could we go if the Ganga calls....all gone to tides, great tides! Means that water from the big river...the waves broke it up...we are all 'washed away' people here...flotsam...we have no property.
Could not give anything to my daughter, while marrying her...How could I...washed away people? How could I...how? Couldn't even give the girl a little seed of grass...only this much...I couldn't...
More than 30 acres of land...the house...all gone to the river...all gone...
tell me what do we have?

Sekh Abdul Goni

We were in Lohachora...everything went to river...I was born there...so far as my memories go...slides all around...land going to river

Sekh Soharuddin

Everything went to river...I was there long ago...till 1950s—60s. Mother Ganga took it all. Who knows why...
Why the river took ours and not another? Whom do we ask? God?
The side we lived had a 4,500 bigha property...that went...one after another turned into beggar...it's the same now...we live like paupers

Unnamed boatman of Lohachara

Father told us that English officers stayed at Ghoramara...there was a telephone connection...once my parents were digging...the saheb gave my mother 4 bighas of rent-free land… Ghoramara was a dream...seeds accidentally falling from one's hands became a tree... "Roypara was there...Sukesh Master lived there...there was Bostompara...completely gone… see that ship? .that was Lohachora.
When I ran my own boat from Lohachara...did so for 25 years...I used to start from the Maitis' home...in that south-southerly wind...while Bono Maiti used oars, we started using sails...for that three km stretch, that is one-and-a-half on either side or something...I still remember the rolling waves...oars weren't of any use...
Lohachara adjoined Ghoramara...now you won't even know that the place was there...ships pass that way now...In 1974, we left the island for good...the Government started transferring people to Sagar area, first to go was Phuldungi... One after another, people started leaving in droves...
Only 12 families stayed till the end..they went to Suparibhanga and started to till that land...Lohachara by that time had disappeared...when Suparibhanga too started to go....they went to Sagar...
Then Government said, no more dykes...we had to Ghoramara to get rations...had to walk three miles after crossing the river...then everything went to the river...

Unnamed old man of Lohachora

We are in Lohachora right now...south of Ghoramara...nothing exists any more..but we were born here… one slide would have taken 3-4 bighas...we lived in abject terror...had to stay in someone else's house...in the dyke. memories refuse to die...now we live in terrible times..

Unnamed old man of Lohachora

The river had taken all our lands...that's why government had given us some lands here.....in the river water...it had melted away...completely.....the entire island

(The testimonies were rough transcripts of interviews taken during the shooting of the documentary film, *Tales of Climate Change and Development* by Soumitra Ghosh. Most of the Lohachara refugees now live in various parts of the Sagar Islands in South 24 Parganas, West Bengal)

CLIMATE TALKS 1

(In addition to the points raised in the following three pieces on climate negotiations, it should be borne in mind that the essence of the Kyoto Protocol was the attempt by capital to profit from the climate crisis through the mechanism of carbon trading, which has been the focus of pieces in earlier issues of Mausam
– editorial team).

Keep the Climate, Change the Economy

Contrasting outcomes of recent global warming meetings

Two recent meetings on global warming, one scientific and the other political, are of great public interest as they have a bearing on human society's future course to become a sustainable global community. The meetings contrasted each other in the clarity of their outcomes.

The first meeting was held by the Intergovernmental Panel on Climate Change (IPCC), a body of over 2,000 scientists. IPCC released its fifth assessment's synthesis report in Copenhagen end-October 2014. The report states unequivocally that *"Human influence on the climate system is clear."* Further, it warns that the emission of another 1,000 Giga tonnes[1] (Gt) of carbon dioxide (CO_2), referred to as the carbon space, is likely to raise average global surface temperatures by 2°C above pre-industrial times. This is considered dangerous to the environment and human society.

Since the industrial revolution began in the mid-18th Century, humans have used 35% of the known 1,700 Gt of conventional fossil fuel reserves, and cut a third of the then existing 60 million km^2 of forests to emit 2,000 GtCO_2. The consequent 0.85°C average global temperature rise over pre-industrial times has triggered significant changes in the physical, biological and human environments. For example, rainfall variation has increased, extreme weather events are more frequent, pole-ward migration of species is noticeable and their extinction rate is higher, human health, food and water security are at greater risk, crop yield variations are higher, a 19 cm mean sea rise and a 40% reduction in Arctic's summer ice extent have occurred over the last century, glaciers have shrunk by 275 Gt per annum in the last two decades, and social conflicts have increased.

In the second meeting, held in early-December in Lima by the twentieth Intergovernmental Conference of the Parties (COP20), countries jostled to gain maximum advantage while negotiating global warming mitigation and adaptation measures. The Lima meeting is a run-up to Paris COP 21 at the end of this year, where a successor agreement to the expired Kyoto Protocol (KP) is to be finalized. The COP20 outcome is weak and dims hope for an effective, binding and just agreement to be signed in Paris. A face-saving *Lima Call for Climate Action* was cobbled together at the eleventh hour of COP20. It requests countries to communicate by mid-2015 their intended contribution to tackle global warming, including emission targets, which can be discussed in the Paris COP 21.

International cooperation on global warming began in 1997 when the Kyoto Protocol was drafted at the COP3 with the object of stabilizing greenhouse gases (GHGs), a basket of six gases, at levels that prevent dangerous human interference with the climate system. The Protocol granted preferential emission rights to 42 developed countries (termed Annex 1 or A1), obliging them to together reduce their GHG emissions in 2012 by 5.2% over their 1990 emission levels. Since CO_2 constitutes 76% of GHGs, it is often used to

represent all of them. International transport emissions were excluded from the Protocol, and developing countries (non-Annex 1 or NA1) were exempt from making emission cuts. The US, the largest emitter till 2005 until China overtook it, did not ratify the KP and is not bound by it. By 2011, Canada's emissions increased drastically and it pulled out of the KP.

Kyoto Protocol and recent emission reduction pledges—too little too late

In the 1990-2012 KP period, A1 countries reduced their emissions by 16%, i.e. 32 $GtCO_2$. At first glance, it appears that the A1 countries met their emission reduction target comfortably. But there is more to this than meets the eye. A1 countries met their KP target because East Europe's emission reduction compensated for the under-performance of other A1 countries. Emissions of non-European emitters—Canada, US, Japan and Australia—rose by 6%, instead of decreasing by 6% as prescribed by the KP. West Europe reduced emissions by 7%, a little under their 8% target. East Europe and Russia had a reduction target of 5-6%, but reduced emissions by 55% as their economies shrank drastically after the 1990 Soviet bloc collapse.

More importantly, A1 countries' emission reduction is fictitious. Under the KP, emissions from the production of goods and services are credited to the country that produces them, regardless of where they are consumed. In the last two decades, A1 countries have become large net importers (imports minus exports) of goods and services from NA1 countries, particularly China and India. This is to the advantage of A1 countries. Cheap imports from NA1 countries helped A1 countries maintain high consumption levels at low costs. Emissions from producing the imports were credited to the producer NA1 countries and not the consumer A1 countries. A1 countries net trade emissions (emissions from producing imports minus that of exports) was 45 $GtCO_2$, 40% over their stated 32 $GtCO_2$ emission reduction by A1 countries during the KP period.

Substituting coal with gas in Europe and reducing the carbon intensity of A1 country economies helped reduce A1 country emissions, but not significantly.

The KP failed on another count. Its bar was too low. A1 country reduction of 32 $GtCO_2$ represents merely 1.5% of their emissions between 1750 and 2012, and is too little to slowdown global warming.

The KP's singular achievement, if any, is increasing awareness about global warming. The KP's emission cost over the last 20 years is 3 million tonnes of travel emissions of the negotiators and lobbyists; the same as that of a small country such as the Kingdom of Tonga. It will take the forests area of the Nilgiri Biosphere (~5,000 km^2) a full year to sequester this emission. The four largest emitters, who release 60% of global GHG emissions, have recently announced emission reductions. But they are too little too late. European Union pledged a 40% emission reduction over 1990 by 2030, US by 26-28% over 2005 by 2025. India is to reduce emission intensity of 20-25% over 2005 by 2020, and China is to peak emissions by 2030.

If emissions trend in a business-as-usual manner, the remaining carbon space of 1,000 $GtCO_2$ will fill by 2035. The math on the emission reduction pledges made by the four large emitters and several small countries indicates that the 1,000 $GtCO_2$ carbon space will fill by 2040 instead of 2035. Former Environment Minister Mr. Jairam Ramesh's optimism expressed recently about the US and China pledges being helpful is misplaced.

The United Nations Environment Programme's Gap Synthesis Report, 2012, assesses that to avoid a temperature rise exceeding 2°C, global emissions must peak by 2020 at about 40 $GtCO_2$ and reduce by 2-3% per annum thereafter. Emissions in 2014 were 37 $GtCO_2$. If the current emissions growth rate of 3% per annum persists, emissions in 2020 are likely to be 44 $GtCO_2$, 10% more than the desirable level. IPCC consequently warns that without greater mitigation, temperatures may increase by 4-5°C by this century-end, and that "*The more we disrupt our climate, the more we risk severe, pervasive and irreversible impacts.*"

Developing countries in a Catch-22 situation

The discussion on the KP's successor is about emission shares of various countries in the remaining carbon space, usually seen as being synonymous with development space. To retain their development advantage, A1 countries claim squatters' rights in this space, while NA1 countries demand equity to gain more development room.

Since 1750, 75% of the cumulative emissions, termed historic emissions, were released by A1 countries. Their per capita (on current populations) historic emission is 1,300 tonnes, four times that of NA1 countries. Even if the entire remaining 1,000 $GtCO_2$ of carbon space is allocated to NA1 countries they will not achieve A1 countries' development levels.

To gain development space if NA1 countries refuse emission targets in the COP21 meeting, the consequences of global warming will hurt them the most, particularly their poor, as geographically and economically they are more vulnerable to climate change impacts than A1 countries. If they accept emission targets, development inequality between them and A1 countries will persist for a long time. Out of the box solutions must now be considered seriously.

Towards a sustainable and equitable society

Global warming is a consequence of fossil fuel overdraws to satisfy the ever rising consumption levels of rich nations and classes. Carbon space allocation cannot solve the global warming problem as it is rooted in anthropocentrism and ownership rights over nature.

Anthropocentrism prioritizes human use of nature. Humans have overdrawn natural resources for their benefit but to the detriment of other users. Consequently several life-support systems, e.g., land, water, forests, the carbon and nitrogen cycles, are now frayed. If this process persists, nature will no longer be able to support a healthy human society.

