

mausam

Talking Climate in a Public Space

Volume 2 Issue 2
January - March 2014



Mausam is compiled and published by India Climate Justice(ICJ), a collective of various social movements, civil society groups, trade unions and individuals. We welcome your inputs, articles on climate issues and feedback. These can be sent to the emails listed below.

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Editorial

The 2014 General Elections in India is being seen by most keen observers as a critical point in the nation's post-independence history. Never before in the 'mature democracy' of India, there was such a hyper-projection of any individual as the messiah (probably close was the brief period of post Bangladesh war projection of Indira Gandhi, which led to one of the most unfortunate chapters in independent India's political history) – much above political parties they represent, national concerns, or even ideologies. Never before in Indian politics had big corporate business interests got so directly and deeply involved in the “manufacturing of consent” in such a massive scale, pouring money and resources – as if this is the most crucial corporate 'acquisition'. Never before had the interests of big money merged with the interests of many political players, and not only from just one side. All these come in the background of perpetual job loss in the industrial sector, accumulating and unprecedented corruption that has permeated both the country's social fabric and polity, the recent 'uprising' of civil society against this, and finally, massive land grabs by big business, displacing and pauperizing a peasantry already badly threatened by the change in the monsoon cycle and increased numbers of invasive and life-threatening extreme weather events. But climate change is not an issue in these elections.

In the floods in Uttarakhand and other parts of the Northern Himalayas in June 2013, we have just witnessed one of the worst climatic disasters (hugely magnified by human mal-design) in Indian history and seethed in frustration at the total unpreparedness and callousness of our governmental system in responding to this in any manner. Not that there wasn't advance warnings for this: the Uttarakhand disaster came on the heels of the “Decade of Climate Extremes”, as the World Meteorological Organization termed the previous decade. Besides, a number of scientific studies have identified south Asia as one of the most vulnerable regions to climate change impacts, and India being the largest in geographic area and population, it has to bear a sizable part of these climatic risks. The recently released Fifth Assessment Report of IPCC Working Group II, also points to the severe and increasing future adverse impacts of increasingly threatening climate change.

However, all the warnings have been routinely ignored. Floods, droughts, mudslides and sea erosion enclose more than two-thirds of India's population. One climate disaster succeeds another. Earlier this year, hailstorms and unseasonal rain devastated the Vidarbha region of Maharashtra, killing people and their animals and ruined crops on thousands of hectares. In this country, natural disasters fail to make news unless they kill a large number of people. No one, least of all political parties contesting in the present elections, seems to care how a changing climate is slowly but irretrievably destroying India's rural economy and traditional livelihoods.

The present issue of Mausam looks mainly at the climate vulnerability of India: it contains stories and analysis of extreme weather events like the 2013 Himalayan floods and 2014 Maharashtra hailstorms, and the inadequacy of India's adaptation strategy as manifested in the national and state climate action plans. It also contains a comparative analysis of election manifestos of major political parties to see how climate concerns figure in the mainstream political agenda, and the story of how Delhi's waste workers try to defend their livelihoods in the face of a so-called climate solution—waste-to-energy projects.

A Brief Analysis of the Manifestos of Four 'Major' Political Parties, for the 2014 General Elections

In the areas of (1) Energy and (2) Climate Change and Disasters.

Soumya Dutta

Over the last two decades of 'liberalization, privatization and globalization', we have seen how the nation's energy supply has increased, while the percentage of un-served poor has declined only very slowly, with nearly 25 per cent of families still lacking access to any form of clean and secure energy system. After nearly 67 years of political independence, about 65 per cent of Indian families still have to depend on dirty, health-damaging solid fuels for cooking and heating, while the fast increasing production, supply and consumption of commercial energy--where most of the state attention was focused – serve mostly the rich and the middle class.