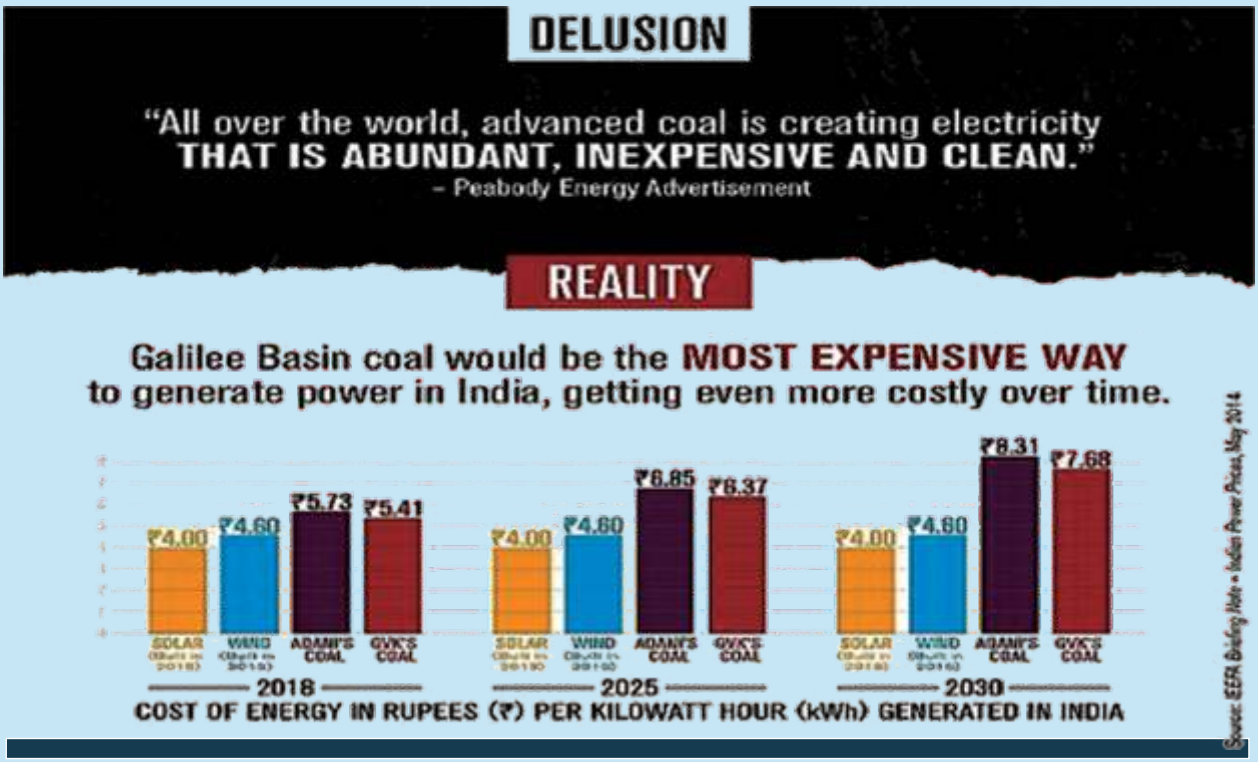
Ownership of nature allows the owner to harvest natural resources from his property to create and accumulate wealth. As natural resources from land were the easiest to harvest, it was colonized and privatized first, followed by water. The atmosphere holds few exploitable resources, so remained a global common till recently. The KP began privatizing the atmosphere by granting preferential GHG dumping rights to A1 countries. The desire to accumulate more wealth expands colonization and privatization of new land and water spaces, resulting in economic growth. It is like riding a perpetual motion machine which is addictive and from which the rider cannot get off. As emissions increase with growth, so does the need for more carbon space. Preferential ownership or dumping rights over nature sanctifies and perpetuates an unequal class society, and invariably generates conflict.

These contentious but fundamental issues are skirted in the COP discussions, and technical fixes are instead proffered—energy efficiency, alternate energy sources and carbon capture. Technology can help, but cannot solve the problem of energy overdraw. Energy efficiency has technical limits. History shows that greater efficiency increases consumption, not reduce it. Green energies are less energy dense than fossil fuels, so are less attractive. Solar and wind energy provide less than 0.5% of the 13 Gtoe (giga tonnes of oil equivalent) of global commercial energy consumption today and are not yet capable of replacing fossils. Nuclear energy has stagnated as it has safety and cost issues. More importantly, economically mineable uranium ore can fuel current nuclear generation capacity for just another 100 years. Carbon capture is an unproven technology.

COP delegates negotiate to maximize their countries' gain while minimizing their give-aways. Global warming is a global problem. Only those who can set aside national identities can tackle it best. Alas, such negotiators do not exist today.

For human society to become sustainable, four global-level actions are needed: halving current global energy consumption; moving towards energy equity; relying primarily on the sun for our energy; eschewing anthropocentrism and altering private ownership rights over nature to usufruct rights by changing human society's outlook from *"gain maximization for a few"* to *"risk minimization for all."* This implies that North America must reduce its energy consumption by 90% and other A1 countries by 75%; guarantee minimum sustenance energy to all; innovate in new solar and biomass energy technologies; and implement a uniform risk and emission standards for all people.

These actions pose philosophical, political and technological challenges that national leaders alone cannot tackle. People must help and guide them, as they did recently in the climate change marches across the world with the slogan, *"Keep the climate, change the economy."*



Keep the Coal in that Australian Hole

Coal is known to be the worst climate offender, with the maximum carbon dioxide emission per unit of usable energy produced, when burned. Indian coal power plants emit – on average - over one Kilogram of CO2 for every KiloWatt hour of electricity produced, and this is almost double that of a natural gas powered power plant (alas, India do not have enough gas, with existing gas-fired plants running below 50% Plant Load Factor). And it's not only CO2: coal mining, processing and burning also emits toxic heavy metals, brain-endangering mercury, poisonous fly ash, health-damaging acidic oxides and particulates plus liquid wastes to boot. A study released last year by CAT, GreenPeace and Urban Emissions,put the annual death toll in India from coal burning particulates conservatively at 100,000 ! For many of these reasons, people around the places where coal power plants either operate or are proposed, resist these monstrous contraptions.

And yet the Indian government and their corporate masters keep planning and constructing large number of coal power plants. The argument goes like this – yes, Coal is polluting, but it is the cheapest source to provide affordable power to India's unserved millions and its growing industrial & commercial power needs. Of late, imported coal from Indonesia and Australia are being increasingly used, to overcome domestic production shortfalls.

Is this true ? A study (IEEFA briefing note – Indian Power Prices, May 2014) (infographics from www.facebook.com/marketforces) – takes the bottom out of that propaganda. The earliest any such imported coal based power plant power plant can come up in India– if construction starts today – is middle or end of 2018. By that time, the cost of power from those imported coal power plants will be significantly higher than the minimum-pollution Solar or Wind power plants, whose costs are falling. At the same time, cost of coalpower will keep rising, partly because of the cost of coal itself, and partly to implement more pollution control under public pressure. And with the years, this economic disadvantage of coal will increase.

Soumya Datta

If Gandhi's saying, *"The world has enough for everyone's need, but not everyone's greed"* is not heeded, and if we fail to leave two thirds the remaining fossil fuels reserves underground to avoid overshooting the 1,000 $GtCO_2$ of the remaining carbon space, nature will resolve the global warming problem with peak oil, i.e., oil extraction maxing followed by decline, which is happening now. At current consumption rates, there are only about 45 years of conventional oil reserves left, 55 years of conventional gas and 100 years of coal, after which the fossil fuel era ends. Mining of emission-intensive unconventional oil and gas (shales, etc.) is banned in many parts of Europe, America and Africa. If the COP climate negotiation process does not tackle global warming quickly, effectively and justly, the consequences of peak oil will be harsher than that of global warming, and may lead to a possible civilizational regress.

NOTES

[1] A Giga tonne (Gt) = 10^9 tonnes.

[2] A tonne of oil equivalent (toe) is the amount of energy contained in 1 tonne of crude oil = 42 Giga joules

Sagar Dhara

(The author belongs to the most rapacious predator species that ever stalked the earth-humans, and to a net destructive discipline—engineering, that has to take more than a fair share of the responsibility for bringing earth and human society to tipping points. His email id is sagdhara@yahoo.com)

The article first appeared in the blog *Kafila*, 29 January 2015, http://kafila.org/2015/01/29/climate-change-keep-the-climate-change-the-economy-sagar-dhara/

On the Lima Conference of the Parties (COP 20): Reports from two meetings

[The following report highlights the main points at two meetings organized in Delhi recently around international climate negotiations following the 20th Conference of the Parties (COP) at Lima, Peru in December 2014. The main speakers in both meetings had just returned from the Lima COP.

Text in square brackets are our own observations. In our view, where the negotiations have reached after over twenty years is deeply disturbing and dangerous for the planet – they have moved away from what the climate science tells us, are fragmented and bottom-up, with current and future pledges being so weak as to commit us to dangerous levels of warming way beyond 2 degrees Celsius. And there's not even an assessment mechanism that would scrutinize whether existing pledges are meeting targets. The narration below makes clear how chaotic the process has been, how weak various countries' pledges are or will be later this year, and how, even if their commitments are met, we are assured of climate disaster – the *Mausam* editorial team]

At a meeting organized by the Centre for Policy Research (CPR) on 23 December 2014, the main speaker, who happens to be one of India's pre-eminent experts on the ongoing international climate negotiations, said that going into Lima there were some key issues that needed resolution: one, the scope of the pledges to be made by different countries: Were what are called intended nationally determined contributions (INDCs) open, i.e. would they focus only on mitigation, or would there be parity between mitigation and adaptation? Two, would there be a subsequent assessment of each country's INDCs? Will they collectively meet the 2 degrees Celsius target? Will there be equity in this?

What came out was a weak *Lima Call to Climate Action*, which repeats the language of the Warsaw COP in inviting parties (nation-states) to make their contributions. Countries are required to submit their INDCs at the latest by May this year, because there needs to be a minimum of six months between submissions and the crucial next COP in Paris at the end of the year. At the moment, most parties are hedging and waiting for the next one to submit.

The Lima Call to Climate Action is silent on issues like finance. The scope of what the INDCs should cover – as to whether it should focus on mitigation of carbon emissions (as desired by developed countries and the Least Developed Countries, the LDCs) or also on adaptation (as desired by developing countries, including India), and also issues of finance and technology transfer – has been left to individual countries. One should bear in mind that some of this could be conditional, on commitments made by other parties. Third, whether or not countries provide information has also been left to individual countries. Additionally, the parties may include time frames for meeting their commitments in their individual pledges. The one caveat of all this is that there can no backsliding: parties cannot commit in their INDCs less than what their existing commitments are. [So for instance, India has committed to a 20-25 per cent decline in emissions intensity by 2020, i.e. carbon emissions relative to per unit of GDP; its INDC cannot be less than this commitment.] There's broad support for this view that INDCs should not be less than existing commitments.

One point that the speaker made was the key role played by the United States and China at Lima, and that they would continue to do so, something to the discomfort of the European Union.

Differentiation, over common but differentiated responsibilities [a keystone of the Kyoto Protocol and of climate negotiations until recently] was the only issue on which there was a clear North-South divide; on all other issues the divides vary, with various group and coalition formations. Has the principle of Common but Differentiated Responsibilities shifted? The Durban Platform had no reference to it. Clearly there has been a

shift away from CBDR. The speaker concluded by commenting on India's negotiating strategy, making three points: one, India needs to have creativity in its positions; we need to be more creative on assessment, right now there is a blanket opposition, and three, we need to be cleverer in using possible bargaining chips.

In the discussion that followed, one senior expert on energy issues made a number of points. He said: one, India has lost control over the negotiation process. It's no longer a party-driven process. India's leverage will reduce, which has been happening since Bali. Two, the INDCs are not defined. The Bali Action Plan [of 2007] had four pillars – mitigation, adaptation, finance and technology. Three, the absence of ex-ante assessment. How it becomes legally binding is an issue; it has taken us even farther from the goal of preventing warming of 2 degrees celsius; no country will suffer more than India if the world crosses 2 degrees, so we have a stake in ensuring that we stay under 2 degrees. But we are on a trajectory of 4-5 degrees C. Four, equity is the other face of CBDRRC (Common but Differentiated Responsibilities and Respective Capabilities). Equity is built into CBDRRC. The Lima Call to Climate Action does not say how we will operationalize CBDRRC. Being part of the BASIC group has let us down. We are the natural leader of the bottom 50 per cent countries, not with China. China is in a different league, in terms of per capita emissions 5.5 times that of India's per capita [China has recently crossed EU per capita emissions].

One question came up regarding the implications of the US-China climate deal of November 2014 for pledges by different parties, and the fear that INDCs would also be weak just like the deal is. The speaker responded to say that there's a lot of analysis currently examining the numbers of US-China deal suggesting that it is weak. One restriction is that INDCs need to be not less than what we have already pledged, but each country is waiting for the other to submit its INDC. And there is no external assessment; India has opposed it.

The second meeting was organized by SADED on 6 January 2015 – the first climate meeting in Delhi in what should be a significant year for climate negotiations – and addressed primarily by Soumya Dutta of Beyond Copenhagen collective and Ajay Jha of Pairvi, both of whom and whose organizations are also active members of India Climate Justice. Marko Ulvila from Finland and Professor Jayanta Bandopadhyay chaired this meeting.

Soumya Dutta provided a critical overview of the Lima Conference of the Parties, by commenting on climate negotiations and politics in recent years. Among other things, he showed how negotiations in recent years have moved away from being rooted in climate science – whose consensus is based on limiting atmospheric carbon dioxide to a level that would prevent crossing the landmark 2 degrees Celsius of warming – to one that is based on intended nationally determined contributions (INDCs) that are inherently bottom-up, fragmentary, and taken together will commit the planet to dangerous levels of warming.

There are some significant differences, he said, between the current period of negotiations and the time when the Kyoto Accord was being thrashed out. One key difference is that there was a key divide between developed and developing countries at that time, which was reflected in obligations; only 37 developed (Annex 1) countries out of roughly 194 nations had obligations to reduce emissions. It is by now common knowledge that Kyoto Accord had its weaknesses – though legally binding, there was no provision for penalties. Two, most developed countries talked of mitigation but it had a 'flexible mechanism' to reduce emissions by giving money to developing countries via purely market-driven mechanisms such as carbon trading. All emission reductions achieved thus are notional and not actual [and are themselves often fraudulent, as studies by other ICJ members have shown]. Actual reductions happened in a few countries and blocs; though EU peaked in 1990: even in the EU, some countries' emissions rose. Notwithstanding these weaknesses, the Kyoto Accord had some good features: the common but differentiated responsibilities (CBDR) and respective capabilities (CBDR-RC). And it recognized that the countries responsible for historical emissions had a greater responsibility to act.

By the 2009 COP in Copenhagen, the principles of CBDR and historical responsibility were thrown out. Poor countries and NGOs and civil society actors had a lot of hope from the Copenhagen meeting but it was dashed.

Between the Copenhagen COP and the next COP in 2010 was the hugely significant people's conference on climate in Cochabamba, Bolivia, in April 2010, at which 28,000 people had gathered, including

representatives of 34 countries. There were some key conclusions that came out of the Cochabamba conference [which are politically and philosophically so different from the official COPs] – one, it said that future measures of mitigation and climate adaptation ought to respect human rights. Two, very significantly, it stated that human beings cannot claim everything on this planet. There are also non-human life forms that are part of living ecosystems; in short, Mother Earth needs to be given primacy. Recent COPs, Lima in particular, have disregarded these rights of Mother Earth; the emissions gap between what the science tells us we should reduce to (44 billion tonnes a year of CO2 and other gases such as methane and nitrous oxide measured in CO2-equivalent terms) and where we will be in 2020 if we carry on as we are (around 55-56 billion tonnes, already a gap of 12 billion tonnes) is seriously alarming. What's more, the Lima Call to Climate Action, the weak statement that came out of the Lima COP, is even a step down from earlier weak COPs, moving from nationally determined to *intended* nationally determined contributions. Hence the Lima Call states: "We invite countries to submit their INDCs by the first half of 2015 *if they are ready to do so*." It is shockingly weak, there is also, at the moment, no scope for review of pledges.

Rather than gains, two hazardous consequences may emanate from the Paris COP in December 2015. Some countries will try to push mitigation measures from agriculture [which will be disastrous for primarily agrarian poor countries like India]. Two, countries will push for carbon pricing, which means that the rich individuals and emitters can buy their way out.

Soumya concluded by touching upon resistance at the moment. At one level, enthusiasm and hope is currently lower than at the time of the Cochabamba conference in 2010. Having said that, on the micro scale, there is more active resistance in many parts of the world to specific projects and emissions sources – against coal plants, oil pipelines, coal exports, the Keystone pipeline in US-Canada, etc. Significantly, there is a growing realization that advocacy is leading nowhere; there is a greater shift to action on the ground.

The second speaker, Ajay Jha, began with a history of climate negotiations, a narration that made clear how in recent negotiations we have moved away from earlier established and accepted principles. At COP 13 in Bali in 2007, the Ad hoc Working Group on Long Term Action had been formed, and included four pillars – mitigation, adaptation, finance and technology transfer [loss-and-damage and capacity building were added later]. But for the first time it included both Annex 1 (developed) and non-Annex 1 (developing countries). At the 15th COP meeting in Copenhagen in 2009 – about which so much was expected by among non-state actors, as mentioned above – the principle of common but differentiated responsibilities (CBDR) was junked, and the process of pledge and review was introduced; that year, 140 parties/ nation-states agreed with pledge and review. In the following year, at the Cancun COP in 2010, the multilateral frame that had informed prior international climate negotiation was dumped, and pledge and review was accepted. We were clearly moving away from what the science was telling us and which had informed negotiations thus far. The Durban Package of 2011 first talked of a "new legal framework, or agreed outcome with legal force" by 2015, which would be operational by 2020 [which is what is currently being debated, at Lima and at this year's Paris COP]. Things were going downhill; COP 19 in Warsaw, Poland stood out for being the most corporate; there was a coal summit of coal companies just preceding the COP!

The 2014 COP at Lima invited parties to submit their INDCs, but there was no explicit mention of finance or technology transfer. [That has been left to individual parties and their INDCs]. Regarding elements of an agreement in Paris, we only have a 'non-paper' that has been tabled. About the Green Climate Fund, there's no roadmap as to how we will reach contributions of US$ 100 billion a year [currently, pledges have reached only a relatively modest $ 10 billion a year]. On pre-2020 ambitions, no decisions have been taken. There's no mention of equity and CBDR. Meanwhile, the speaker emphasised, the emissions gap, the gap between actual potential emissions and what we need to reduce to, keeps widening. Carbon markets have clearly failed to reduce emissions. The climate crisis, according to Ajay, is simultaneously a crisis of justice and equality; it is rooted in the lack of equality, which is evident in the fact that the 85 richest people in the world have a combined wealth equal to 3.6 billion people, i.e. half the world's population!

At the end, the two chairs of this meeting made observations that contained much food for thought. Marko Ulvila mentioned how climate action days in the early 1990s, over 20 years ago, had raised issues with co-

benefits: against tropical forest deforestation, or against the motorization of landscapes, each with its bearing on carbon emissions. He then went on to make three points: one, we need to focus on energy physics, that 85 per cent of our commercial energy still comes from fossil fuels, which are still cheap and easy to tap and. How do we organize other sources, how do we ensure that carbon stays in the ground when doing so undermines huge corporate profits? Two, we also need to think the issue through in cultural terms; there's excessive focus on economic progress and growth. Three, there's also the political level, a plutocracy and strong corporate lobbies.

Professor Jayanta Bandopadhyay urged the audience to look within. Are we not, he said, part of the failure? Why do only blame bureaucrats and the political class? Should we participate in this process at all? We need to change consumption patterns; we need, he stressed, a consumption revolution.

(This report has been compiled by the *Mausam* editorial team)

CHINA-US CLIMATE DEAL:
Touching Rock Bottom

China and the US signed a climate deal on the sidelines of the APEC(Asia Pacific Economic Cooperation) Summit 2014. Both of them together are responsible for half of the global emissions (29% and 17%, respectively). China said that its emission will peak latest by 2030 and by that time they would have 20% energy from non fossil sources. The US declared that they would reduce their emissions by 26-28% by 2025 over a 2005 baseline. The western and American media termed the deal as "landmark" and "historic." Is it really so?

In 1997, Kyoto Protocol asked Annex 1 countries to reduce at least 5.2% of their emissions over 1990 baseline by 2012. The US never ratified the Kyoto. China being a developing country was not required to do binding cuts. Since 1997 a lot of water has flown.