Considering that India faces major challenges in both energy access and tackling climate change impacts, it is pertinent to take a critical look at what the major political parties are thinking and planning in these important areas for the people of the country – in the 2nd decade of this 'Asian century'. As all of them claim to be representing the true democratic interests of the 'people', let us briefly look at how well they have understood the real concerns, and what they are proposing to do about these. Also, what they have not cared to say or plan, and what are the major gaps.

The choice of the four political parties was made based on their perceived impacts on the national scene. Though the Trinamool Congress, the Bahujan Samaj Party, the Samajwadi Party and AIADMK are now larger in terms of legislators and might even emerge larger than the Aam Aadmi Party (AAP) in terms of parliamentary seats, none of them had as strong an influence in setting a national agenda as AAP. Also, in spite of its decline in parliamentary and assembly seats, the CPI-M is still an ideological force in the Indian context, going by what many leftists would like to believe.

Manifesto of - Issue and/or Area of concern /gaps / Expectations	Indian National Congress (INC)	Bharatiya Janata Party (BJP)	Communist Party of India (Marxist) (CPI- M)	Aam Aadmi Party (AAP)
<i>ENERGY – What they say</i> The comparison – INC, BJP, CPI-M seem to have at least thought of energy in several fields. In contrast, the AAP didn't invest much energy to develop any clear energy perspective.	Boasts of: -- 'more than doubling installed power capacity', from 112,700 MW to 234,600 MW in last 10 years, -- Increased coal production from 361 mt to 554 mt. Its core "15 point	Promises to: -- reduce transmission and distribution losses through technology. -- To provide 'basic level' of electricity to all.	In its alternative economic policy, it promises: "Allocate resources for providing physical and social infrastructure – electricity, public transport,....., --subsidy for diesel and electricity for	From Economy and Ecology- Every citizen in this country will have access to...power.. Environmental Natural resource-