In Copenhagen the US declared that it would reduce its emission by 17% by 2020 over 2005. The US conveniently chose 2005 as baseline as it emissions peaked in 2005. It was ridiculed for making such a low pledge as it amounted to less than 3% reduction over 1990 baseline. The new pledge (though it goes beyond previous reduction commitment) is equally unambitious and requires less than 0.5% reduction per year.

China overtook the US as the biggest polluter in 2007 and since then it was continuously under international pressure to do something about its emission. Before Copenhagen COP China announced that it will reduce its emission intensity by 40-45% by 2020 over 2005 baseline. Despite some sporadic efforts, China's emission kept growing, This resulted in increased global pressure as well as domestic: China has extremely poor ambient air quality. In the Ban Ki Moon Climate Summit, September 2014, China said that it would declare the peaking year as soon as possible. The recent declaration means that China will continue to spew at least 12-14 Gt until 2030.

The unwillingness of the major polluters, especially the US, has prompted countries like Canada, Australia, Japan and Russia to renege on their Kyoto promises. As a result, the Second Commitment Period of Kyoto Protocol (2013-2020) covers only 21 countries, and a meagre15% of global emissions.

The EU recently declared that it will reduce its emission by 40% by 2030 over 1990, as against the KP target of 40% by 2020.

The IPCC Fifth Assessment Report's Synthesis for Policymakers (SPM) released on 2nd November 2014 says that to keep the rise in temperature below 2DC, emissions need to be first reduced by 40-70% by 2050 over 2010 baseline, followed by almost zero emission since 2050. It also said that to achieve this it is essential that emissions peak by 2020 or earlier. This requires that US must reduce its emission by 80% by 2050.Presuming that the US delivers on the 2025 agreement, it would still be required to reduce by 5% every year between 2025-2050, which seems highly unlikely. China has already declared that they will reduce only after 2030. This means neither the US nor the Chinese are respecting the IPCC and science based targets.

Implications for India

India has off late started saying that India and China are not in the same league and has started distancing itself from China. Reacting to the Sino-US Climate agreement, India's Minister for Forest, Environment and Climate Change reportedly said that people expected to China peak much earlier. China, US and the EU are the biggest polluters, he added. This has some significance as India and China as part of the BASIC have held

similar views (until recently) and believed that developing countries will take bigger responsibilities once Annex 1 countries took deeper cuts and provided finance and technology to poorer countries. As for India, he said "India's emissions are very low and India was positively disposed towards using its natural resources efficiently and we will walk energy efficiency path vigorously." India will declare its peaking year at the right moment, he added. Apparently, the Sino-US deal has taken away a lot of pressure from India to be ambitious in its approach. It is widely believed that India is thinking of declaring that it will peak around 2045-2050, which is in line of the few studies commissioned by government of India. India's projected per capita emissions would be in the range of 4-7.5 t by 2030 as against around 12 t of the US and China each.

Motivation Behind the Deal

By the new agreement China will have to add 800-1000 GW of renewable energy by 2030. China considers nuclear to be 'clean' and US companies have been eyeing Chinese markets. US and China have been working on nuclear energy cooperation for quite some time. The US is said to have concluded deals worth $ 24 billion during its visit to Beijing. Besides, the US also plans to sell its surplus coal to China (India and Japan too) from its Powder River Basin Project where Obama has started leasing public land to private companies below market price for extraction of two billion tonnes of coal, doing away with the requirement of environmental impact statements. China is also under immense pressure to improve ambient air quality in cities occupied by its new rich and has recently seen several protests in Xinxiang and Hunan and many other provinces. Therefore, China has a domestic political imperative to reduce its emission.

As regards the US, it is trying to get more adherents to its kind of treaty (Pledge and Review) rather than doing something concrete. The growing influence of coal friendly Republicans in the American Parliament would make it difficult for Obama to realize his plans. Also, the deadline of 2025 is two presidencies away in future. When the presidencies change, the US governments are less known for continuity in their policies.

Implications for a Global Agreement in Paris

The deal being outside of the UNFCCC negotiations has a big implication. It signifies that these countries do not want action within the UNFCCC or any other global agreement. This also suggests that future scene will be dominated by bilateral agreements rather than a global one. Further, this implies that an agreement under the UNFCCC will be extremely weak. It's anybody's guess that bilateral agreements would be based on mutual convenience than respecting what the planet and its inhabitants demands.

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Droughts in India and El Ninos: an Introduction.

The south-west monsoon rains are no less important than any god for the huge farming community in India and South-Asia, because around 58 per cent of the Indian population (more in Bangladesh and Nepal) depends on farming for a livelihood, combined with the fact that nearly 60 per cent of our farmland is rain-fed, i.e. with no irrigation facilities. In India (many of these climatic happenings in India are very similar to our south-Asian neighbouring countries of Bangladesh, Nepal, Pakistan, Bhutan and Sri Lanka), nearly 74 per cent of the annual rainfall comes from the south-west monsoon, in the four months of June to September.

Apart from farming, other water requirements in many areas are also largely met by these seasonal

The table shows the impact of El Nino and La Nina over a decade

Year	Occurrence	Impact	Monsoon*
2004	El Nino	Drought	88%
2005	Neutral	Normal	101%
2006	Neutral	Normal	103%
2007	La Nina	Excess	110%
2008	La Nina	Above normal	105%
2009	El Nino	Severe Drought	79%
2010	La Nina	Normal	100%
2011	La Nina	Normal	104%
2012	Mild El Nino	Below Normal	92%
2013	Neutral	Above Normal	106%

**Monsoon as percentage of 50-year average*

Source: Skymet

rains, and rivers get a fresh life too. And once in every few years, this 'rain-god' becomes less generous and causes untold misery to the largest rain-fed farming community in the world. It is not only the farmers, but the larger population that pays the price, as food prices often shoot up during such 'monsoon failures', hurting the urban and non-farming poor equally badly. It's not only the lack of enough rainfall that is the tormentor, some years the monsoon behaves erratically to pour unusually heavy amounts in too short a period, causing devastating floods.

Earlier, people usually blamed the 'weather-god' for such misfortune, but over the last 25-30 years, scientists have observed an increasing frequency of such climatic events. It has also been noticed that the seemingly un-connected, half-a-world-away events over the equatorial Pacific Ocean has some connection with these droughts and excessive rainfall in India (and elsewhere). Scientists observed a correlation between the warming of the equatorial Pacific, an El Nino condition, with many of the drought years in India. Though not every El Nino resulted in droughts in India, the converse holds, i.e. all severe droughts in recent years have happened in El Nino years, and six of the most devastating droughts in our country in the last 140 years coincides with El Nino years, including two in the 21st century, in 2002 and 2009.

On the other hand, the reverse of El Nino, called La Nina, seem to coincide with either normal or above normal rainfall years here. Skymet, a private weather forecasting company, compiled historical rainfall data in India from 1880 to 2005, and have come up with a correlation that nearly 90 per cent of El Nino years result in less than normal rainfall while in about 65 per cent of such years, there is a drought. Skymet data for the first 13 years of this century is reproduced below.

With such strong connections between El Nino and life-giving monsoon rainfall in India, it is important that we try to understand this Pacific Ocean phenomenon, and the larger El Nino Southern Oscillations.

We carry an article on this issue by Professor Meher Engineer, an independent scientist based in Kolkata.

Editorial team, MAUSAM.

El Nino Southern Oscillation (ENSO) : What it is and why it is important

Every high school graduate with science has heard about the Humboldt Current. That fact, and that the current is an integral part of the El Nino Southern Oscillation makes it a convenient starting point for describing how the ENSO works.

The high school graduate learns two things about the Humboldt Current: It flows on the surface of the Pacific Ocean, from South to North along the coast of South America.

Unlike the Gulf Stream which transports warm water in a north easterly direction across the surface of the Atlantic Ocean, the Humboldt is a cold current.

S/he neither learns that it is quite wide (a thousand kilometres in many places, http://en.wikipedia.org/wiki/Humboldt_Current), nor that it is the main reason why the world's richest fishing grounds are located off the coast of South America in the Pacific Ocean: water that wells up from the deep ocean to its surface is rich in the nutrients that phytoplankton thrive on. Phytoplankton is at the root of the oceanic food chain.

The Gulf Stream flows without pause. The Humboldt Current stalls frequently (around every five years or so, on average) and is replaced by a warm current that flows along the South American coast in the reverse direction (North to South)!

The last feature explains the "E" and "N" that appear in the acronym ENSO. The local fisherfolk along the South American coast, who are very familiar with the stalling and reversal of the cold current because it destroys the productivity of their fishing grounds for a year or so, call it El Nino – the Spanish words for "the little boy", which is how they refer to the Christ child.

The two remaining letters in the acronym stand for a phenomenon called the Southern Oscillation that is neither limited to the Ocean nor confined to the North South direction off the coast of South America. It happens in the atmosphere above the equatorial Pacific and extends from Peru in the East to the eastern end of Indonesia in the West.

Understanding the Southern Oscillation

The Equator sees the Sun more than any other latitude. It consists, mostly, of three oceans - the Pacific, the Indian Ocean and the Atlantic. The Pacific is the widest of the three: according to http://en.wikipedia.org/wiki/Pacific_Ocean: "the Pacific reaches its greatest east-west width at about 5°N latitude, where it stretches approximately 19,800 kilometres (12,300 miles) from Indonesia to the coast of Colombia – halfway around the world, and more than five times the diameter of the Moon."

The trade winds that blow from East to West on both sides of the equator push water at the surface of the Equatorial Pacific westwards, i.e. opposite to the direction in which the Earth rotates. The pushed water thus sees the Sun for a greater amount of time than if it were stagnant, so: water at the western end of the equatorial Pacific (Indonesia) is warmer than water at the eastern end, off Peru, and, the sea surface at the western end is higher than that at the eastern end. The temperature difference between the ends can be as much as 3-8 degrees Celsius. The sea surface can be higher by as much as 45 centimetres.

The air in contact with this warmer western-pacific water also gets warmer and due to greater evaporation, gets more water vapour that it can hold. Warm, moist air in direct contact with water at the western end of the equatorial Pacific is lighter than the cooler, drier air above it, so it rises and displaces that air. But the pressure in this rising air is greater than the pressure of the air that it displaces (air pressure decreases as you go up in the atmosphere), so the rising air also expands and cools, just as the air inside an inflated bicycle tyre cools when the tyre's valve is opened and the air rushes out. The process continues till the rising air is cool enough for the moisture in it to condense, as rain. This condensation happens high up in the atmosphere, where the appropriate cooling takes place. It is the reason why the western end of the Pacific is the rainiest place on Earth.The rising obviously stops when the air reaches a height at which it is no longer lighter than the air above it. Once there, it turns and becomes a horizontal wind that blows eastward, towards the cooler air above the cooler surface water off the coast of South America at Ecuador and Peru. Upon reaching the Peruvian end of the Pacific, the air descends, gaining heat and getting drier and drier till it touches the less warm Ocean surface.

The net result is that a positive pressure difference exists at the Ocean surface, between the east and the west end of the Equatorial Pacific, the pressure being higher at the east end.

This gigantic loop of wind, which moves from west to east high above the equatorial Pacific and from east to west at low altitudes as part of the trade winds, is called the Walker circulation, after Sir Gilbert Walker. Walker, who was an applied mathematician at the University of Cambridge before becoming the Director-General of observatories in India in 1904, outlined the process just described in the 1920's [1].

The process is a hugely amplified version of the "sea breeze blows inland during the day" story that all school children learn! The predicted East-West pressure difference is easily measured, usually between Tahiti (in the east) and Darwin (in the west); the western end of the Pacific should get lots of rain – it does; the eastern end should be dry– it is (Peru and Ecuador are dry; further south, in Chile, there is the Atacama Desert)!

The SO, or Southern Oscillation part of ENSO begins when the trade winds slacken– and even reverse – in some parts of the western and central Pacific. We do not know how and when those things happen.

We can, however, be sure that when the Walker circulation will reverse, the temperature difference between west and east will decrease, the surface pressure at the western end will become larger than at the eastern end and that the wind high up in the atmosphere will blow westward. Dry Peru will get lots of rain; wet Indonesia will get less. Drought will strike Australia, and likely – India. The usually dry west coast of the USA will get rain, courtesy the moist air above the Ocean, off Peru. The Atacama Desert will bloom. Finally, the warmest part of the huge tongue of water in the equatorial Pacific, which was at its western end, will migrate when an El Nino starts, to its eastern end.

The cold waters of the Humboldt Current originate deep down in the Ocean. They surface because they are lighter than the water above (water in the deep Ocean is colder than water at its surface, but also less salty; the net effect of those two contrary things can make it less dense than the water above; when that happens, the cold water rises and produces things like the Humboldt current). The El Nino phenomenon stops that from happening.

Some historical facts about the ENSO

The article "El Niño/La Niña, Nature's Vicious Cycle, Part1 (http://www.nationalgeographic. com/elnino/mainpage.html says, "In the past 98 years there have been 23 El Nino's and 15 La Nina's. Of the (20th) century's ten most powerful El Ninos, four—the four strongest—have occurred since 1980. But no one knows whether this indicates a trend or is simply a meaningless random clustering."

How does the global warming observed over the past hundred years, of about 0.07 degree Celsius a decade (which increased to about 0.12 degree Celsius a decade in the last 50 years), have much effect on the huge volume of water in the equatorial Pacific? No concrete answer is available for this central question. What of the opposite question, "Can what happens in the equatorial Pacific affect climate in faraway places, like the rainfall in California, drought years in Australia and slothful South West Monsoons on the Indian subcontinent?" Kosaka and Xie [2} have shown that it can. The authors used available computer models of the global climate that produce El Ninos but fail to predict when they actually occur. They argued, "Why not use the models but force, rather than allow them to predict, the actual observed values of the temperature at the surface of the equatorial Pacific on them. The equatorial Pacific covers one sixteenth of the Earth's surface, so one isn't playing loose and fast with the models. How well (or badly!) will the modified models accurately predict the available global climate data of the recent past?" The answer was that they did so very well. The models, while poor at predicting when an El Nino will occur, do a good job of predicting the evolution of the climate everywhere else.

Until about 25 years ago, the rest of the world paid little attention to El Niños. Only after the surprise devastation of 1982-83, did climate experts intensify their efforts to understand how the process works globally. Governments invested in equipment to monitor the particular conditions in the Pacific that trigger El Niño. Perhaps the most important effort was the development of the TAO (tropical atmosphere/ocean) array of 70 moored buoys to span the equatorial Pacific. Completed in 1994, the TAO buoys are now the world's premier early-warning system for change in the tropical ocean. They monitor water temperature from the surface down to 1,600 feet [500 metres], as well as winds, air temperature, and relative humidity.

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National REDD+ Policy: Old lies in a new garb

The Government of India (GoI) has recently come up with a 'National REDD+ policy', the draft version of which appeared in public a few months ago, inviting comments. This short note mainly responds to that draft and the accompanying 'Reference Document for REDD plus in India' (MoEF, August 2013, hereafter RD), though the official deadline for sending comments has meanwhile lapsed. In spite of the fact that 'REDD' has by now become a commonplace jargon in international environmental circles, not too many in India are aware of what it exactly means, let alone its subsequent variants like REDD+. Before we look at the GoI's REDD+ policy, a few words on the concept of REDD and REDD+ may not be amiss.

What is REDD?

REDD is the abbreviated form of 'Reduced Emissions from Deforestation and Degradation (of forests)', a still-in-the-making climate change mitigation scheme which supposedly seeks to minimize carbon-dioxide emissions resulting from deforestation events, particularly in the tropical forests in the global South. When it first appeared, the scheme was a typical carbon trading scheme: it was said that once the level of emission likely to occur from deforestation and degradation in a particular forest has been scientifically measured, and an effective protection machinery put in place to plug/reduce that 'likely to occur' emission, the reduced/plugged carbon can be broken into individual verifiable and certifiable 'carbon units (ERs, or, Emission Reduction units)', which can subsequently be priced and sold in the global carbon market. The money from the sale of those units will, it is said, incentivize forest protection and ensure 'no leakage'/'reduced leakage' scenarios. In other words, better-protected forests will mean less carbon emission. It has been repeatedly said that the bulk of carbon money will go to forest communities, and thus promote more sustainable use of forests in future. For instance, one hectare of Sal forests in Madhya Pradesh and one hectare of rain forests in Meghalaya would have released x and y amount of carbon into the atmosphere in their respective business-as-usual scenarios, where people would have used it badly, and deforestation/degradation would have started. Once the forests are brought under REDD, this is avoided because people then have a monetary interest in preserving the forest. This in turn means that the X and Y amount of carbon likely to be released in absence of the REDD scheme remains in place. It needs to be mentioned that as in all other carbon trading schemes, REDD ER units will be purchased by corporations/business entities located in the global North, who will use these units to prove that they are reducing their business-as-usual emissions, while actually not doing so: according to the logic of carbon trading, one ton of carbon

The Policy starts with the following words:

> There is a need to recognise the carbon function of the forests and develop *a fair, transparent and participatory mechanism to share the financial benefits arising out of national and international mitigation and adaptation programmes with the local communities participating in the conservation efforts*...The National REDD+ Policy aims to provide a roadmap for building comprehensive strategies for implementing REDD+ projects and programmes effectively in the country in the context of international development in this sector. The Policy along with the Strategies will lead to REDD+ readiness in the country and enable India to gain from international REDD+ mechanism for its pro conservation policies and efforts in future at the same time create financial incentives to local communities which are in the forefront of conservation of forests.(italics added)

The concept of 'Compensated Conservation' appears:

> 'Compensated Conservation' intended to compensate the countries for maintaining and increasing carbon pools of their forests as a result of conservation and increase/improvement in forest cover backed by a verifiable monitoring system. This approach was finally recognized at COP 13, Bali in 2007 Action Plan1/CP (Para 1(b) (iii)...The COP 16,

Cancun, 2010 marked the official entry of REDD as a UNFCCC-enabled mitigation mechanism linking deforestation, degradation, conservation and enhancement of forest carbon stocks and sustainable management of forests with reduction of GHG emission.(RD: 6.1 Conservation could be interpreted as "Forest Conservation" and is a means to reduce GHG emissions. *Conservation could be defined as "Maintenance of area under existing forests to conserve, maintain, and possibly enhance the forest carbon stocks" through conservation efforts. This could involve: i) consideration of forests with high carbon density and its maintenance through conservation and development to reduce pressure on forests, and ii) banning or regulation of extraction or harvesting of biomass, protection of forests and improved fire management.* The role of conservation has not been defined under UNFCCC. Thus there is a need to suggest a definition for "Conservation". This definition should consider area as well as carbon stocks [italics added].

Desperate attempts to institutionalize REDD+ occur next; because despite all the discussions continuing for years, REDD is not yet an international treaty or covenant: UNFCCC, the nodal international body that monitors the implementation of the Kyoto Protocol and a range of carbon trading schemes linked with it does not look after REDD, REDD+ or other such 'unofficial/voluntary' carbon forestry schemes:

The COP 19 at Warsaw, 2013 agreed on a Warsaw REDD+ framework. It reaffirmed that results-based new, additional and predictable finance, from a variety of sources, public and private, bilateral and multilateral, including alternative sources, to be provided to developing countries for the implementation of REDD+. It emphasized that the result-based progression is to occur for all phases of action and activities of REDD+ as agreed by COP16 at Cancun. The result-based actions have to be fully measured, reported and verified. This will include development and implementation of national strategies or action plans, capacity building in a phased manner. All REDD+ elements have to be in place in a developing country that undertakes result-based actions. For receiving result-based payment a country has to address safeguards and provide information on it.

The strategy the draft policy outlines is a mix of many old – and unfounded – claims about the carbon sequestration potential of India's forests, the community-centric nature of REDD+, and India's forest cover. Let us take each of the principal claims:

Claims about Forest Cover

i. As per the India State of Forest Report, 2011, the total forest cover of the country is 69.20 mha (21.05% of the geographical area). The total forest and tree cover constitute 78.29 m ha (23.81% of the geo. area), which includes 2.76% of Tree outside Forests (ToF)...Total Growing stock of India's forest and ToF is estimated as 6,047.15 m cum with total carbon stock estimated to be 6,663 m tonnes.

Lies about forest cover

The forest cover data based on satellite imageries that government agencies offer have always been suspect[1]. The 2011 State of Forest Report published by the Forest Survey of India, however shows that up to 30 percent deforestation had been recorded in certain central Indian districts, even though the net cover has gone up. The 2013 forest survey also showed a net gain in forest cover, which has immediately been challenged.[2] The reference document that came with the draft REDD+ policy reveals the trick: it stipulates that any area with tree vegetation with 10 percent canopy density and above must be treated as forest, even if it falls outside the recorded forest area, because (as the argument goes) any form of tree vegetation renders the 'service' of storing/soaking carbon. This way, the forest cover can endlessly increase, even if organized and officially permitted deforestation in form of 'forest clearances' for development projects (including those for new coal mines and thermal power plants) continues and increases.