<p>INC, BJP both back nuclear energy. CPI-M is against 'foreign' reactors, but pushes for desi-nuclear. The AAP is strangely silent on nuclear energy question.</p> <p>INC does not mention its own government's energy policy. BJP talks of a comprehensive national energy policy. Though not explicit on this, CPI-M has the better thought out elements of such a policy. AAP is silent on this.</p> <p>INC and BJP are happy with private power production. AAP also supports this idea. The CPI-M is opposed to energy privatisation. INC, BJP, CPI-M talk about coal, gas etc. – apart from electricity.</p> <p>Rural electrification is clearly emphasised by INC, BJP and CPI-M – not by AAP!</p> <p>Though all talk about promoting renewable energies – only</p>	<p>INC proposes:</p> <p>--extra 'user charges' for uninterrupted power, as '<i>people are willing to pay for better quality services</i>'.</p> <p>--"To promote equitable and inclusive access to energy, we have recently increased the number of subsidised cooking gas cylinders per household to 12 per year. The Indian National Congress will continue to enable the provision of clean, efficient and affordable energy for all."</p> <p>--".. will effectively implement the National Mission on Energy Efficiency to improve energy efficiency in all areas of the economy including power, transport, urban housing, consumer goods and in rural housing."</p> <p><u>--Will target "100% access in urban from current 94% and 90% access in rural areas from current 67.3%."</u></p> <p>--"to improve the quality and unit consumption of electricity in rural areas."</p> <p>--"need to work effectively to increase</p>	<p>--"The overarching goal of energy security is to ensure affordable energy for various consumer segments.</p> <p>--Steps will be taken to avoid over-dependence on any one fuel and ensure supplier diversity, to avoid reliance on one supplier, country and developing indigenous capacities to meet the emerging needs."</p> <p>--Come out with a responsible and comprehensive 'National Energy Policy'.</p> <p>--Focus on development of energy infrastructure, human resource development and up-gradation of technology.</p>	<p>develop power and telecom equipment manufacturing in the country, reversing the trend towards private power producers and privatising distribution companies; stop the franchising of towns to private players, Reviewing the Electricity Act 2003",</p> <p>--Making Coal India Ltd a unitary company and only agency for mining coal and supplying to industries and the customers,</p> <p>--from Agriculture - Expand public investment in power supply in rural areas and stop privatization of electricity; Ensure uninterrupted supply of power to agriculture;</p> <p>--on price rise - Reversing the deregulated regime of pricing of petroleum products and establishing an administered price control mechanism</p> <p>-- Reducing the central excise and customs duties on</p>	<p>wind pumps.</p> <p>To reduce infrastructure and maintenance costs and encourage local ownership.</p> <p>--in Foreign policy – Demand greater investment in renewable energy and transfer of technologies from the developed countries, This is integral to India's energy and economic security</p> <p>– promoting honest business -</p> <p>--"AAP believes that government should not be in business of running businesses; Active participation of the private sector... encourage honest enterprise through lower compliance costs"</p>
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<p>AAP mentions the importance of decentralized renewable energy production. Only AAP talks about 'local ownership', but leaves it unexplained.</p> <p>Only CPI-M talks clearly about indigenous capacity building in both energy supply and manufacture. INC, BJP and CPI-M specifically talk about reaching energy / electricity to farmers, exhibiting some understanding of the critical linkages. AAP is silent on this. Similar cross sectoral importance of energy is shown to some extent by INC and BJP, and also CPI-M, but not by AAP.</p> <p>On marginalized communities – BJP mentions tribal hamlets, INC – Women and particularly rural women, and clean cooking fuel. CPI-M talks about 'powering' scheduled caste families. AAP does not mention any specific segment. INC, BJP and</p>	<p>household access to LPG and kerosene, especially the availability to rural households.”</p> <p>--“We will give a new thrust to new and renewable energy, including <u>hydel</u>, solar and nuclear energy.”</p> <p>--“Will launch a “National Wind Energy Mission”.</p> <p>--Stronger push to National Solar Mission.</p>	<p>--Take steps to maximize the potential of oil, gas, hydel power, ocean, wind, coal and nuclear sources.</p> <p>--BJP considers energy efficiency and conservation crucial to energy security.</p> <p>--Set up small-hydro power generation projects to harness the hydropower that is not being used at the moment. Small projects can be set up with local support and without displacement of the local population.</p> <p>--Take steps to increase the domestic coal exploration and production, to bridge the demand and supply gap. Oil and gas explorations would also be expedited in the country. Also – a national policy on coal (and other critical natural</p>	<p>Controlling prices of natural gas and reversing gas price increase in the KG gas basin,</p> <p>--From Environment - energy efficiency in all sectors of production and consumption; promotion of renewable energy such as solar and wind;</p> <p><i>--reducing energy inequality and promoting energy access for economically weaker sections;</i></p> <p>--from security matters –</p> <p>Revising the Indo-US nuclear agreement; no import of foreign nuclear reactors; <i>pursue self-reliance in civilian nuclear energy based on domestic uranium and thorium reserves,</i></p> <p>--Ensuring ...electricity connections to all scheduled caste families;</p> <p>--Urban issues- Ensuring affordable basic services like ...power, transportation</p>	
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<p>CPI-M give importance to energy efficiency and about affordable energy.</p>		<p><i>resources)</i></p> <p>--Give a thrust to renewable sources of energy as an important component of India's energy mix;</p> <p>--Expand and strengthen the national solar mission.”</p>		
<p><i>Climate Change and Disasters (generalized comments about ‘environment’ not counted)</i></p>	<p>-‘Will continue to implement the National Action Plan on Climate Change;</p> <p>-Strongly advance and protect India’s interests in international climate and other environmental negotiations;</p> <p>-Launch ‘Green National Accounts’ by 2016-17, to ensure costs of environmental degradation are taken into national accounts.</p>	<p>Will take climate change mitigation initiatives with all seriousness and work with the global community and institutions;</p> <p>--Encourage ‘cleaner production’; promote ‘pro-active carbon credit’;</p> <p>--Create ‘National Mission on Himalayas’; launch ‘Himalayan sustainability fund’;</p> <p>--Programme ‘to arrest melting of Himalayan glaciers’.</p>	<p>--Reduce emission of greenhouse gases through effective regulation;</p> <p>--Strengthening States to tackle natural and climate-related disasters, and to adopt and implement climate resilient development strategies addressing the needs of vulnerable populations</p> <p>-Introduce crop and cattle insurance scheme for all farmers, including tenant farmers/ share-croppers (but no mention of CC impacts);</p>	<p>--No clear mention of Climate Change threat;</p> <p>-- demand transfer of technologies from the developed countries, as they remain main users of fossil fuels and drivers of climate change;</p> <p>--</p>

Observations

a. Promises about Energy: Emphasis on fossil fuel

Though all the manifestos talk about “Energy”, their primary focus is on 'power' (electricity). This shows the huge gap in understanding that electricity is only about 12-13 per cent of India's present energy basket. INC, BJP and CPI-M talk about increased mining and use of coal. AAP only talks about coal in the tribal context. Similarly, though INC, BJP and CPI-M talk about petroleum and natural gas, there is not enough emphasis or clarity – except quota of cylinders and price of oil/gas. The availability/ supply questions seem to have escaped attention of all these parties. CPI-M talks clearly about re-introducing an administered price mechanism (APM). None seems to be aware of the looming peak oil problem in the not too distant future.

There is not enough understanding shown for the critical cross-sectoral importance of energy. Though a few sectors did mention energy in INC, BJP and CPI-M manifestos, there are no clear linkages shown (except in farming). The critical importance of affordable energy access in creating jobs, in providing services, in infrastructure – is absent from all manifestos. All manifestos talk about energy only in the domain of “commercial energy”. The nearly 40 per cent of population who still depend on non-commercial energy does not figure in the manifestos, showing these party's bias towards the better off (or an abysmal lack of understanding?). Biomass still provides approximately 20 per cent of India's total primary energy (and nearly 60 per cent of the people depend on it in small or large parts). Except just a single-word mention in AAP manifesto, it is invisible.

Continuing with nukes and dirty energy

The huge upheavals, both in India and the world in the field of nuclear energy post-Fukushima, seem to have left all these parties un-touched. No party has cared to explore or enquire about environmental (including CC)/external costs of different forms of energy. None has any plan(s) for a transition from dirty energy to clean renewables, except small mention of RE. Not one has captured the recent sea changes in the RE sectors, with rapidly falling prices and more RE being installed than conventional energy systems, globally.

None of the parties seem to be aware of the global debates about coal and oil, and the risks involved in planning for a long term energy strategy based on these.

None of the parties has shown any awareness or sensitivity to the huge adverse impacts of coal as an energy source, and the massive grassroots resistance movements against these.

b. On Climate vulnerability

The INC, BJP and CPI-M take cognizance of climate change. INC continues with the NAPCC, ignoring its failure or even misguided design in many aspects. BJP and CPI-M come straight to the importance of mitigation. The AAP is silent.

Both INC and BJP talk about continuing international negotiations, with INC taking the familiar obstructive line of “strongly advance and protect India's interests”, meaning India's “right” to continue with dirty coal, massive urbanization and generally, all high emission pathways. Except CPI-M, none of these parties emphasises or even mentions the importance of adaptation measures, though INC can claim that NAPCC already covers that. CPI-M also goes one step more in mentioning crop and cattle insurance for all farmers.

While all the parties advocate the continuing and increasing use of coal (AAP does not do this explicitly), none seem to be aware that this is completely antithetical to the mitigation action claims they are making:

- BJP talks of cleaner production and “pro-active carbon credit”, whatever that means. INC is not claiming, but can point to a large basket of Indian CDM projects during its last ten years (including many environmentally and socially destructive ones).
- INC (or the government led by it) has the mission on Himalayan Ecosystems in the NAPCC, while the BJP talks about such a mission, without mentioning how – if at all – it is going to be any different from the existing one. The other two parties do not have these details.
- Very strangely, AAP keeps itself limited to demanding technology transfer from developed countries. It seems there was no application of mind in their environmental policy formulation for this manifesto.