It is evident that India's forest cover data is being manipulated, and for two interconnected purposes:

1. To greenwash India's environmental policy that has consistently legitimized events of organized deforestation, first by allowing conversion of huge chunks of natural forest vegetation to commercial plantations, and then letting development projects to come up at important forest areas. Instead of carrying out ground-truthing exercises at the major deforestation sites, and assessing the exact extent of forest cover loss, the forest survey uses only satellite imagery and keeps on showing typically non-forest areas as forest.

Claims about carbon storage

iii. On a per capita basis, India's emissions are 70% below the world average. Forests neutralize 11% of India's GHG Emissions. India added around 3 mha of forests in the decade of 1997-2007). As estimated, REDD+ programme could provide for capture of around 1 billion tonnes of additional CO2 over the next 3 decades and significant financial incentives as carbon services under REDD+ including flow of positive incentives to local communities. REDD+ can be a part of an effective strategy and tool for mitigation and adaptation of climate change, improving

ecological and environmental services, biodiversity conservation as well enhancing forest based livelihood of forest dependent communities.

2. The next and related lie is about the amount of carbon that India's forests can store. Following a non-transparent and undemocratic process limited to a handful of government officials and a few handpicked NGOs, the forests are measured for their so-called 'carbon value', avoiding the moot fact that even in the Indian national context, measurement of forest carbon has always been a disputed issue, and there's still no universally accepted and standardized models of such measurement.[3] It has also been pointed out that such assessment wilfully underplays the importance of frequent and sometimes large deforestation events mostly due to anthropogenic causes. The carbon sequestration figures derive from questionable forest cover data and ignore the factor of organized deforestation. One of the main reasons why the carbon sequestration estimates offered by the Government of India do not stand scrutiny is that the rate of deforestation for industrial/commercial purposes in India is rising alarmingly, and the carbon markets completely sidestep that fact. One recent estimate[4] shows that in last 30 years (1981-2011), and since the Forest Conservation Act intended to stop diversion of forests for non-forestry purposes has come into force, 11,98,676 hectares of forests have been diverted. In the four years between 2007 and 2011, 2,04,425 hectares of forests were converted to mines and various industrial projects mostly[5].

Claims about community involvement and benefit

...There are around 300 million forest dependent people including around 87 million tribals...Joint Forest Management (JFM), a partnership between local communities and the Forest Department started in India in the nineties has been a successful model under the "Care and Share" principle with over 100 thousand JFM Committees involving around 20 million people managing over 22 million hectares of forest area.

The REDD+ policy aims:

to manage the forests for a bouquet of ecosystem services, including but not limited to biodiversity, that are flowing to local communities from the forests and not for carbon services only;

to safeguard the rights and interests of local communities including improvement of their livelihood;

to encourage and incentivize local communities for their role in conservation by transferring he financial benefits accrued on account of REDD+ to them based on their performance, as is reflected in monitoring, including small scale projects at JFMC/ EDC level;

to develop appropriate mechanism for channelizing REDD+ funding and transferring the accrued financial benefits to the communities in a fair, equitable and transparent manner;

to provide adequate technical and financial resources to implement various phases and action plan of REDD+.

The National REDD+ strategy that will operationalize the REDD+ policy will:

Ensure safeguarding existing traditional rights of local communities with proper clarity like incentives as a bonus without compromising existing benefits;

Transparency in governance, promoting participation in implementation and monitoring of REDD+;

Preparation of community-centred micro plans for sustainable management of local forest resources through active people's participation;

Fair and transparent accounting and disbursement of benefits and REDD+ incentives;

Public accountability for policies and management decisions and securing equitable rights to forest utilization;

Provision of alternative cheap cooking fuel supply, promoting non-conventional energy sources, low cost permanent housing facilities, improved infrastructural facilities including health, improving agricultural and livestock productivity;

Providing education/ skills to children, effective use of modern communication audio video tools for creating awareness among community;

Effective and improved silvicultural operations [pertaining to the health and growth of forests] for improving site specific productivity with focus on local livelihoods; Assessment of site specific performance of species for better productivity and supply of forest products including small timber, fuelwood and NTFPs. Increased soil and water conservation measures, etc.

If one reads the draft REDD+ policy in conjunction with the accompanying RD, a more holistic picture emerges. Though the reference document presents a future scenario of community REDD+ forests in detail, the

draft policy/strategy talks about Joint Forest Management as the main operational strategy for forest governance in the new REDD+ regime. The strategy proposes to reduce 'forest dependency' of forest communities by adopting a characteristically vague bundle of typical JFM instruments like 'alternative cheap cooking fuel supply', 'non- conventional energy sources', 'low cost permanent housing', 'improved infrastructural facilities including health', 'improving agricultural and livestock productivity'. It is also made clear that REDD+ incentives will flow through JFM committees like Forest Protection Committee and Eco-Development Committees, all of which are entities spawned and controlled by Forest Department. It is ironic that though the policy projects FRA – Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act – as an instance of legislative safeguard of community rights, it actually undermines the legislation and the rights and safeguards it provides, by promoting JFM, and more importantly, prescribing a forest governance strategy where communities will have less access over forests. More money to JFM committees will also be used against institutions like the new and customary forest governance institutions FRA provides for and recognizes.

India's promotion of REDD+ has severely been challenged by forest movements and community groups in the country; in fact, REDD and REDD+ have been seen as attempts to short-sell the country's forests in the international carbon markets[6]. REDD+ will only accentuate the prevailing inequity and miscarriage of justice inherent in India's forest policy regime, the core of which consists of coercive colonial legislations like the Indian Forest Act, 1927 and the draconian Wildlife Protection Act, 1972, they say.

One reasonable conclusion is that as of now, there are no safeguards for forest communities' rights in REDD+. On the contrary, *there is every danger that all kinds of community access in forests will be badly restricted in a functional REDD+ project*. News from other parts of the world indicate that communities are being blackmailed, tortured and made subject to all sorts of exploitation in the name of REDD, where both national governments and private companies are involved[7]. Despite the 'community-friendliness' expressed in the draft National REDD+ Policy, there is no guarantee that things will be different in India, given the near-feudal tyranny by the government-owned Forest Department in most of the country's forests, and the increasing hold of corporate capital over forest areas. Throughout the policy and the RD, the official emphasis is on continuing with the fortress conservation model in the REDD+ regime—communities and their use of forests were seen as principal drivers of deforestation/degradation — it is stated time and again that community access to control has to be curtailed/regulated in order to ensure that 'REDD+ performance' of the forests is not 'adversely impacted'. The RD states:

> 1. Local communities in many places are heavily dependent on withdrawals from forests for sustaining their livelihoods. Many States and UTs are facing the challenge of addressing this serious problem of unsustainable demand of forest goods and services, like fuelwood and grazing, which is adversely affecting the extent and quality of services from forests. This will not only cause reduced flow of goods and services from the forests, but, in due course of time, also adversely impact the REDD+ performance of the forests in such localities. This challenge can be addressed by providing alternate clean sources of energy, like LPG, and fodder being grown outside forests, e.g., as an agroforestry component, and thereby confining the withdrawals from forests within limit of sustainable harvests.
> 2. To limit extraction of the NTFPs from forests within sustainable limits, it will be necessary to make periodical assessment of growing stock of different NTFPs to fix annual harvests. This can possibly be done by making necessary amendments in the National Working Plan Code, which is presently under revision in the MoEF.)

The concepts of 'local communities' and 'rights' as expressed in the draft policy stink, to say the least. The Ministry of Environment and Forests, GoI, equates 'communities' with JFMCs, which are nothing but extensions of the Forest Department. The question of 'rights' is problematic as the Indian government has no updated record of rights so far as forest communities are concerned, and it continues to ignore its own legislation (the FRA), which recognizes a range of community and individual rights including providing for completely community-managed forests in all types of forests, in favour of creating rights-free 'protected areas' for wildlife conservation, and also for development projects like mining, large dams and power plants.

No Transparency in REDD+

The Draft Policy claims that REDD+ will be a transparent and democratic exercise: firstly, a National Forest Monitoring System will be established for 'robust and transparent national and sub-national systems to enable

monitoring, reporting and nationally appropriate verification' of 'Forest Carbon Stocks', 'Reducing emissions from deforestation and forest degradation', 'Conservation and enhancement of forest carbon stocks', 'Sustainable management of forests and Safeguards, including governance, biodiversity and livelihood co-benefits'. It is then claimed that this monitoring/verification will be done in a 'transparent, inclusive and effective' manner by putting in place a National REDD+ Architecture and Governance: 'a Platform for Stakeholder engagement' will be created where 'Forest Dependent Communities, civil society and other stakeholders' will 'effectively participate in REDD+ decision making and implementation'. Also, a National REDD+ information system will be launched for 'analysis of available data and capabilities amongst various institutions and building convergence of efforts and information to provide national monitoring data at least cost and high frequency'. In the strategy part, it has been mentioned that a mechanism to channelize REDD+ incentives to communities will be developed.

As in all previous REDD and REDD+ related documents from GoI, several important questions remain unanswered. What information about REDD+ will be given to the communities? Will the poor forest-dependent people already severely affected by changing monsoon cycles and an increasingly altered vegetational fabric (which translates into change in availability for crucial non-timber forest produce including medicinal plants and various kinds of forest food), as well as other climate change impacts come to learn that their forests are being traded in international markets so that polluting companies in the rich countries can continue with their business-as-usual emissions? With its apparent emphasis on non-carbon forest services and talks of multi-objectives, REDD+ projects may try to create an illusion that in its present avatar REDD+ is anything but carbon trading. Will the communities-to-be-benefitted-by-REDD+ be given an informed choice about rejecting or accepting the project?

In most parts of India, where the government continues to exercise management control over all forms of forests, the answer is clearly no. As it happened in previous and ongoing externally aided forestry programmes, government officials will control the REDD+ programme including the fund flow. The RD states:

> "REDD+ incentives whenever these become available will flow in totality to the local communities in proportion to their REDD+ performance. Central Government in consultation with State Governments will formulate guidelines prescribing procedure and norms for flow of financial incentives from Central to State Governments and further down to the local communities".