With the tragic memories of the June 2013 Himalayan disasters still fresh in the national awareness, and in the backdrop of a plethora of predictions of increasing climatic disasters in the coming years and decades, only CPI-M clearly mentions developing state-level capacities to respond to these, though no pathway is indicated.

None of the parties seem to be aware that climate change impacts – both catastrophic and slow-onset ones – are already impacting a large number of the nature-dependent population in India, and have very little plan for that.

Soumya Dutta works on climate and energy issues with the collective Beyond Copenhagen.

A Review of the Report of the Expert Committee on the Uttarakhand Flood Disaster and Role of HEPs: Some Welcome Recommendations, Some Concerns

Himanshu Thakkar, SANDRP

After the disaster in Uttarakhand (also in Kinnaur in Himachal Pradesh) in June 2013, the Union Ministry of Environment and Forests (MoEF) constituted an Expert Body (EB) in October 2013, headed by noted environmentalist Dr Ravi Chopra, after the Supreme Court ruled in this matter in August 2013. In its report, the EB recommended that at least 23 hydropower projects in Uttarakhand should be dropped, because hydropower projects had played a significant role in the Uttarakhand disaster and there was an urgent need to improve the environmental governance of hydropower projects. The EB submitted the Report titled 'Assessment of Environmental Degradation and Impact of Hydroelectric Projects During The June 2013 Disaster in Uttarakhand' to the MoEF on April 16, 2014, and it was made public following a hearing in the Supreme Court on April 28, 2014.



Damaged Vishnuprayag Dam in Uttarakhand floods of June 2013. *Source: MATU Jansangathan*

General Observations on the Report

Uttarakhand floods of June 2013

The report supports the stand taken in a letter that was written to the MoEF on July 20, 2013, endorsed by over 20 individuals and groups, including from Uttarakhand, on the role of existing and under -construction hydropower projects in the Uttarakhand floods of June 2013. The MoEF did not take any action on this letter until the Supreme Court pushed it to do so.

SC order of August 13, 2013

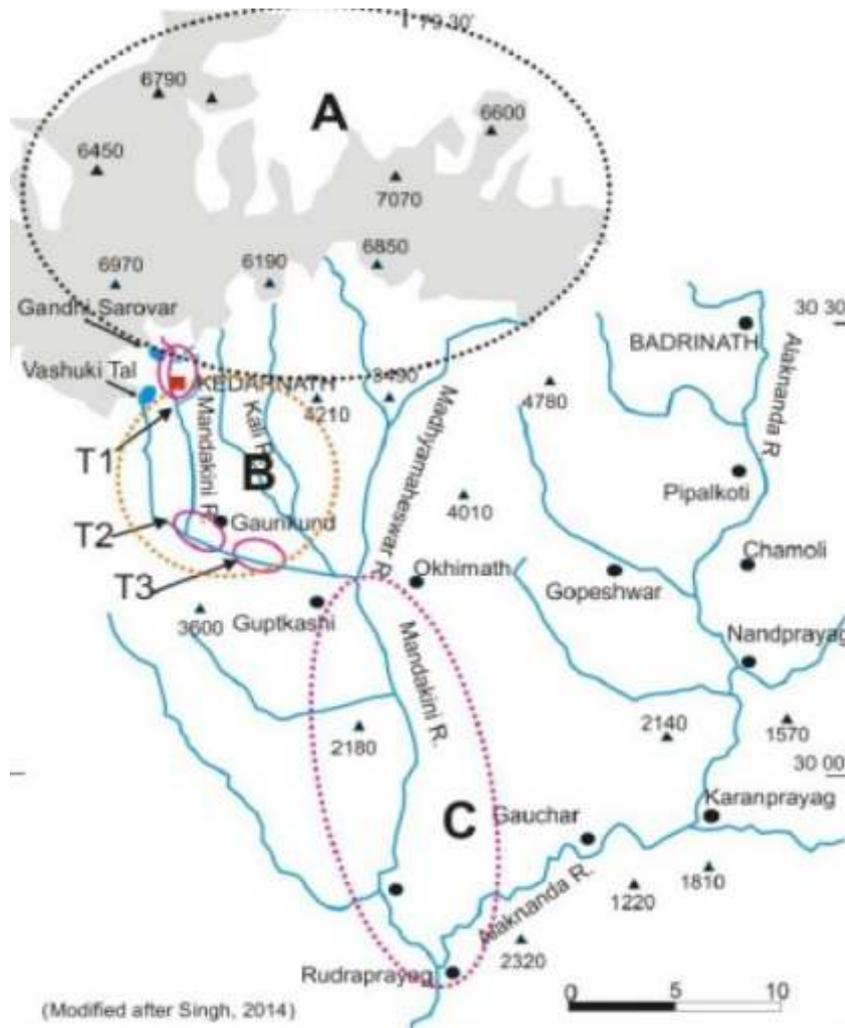
On August 13, 2013, while disposing off the petition on the Srinagar HEP in Uttarakhand, the Supreme Court, ordered, suo moto, that the MoEF and Uttarakhand government desist from issuing clearances to hydropower projects anywhere in Uttarakhand until fresh orders were issued. Both the MoEF and the Uttarakhand government have been violating this standing order. However, one of the fallouts of this order was the formulation of the