The Fraud in it: RL (Reference Level), not REL (Reference Emission Level)

The Draft policy has no clarity as to how the REDD+ projects will be funded. The RD says:

> REDD+ incentives will flow from the UNFCCC to developing countries that undertake any of the 5 identified and agreed REDD+ activities resulting in mitigation of emissions. *However, at present, it is not certain as to when the finances will start flowing from the Climate Change Convention. Fact of the matter is that presently, there is no dedicated money set aside for REDD+ implementation by the UNFCCC. All the same, with clarity of the REDD+ concept, Annex 1 countries have invested good amount of money for controlling deforestation in countries like Brazil and Indonesia. Norwegian financial support (USD 1 billion each) to these two countries for checking tropical deforestation is a good example.* It is now accepted that REDD+ is required to be supported with a wide range of funding options, market as well as non-market based, which include multilateral, bilateral, project-specific, objective-specific and target-specific funding. Multilateral funding for results-based actions can be leveraged from GEF, World Bank, etc., whereas bilateral sources for such actions may include JICA, GIZ, etc. Project-level or specific objective or target-level funding can best be resourced from external agencies like FCPF, UN-REDD, IUCN, UNDP, etc. FCPF and UN-REDD have a good track record of supporting policy development, capacity building and demonstration activities in developing countries willing to participate in REDD+ implementation.
>
> …till external multilateral, bilateral, or UNFCCC, or other kind of funding becomes available, it will be in the interest of the country to invest internal resources to encash mitigation services from REDD+ actions in forest sector. The GOI may consider channelizing additional funds for REDD+ implementation by States through Finance Commission Rewards. *To optimize the REDD+ potential, it will be prudent to invest within and outside the forest sector, inter alia, to address the drivers of deforestation and forest degradation, which have a significant bearing on carbon sequestration in forest.*
>
> …Though REDD+ short-term finance is available, disbursements are slow and investment opportunities scarce; at the same time, there is no adequate and predictable long-term strategy to meet the financial needs of countries implementing REDD+. In the absence of a ambitious climate change mitigation goal for developed countries in the

foreseeable future, most REDD+ finance will be mobilized from the public sector. In this phase, financing for REDD+ is likely to be fragmented, and will come from different sources. *Therefore, it will be important to test a variety of financing options that leverage private sector finance and directly address the drivers of deforestation to enhance the mitigation services from REDD+*.(italics added)

The above shows that one of the suggested financial instruments is domestic carbon trading: corporate finance for forest conservation (*financing options that leverage private sector finance)* in lieu of giving the companies liberal allowances in emissions, or exempting those from the present obligatory requirement of using renewable power (*'To optimize the REDD+ potential, it will be prudent to invest within and outside the forest sector', 'directly address the drivers of deforestation to enhance the mitigation services from REDD+')*. A functioning and full-blown domestic carbon trading will also help India in future climate negotiations, as it can always later press for international recognition of this as part of any obligatory emission reduction in future.[8]

The RD shows considerable ingenuity in prescribing how the forests in India can be projected as more carbon-rich than they actually are. It focuses on the 'plus-side' of the game and prescribes that RL and not REL of Indian forests need to be determined – RL standing for a generalized 'reference level' of carbon sequestration/storage potential of a particular patch of forest (say, 1 hectare), whereas REL is Reference Emission Level, the baseline for probable emission in future deforestation/forest degradation scenarios. Replacing RL with REL will mean that India can effectively bypass the 'additionality' question, and all sorts of forests including those already 'conserved' and 'protected' under a number of existing domestic projects can be used for REDD+. Also, the need for 'leakage' calculation (the amount of emissions that can 'leak' despite the REDD/REDD+ project in probable scenarios in which deforestation/degradation will continue) will disappear once the need for determining reference emission level disappears. The exercise of carbon value computation, which is the backbone of a REDD project, thus becomes a lot simple. One has only to determine how much carbon an hectare of forest (1 hectare is the MMU, or the Minimum Mapping Unit prescribed by the reference document) can incrementally store, and price it accordingly.

Money and control

It becomes obvious that instead of community-centricity and philanthropy, money, and largely money from carbon forestry, is the core of REDD+. Some of that money can trickle down to the poor among the forest communities in some cases once the REDD+ gets going, but the fund-flow will definitely not be controlled by the people. The trickling down too will happen essentially to keep the forest-dependent poor away from the forests, because the Indian government is pushing a Joint Management model, where crucial decisions about forest usage are taken not by people but by forest officers.

End Notes

1 Ghosh, S, et al, *Imaginary Sinks: India's Forest Carbon Ambitions, in The Indian CDM: Subsidizing and Legitimizing Corporate Pollution* , Ghosh, S and Sahu, S.K (eds), 2011, Kolkata: available at www.thecornerhouse.org.uk/resource/indian-cdm

2 Rajshekhar, M, *India's natural forests half of what mini stry claims* , in Economic Times, July 17, 2014, http://articles.economictimes.indiatimes.com/2014-07-17/news/51656860_1_forest-cover-forest-survey-forest-area[3]

3 Ghosh, S, et al, ibid[4]

4 "Since October 25, 1980, the Ministry of Environment and Forest has granted approval for diversion of 11,89,294 ha of forest land for non-forestry purpose involving 23,511 proposals received from various state/ UT governments," Minister of Environment and Forests, Prakash Javadekar, said in a written response to the Rajya Sab ha. See **http://www.outlookindia. com/news/article/1189294-Hectares-of-Forest-Land-Converted-Since-1980/852455,** accessed on 2 August 2014[5]

5 See http://www.downtoearth.org.in/content/environment-ministry-creates-record-forestland-diversion The RD makes light of organized deforestation, which it terms as 'planned' deforestation, and within government control. It goes on say because 'these can always be adjusted to conform to the principle of sustainability', 'it may not be

necessary to focus on planned drivers' and the main challenge is'addressing the unplanned drivers', which translates into keeping the people away from forests.

6 *A Formula for More Land and Resource Grabbing: Dangers of the Green India Mission, Joint Statement by Forest Movements in India*, issued by National Forum of Forest People and Forest Workers (NFFPFW) and Campaign for Survival and Dignity(CSD), 2010 and *ON REDD CLIMATE SCHEME, Joint statement by Indian forest movements*,2009.

7 REDD and other variants of carbon forestry like smaller'offset' plantation projects and larger Clean Development Mechanism or CDM plantation projects: for a compilation on REDD-related case studies see ***No REDD, A Reader***, Carbon Trade Watch and Indigenous Environmental Network, 2011, http://noredd.makenoise.org/. See also the *REDD Monitor*, www.redd-monitor.org, for more news and critique of REDD. For market logic and information related to REDD and other carbon forestry projects see http://www. ecosystemmarketplace. com.[a]

8 The REDD+ policy already says: 'Forests neutralize 11% of India's GHG Emissions. India added around 3 mha of forests in the decade of 1997-2007'.

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reduced in any part of the globe equals (and therefore offsets) another ton of carbon released in another part of the world.

The impasse in progressive action to address the climate crisis: Perspectives from people's movements

An interactive session on climate change was held at New Delhi with a focus of going beyond the present impasse at the international climate talks and discussing perspectives from activists — in particular their analysis of and approach to the challenges in grounding the climate crisis, and finding real alternatives within issues confronting common people. It was organized by the South Solidarity Initiative (Action Aid India), Focus on the Global South and the Beyond Copenhagen Collective.

Despite mounting scientific evidence on the urgency to address the climate crisis, more than two decades of inter-governmental efforts at the UN Climate Convention yielded little action towards arriving at a meaningful, legally binding and equitable treaty. Countries are now in a process of negotiating a new treaty (to replace the Kyoto Protocol) which will include all countries that are part of the UN Convention. India is also expected to submit its emission reduction commitments in the coming months and is working on its INDCs (Intended Nationally Determined Contributions). Things should follow an expected script in the run-up towards the 21st COP (Conference of the Parties) and in the COP itself that will be held in Paris later this year.

Pablo Solon from Focus on the Global South decoded the just released text from the UNFCCC Geneva negotiations (9-13 February 2015) that would form the basis of the negotiations at the 21st COP in Paris. He stated that the current state of play – no fixed emission figures by developed and developing countries, no increase in finance from developed countries for adaptation, and nothing much on transfer of climate technologies for low carbon developmental pathways – points to the collective failure of the international community. There may be an agreement to replace the Kyoto Protocol but it was not known how far this new treaty would extend: 2030? 2040? The controversial issue of carbon markets still figures in the text but it is yet not clear how the developed and developing countries will formulate their positions on this. Solon said we should not repeat our mistake before Copenhagen, of having a lot of expectations from the Paris COP. He was of the opinion that the outcome at Paris is likely to be worse than the 2009 Copenhagen COP. Arguing that the question therefore was about deeper and stronger mobilisations by social movements at various levels, he stressed upon the need for stronger movement-building and mobilisation to strengthen the grassroots. The core agenda for climate has to be focussed on concrete issues of workers, indigenous people and peasants. There is a deep and direct connection in this linkage. We have to take the climate agenda to our own movements. Climate talks will have to move to a more out-of-the-box paradigm if concrete action has to be taken.

The next part of the meeting looked at issues through a domestic lens. India is both a victim of and contributor to climate change. Recent floods in Uttarakhand and Kashmir and increased frequency of cyclones on the East Coast are only some of the possible indicators of deepening climate change impacts in the country. The economic model pursued by successive governments entails continued use of fossil fuels that largely benefit private business and privileged classes. There have been some attempts at scaling up generation of renewable power, and some focus on disaster preparedness and risk reduction. However, though more than two decades of promoting and pursuing policies aimed at deregulation, privatization and liberalization of the economy have seen a jump in economic growth rates, but made little tangible difference in improving the living conditions of the poor and the underprivileged by improving access to affordable housing, sanitation, health, transport and decent jobs. The state of the environment in both rural and urban India continues to worsen and the basic regulatory framework of environmental laws is being dismantled, in the rush for more foreign and domestic investment.

Across India there are struggles against projects which threaten to displace people, and deprive them of their livelihoods and land. People's movements are also part of initiatives towards more equitable and sustainable societies. These include demands for more rights for peasants, advances in rural non-farm livelihoods, exploring decentralised energy options, establishing community control over natural resources and defending workers' rights. These voices are seldom heard at the global talks, or national climate policy spaces. The reasons for this are layered and complex, despite the fact that the struggle for climate justice also encompasses struggles for labour rights, land and agrarian reforms, public services and sustainable cities.