Expert Body.

Limited Terms of Reference

The Supreme Court order of Aug 13, 2013 covered the entire state of Uttarakhand. However, the MoEF order and subsequently the Central Water Commission (CWC) tried to restrict the EB to the Alaknanda and Bhagirathi sub-basins.

Below, we have given some useful recommendations and conclusions of the EB, followed by some weak ones.



Map of Mandakini Valley, worst affected by the Uttarakhand floods of June 2013 (Source: EB report)

Useful Recommendations and Conclusions

On 24 projects recommended to be dropped by WII

“After considerable discussions and analysis, the Expert Body concluded that of the 24 proposed Hydropower Projects (HEPs) that the Wildlife Institute of India (WII) recommended for Review, 23 HEPs would have significant irreversible impacts on biodiversity values.”

“The EB recommends that for the 23 proposed HEPs out of the 24 identified by WII (other than the Kotli Bhel 1A project) that would have irreversible impacts on the biodiversity of Alaknanda and Bhagirathi Basins, the HEPs that come under any of the following conditions should not be approved for construction:

- (a) Proposed HEPs that fall inside notified wildlife areas (Protected Areas—PAs) such as national parks and wildlife sanctuaries
- (b) Proposed HEPs that fall within the Gangotri Eco-sensitive Zone
- (c) HEPs that fall above 2,500m in areas that encompass critical wildlife habitats, high biological diversity, movement corridors, and are fragile in nature due to unpredictable glacial and para-glacial activities.
- (d) Proposed HEPs that fall within 10 kilometres of the boundary of PAs and have not obtained clearance from the National Board for Wildlife

It would have been in the fitness of things had the EB asked for stoppage of work on all these 23 projects with immediate effect.

On Kotli Bhel 1A

The EB has, we believe, erroneously concluded, overruling the conclusion of WII and also the expert review initiated by EB, “that the Kotli Bhel 1A project might not significantly worsen the condition of the river Bhagirathi between Koteswar and Devprayag – already part of a highly fragmented zone”. However, EB has asked for “due modifications to its design and operations so that an adequate stretch of the river downstream of the Koteswar dam just above KB-1A can be maintained in a free flowing state”. This means the project work should stop and it should reapply for clearances after doing the suggested modifications in a credible way.

Restoration

“The river bed profiles at Phata-Byung, Singoli-Bhatwari, Vishnuprayag and Srinagar HEPs have changed significantly. This requires a fresh analysis of the project hydrology and redesigning them if necessary.” “All projects must undertake river restoration works after prior clearance from MoEF. It was noticed that project developers were engaged in projects' restoration only. MoEF needs to conduct a formal review of the environmental damages at all the HEPs in Uttarakhand and prepare guidelines for restoration. Till then none of the projects should begin power production.”