D Raghunandan from the All India Peoples Science Network (AIPSN) pointed out the government of India's apathetic attitude in involving mass organisations and the civil society at large in discussions around INDCs. Also, INDCs should not just respond to the climate crisis alone, one should remember that these are also essentially development goals. He stressed upon the need for creating alternative developmental pathways to address concerns of equity, low carbon growth and mitigation. These issues that are woven on the praxis of development and the climate crisis cannot be dealt with by negotiations and talks at summits. There is a need for local action by weaving in adaptive measures and practices that stem from communities at the local-national level. Right now, there is a clear need to produce robust data that stems from the ground and engage with social groups. Climate justice has to make that significant shift towards social justice and intersect with broader social movements to collaborate in order to move forward.

Ashim Roy from the New Trade Union Initiative (NTUI) pointed out that trade union movements across the world began responding to climate change because of the economic crisis. They began by talking of green investment. In India, the issue has been on contextualising labour movements vis-a-vis climate justice movements. The gap is due to a lack of public education campaigns that would bring out a clear connect to workers' concerns. There is a dearth in creating this knowledge and information that could make this connect. Another concern relates to times of transition. Without much knowledge of the transition time frame, it has been challenging to commit on a transition away from coal. However, these can be achieved by looking at the global and national perspectives and then going back to sectoral demands.

Vijoo Krishnan of the All India Kisan Sabha (AIKS) pointed out the failure of the government in responding in a systematic manner to climate change. Even with systematic data and studies, governments do not respond with any sustainable plan but only with compensation packages. In the agricultural sector, the approach has only been to increase production without any attention to biodiversity conservation or addressing the climate crisis. This takes the focus away from addressing the real problem. He pointed out that issues are always aligned, land-water-soil are interrelated and these have to come together to make a stronger movement for the people and communities who we have been isolating. The people who are directly affected by the climate crisis, and in more devastating ways, cannot be kept isolated from the movement. There should be an effort to document the issues of the peasant communities in detail. The details of the impacts of climate change have to also come from these communities and aligned movements, not governments alone.

In the discussion following these conversations, several points were raised as observations. There is a big demand for electricity from the grassroots, said one trade union activist, and suggested later that we take a delegation to the Aam Aadmi Party in Delhi. Responding later, Vijoo Krishnan agreed that land is not such an issue anymore in comparison with the demand for electricity. Another said that it is not possible anymore to limit ourselves to the target of 2 degrees Celsius rise, and we need to be honest; our message needs to admit that we are unable to meet this crucial target. He agreed with the need for different strategies to focus on different sectors. Others talked of the centrality of a different model of development, that our paradigm needs to be different. While it is clear that at the international level, governments will aim for flexibility on emissions reductions, there is a more than greater need to commit and work at the domestic level. It brings us to the questions of re-strategizing on aligning with other movements, lack of knowledge on linkages with sectoral demands and climate crisis and lack of concrete action plans based on the crisis and talks at both the national and international level. Also, the support towards alternatives is weak. Especially in the sector of agroecology, the government is not supportive in terms of research, funding or information dissemination. How do movements address such concerns? The issue has been not just of the climate crisis but of what kind of

development that is required. The focus has to be not just on technical fixes but for social transformations. In order to bring the urban civil society and the toiling people together, we need to create narratives that would appeal politically and inform the movements as well as governments about alternatives.

Among other points made in the discussion were the need to move away from fossil fuels, the need for victories and concrete achievements, livelihood security being the key, and which movements do we want to link up. It was pointed out that there are organizations all over, but the key is: how do we integrate local struggles?

(Report compiled collectively by the ICJ team, based on inputs by the organisers

1. The Global Warming March continues Unabated, despite the 'Hiatus'.

On the 5th of January 2015, it was confirmed. 2014 was the warmest year on record for the planet, since the time instrumental records have been kept, from around 1850s. The announcement on 5 January by Japan Meteorological Agency (JMA), one of the four main global temperature record keepers, which put the seal of confirmation on a six-decade long unbroken rise of global decadal average temperatures. This has now been confirmed by the world's other three main agencies – NASA, NOAA and the Hadley Centre. In between, individual years have gone up or down a little in average global temperature, but on a decadal scale, it's up, up and away. The top 10 warmest years on instrumental records, are given in the table here (from earthsky.org). Also note that these figures are for combined land and ocean temperatures.

It's also remarkable that the ten hottest years on record have all been recorded since 1998, thus disproving the suggestions of 'cooling' or 'hiatus' in warming. The year 2014 was about 0.55 degree Celsius above the 20th century average, and was also higher by 0.06 C than the average for the year 1998. More significant is the fact that 1998 was a strong El Nino year, when one can expect a higher temperature, while in 2014 – the budding El Nino never developed.

The year 2014 also saw a once-in-a-century extreme rainfall event in Jammu and Kashmir, the east coast states of the USA were bludgeoned by blizzards and near record levels of low temperatures and snow in January 2014, at the same time as some of the west coast states were facing their worst drought, with California being ravaged by the fourth consecutive year of severe drought. In between many other societies in many other nations were paying the price for the climate chaos. Just in one month, December 2014, there were

Top 10 Warmest Years (1880–2014)

The following table lists the global combined land and ocean annually-averaged temperature rank and anomaly for each of the 10 warmest years on record.

RANK 1 = WARMEST PERIOD OF RECORD: 1880–2014	YEAR	ANOMALY °C	ANOMALY °F
1	2014	0.69	1.24
2 (tie)	2010	0.65	1.17
2 (tie)	2005	0.65	1.17
4	1998	0.63	1.13
5 (tie)	2013	0.62	1.12
5 (tie)	2003	0.62	1.12
7	2002	0.61	1.10
8	2006	0.60	1.08
9 (tie)	2009	0.59	1.06
9 (tie)	2007	0.59	1.06

several significant climate anomalies, or large departures from the average.

All these should ring the loudest alarm bells for the 194 nations that are working out their "Intended Nationally Determined Contributions (INDC)" to tackle this crisis, but the signs are that they are busy green-washing their BAUs. That leaves it to the people of this planet to take actions. Questions are what, how, and where?

2. UN Climate fund seeking commitments from rich polluting nations; poor countries want $15 billion in 2015

The key UN fund to help developing nations fight global warming – the Green Climate Fund (GCF) – has started raising cash, with poor nations seeking at least $15 billion immediately. There were several 'pledging sessions' that were targeted to extract commitments to capitalize the GCF, from the rich countries.

The fund aims to help poor nations cut greenhouse gas emissions and adapt to more floods, droughts, heat waves and rising sea levels. It is widely seen as vital to a U.N. deal due in Paris in late 2015 to curb rising greenhouse gas emissions. Developing nations said last month they wanted US$ 15 billion in pledges from the rich this year to fund projects such as solar power, geothermal energy or ensuring water supplies. Till the last "pledging session", which ended a couple of months back, the GCF has raised /got commitments for a little over USD 10 billion, for a four year period from 2015, insignificant compared even to minimum needs.

Rich nations gave developing nations $10 billion in climate aid a year from 2010 to 2012 and pledge to raise it to $100 billion a year from 2020. Of course, later analysis showed that only around USD 8 billion of these $30 billion were new and additional funds. Sapped by years of economic downturn, they have not mapped out how they will raise the amounts in the years up to 2020. Though the original idea of the GCF was that it will be primarily seeking cash grants rather than loans, the richer countries have backtracked and are now saying that whatever commitments /pledges are being done, will include soft-loans, private contributions etc!

The US has pledged USD 3 billion, with conditionalities. Norwegian Foreign Minister Boerge Brende told Reuters that Norway, rich from offshore oil, was giving close to $1 billion a year in climate aid and would make a "substantial contribution" to the fund. "Financing is a prerequisite for having the developing world as part of a global compact", he said.

3. WHO estimate on air pollution shows Indian cities are death traps : India merrily adds more coal power

The latest urban air quality database released by the World Health Organisation (WHO) reconfirms what we already know — that most Indian cities are becoming death traps because of very high air pollution levels. India appears among the group of countries with highest particulate matter (PM) levels. Also, its cities have highest levels of PM10 and PM2.5 (particles with a diameter of 10 microns and 2.5 microns) - which penetrates to the lung and cause maximum health damages — when compared to other cities.

WHO's urban air quality database covers 1,600 cities across 91 countries. The database shows that Pakistan has the highest PM2.5 level of 101 microgrammes/cubic metre (µg/cum), followed by Qatar, Afghanistan, Bangladesh, Iran, Egypt, Mongolia, United Arab Emirates (in the range of 92 to 61 µg/cum) and India with 59 µg/cum. These countries have PM2.5 levels that exceed safe levels prescribed by WHO by 6 to 10 times.

Last year, the "Global Burden of Disease" study pinned outdoor air pollution as the fifth-largest killer in India after high blood pressure, indoor air pollution, tobacco smoking, and poor nutrition; about 620,000 early deaths occurred in India from air pollution-related diseases in 2010.

The PM10 and PM2.5 database released by WHO contains data of 124 Indian cities. Analysis of this database indicates that all Indian cities exceed the WHO guideline of 20 µg/cum for PM10, in case of PM2.5 except one city (Pathanamthitta in Kerala is at the WHO guideline limit of 10), all exceed the WHO guideline of 10 µg/cum.

The PM2.5 levels are the worst in Delhi and Patna, exceeding the WHO guideline by about 15 times, followed by Gwalior, Raipur, Ahmedabad, Lucknow and Ferozabad, all exceeding the safe levels by 9 to 14 times. Cities such as Kanpur, Amritsar, Ludhiana, Allahabad, Agra, Jodhpur, Dehradun and Chandrapur closely follow the above-mentioned hot spots. In the winter of 2014-15, many of the pollution monitors in Delhi, put up by government agencies like CPCB, IMD etc. were showing PM2.5 levels of 200 micro-Gm/CM for hours on end on many days! Delhi has two coal burning power plants in its territory, apart from lakhs of diesel vehicles, for the luxury of its citizens, paid for by the enormous health costs. Facing this dangerously alarming situation, and with the full knowledge that coal burning contributes a large part of these fine particulates in the air, our new government is merrily making plans to double (or even triple) the amount of coal burned in the country — for heat and power, from the present 640 million tons to over 1,000 million tons, in just 5 years time. Does the government wish to kill many more of our citizens from air pollution?

What's more, coal has overtaken oil (petroleum) a few years ago as the largest contributor to climate changing carbon dioxide. By rapidly increasing coal burning, we will also negate any token effort towards avoiding dangerous climate change, rather we seem to want to hasten it!

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Mausam is the magazine of India Climate Justice(ICJ), a collective comprising social movements, trade unions, other organizations and individuals. We welcome your inputs, articles on climate issues and feedback. These can be sent to the email listed below.

Send articles, or your feedback to: indiaclimatejustice@gmail.com