HEPs above 2 MW need Environmental Clearances

“All projects > 2 MW, shall require prior Environmental Clearances (EC) from MoEF”...“A multidisciplinary expert body should be constituted with members of proven expertise and experience to review every year the progress/performance of each HEP and its compliance with the sanction conditions. This body will also review the technicalities of disaster preparedness before each monsoon season and examine the impact of monsoon storm and floods on the performance of all the project components. The environmental health of the river will be a critical area for comprehensive examination.”

No projects above winter snow line

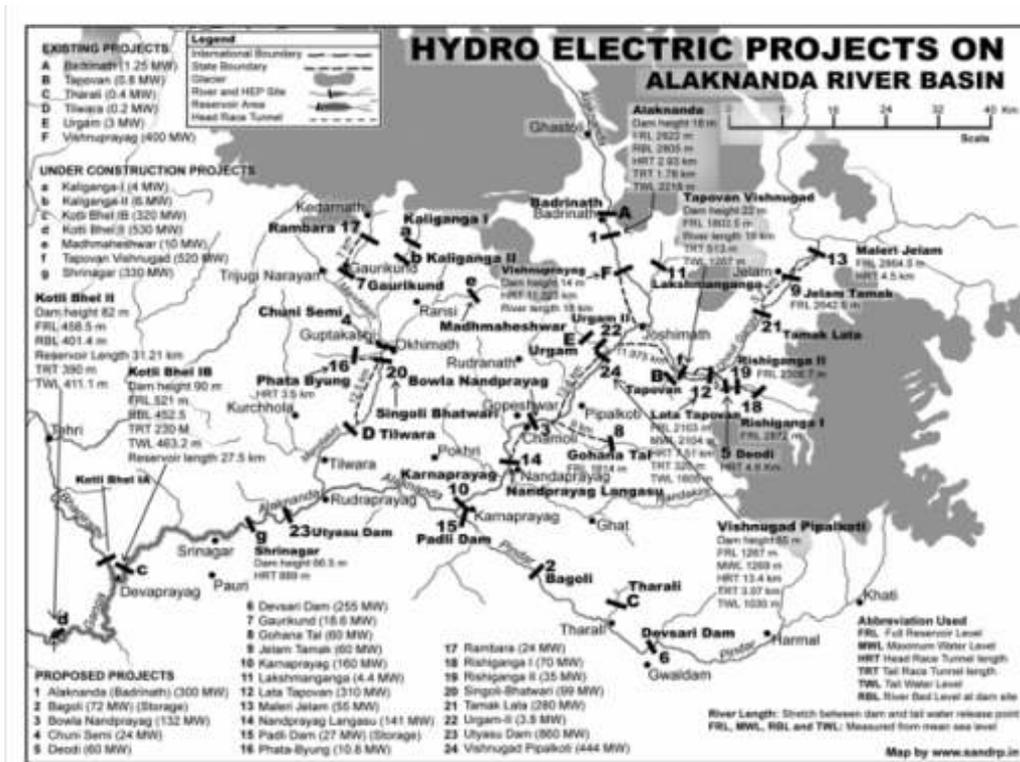
“Learning from the June 2013 event, the EB believes that the enhanced sediment availability from and in para-glacial zones could be a serious problem for the longevity of the existing, under construction and proposed HEPs in Uttarakhand. Therefore the EB recommends that the terrain above the MCT in general and above the winter snow line in particular (~2200-2500 m) should be kept free from hydropower interventions in Uttarakhand.”

SEA should be carried out for all river systems in Uttarakhand

“The WII study has already identified 24 proposed HEPs in the Alaknanda and Bhagirathi basins as likely to cause irreversible impacts. But comprehensive research studies of other basins in Uttarakhand are lacking at this stage... Strategic Environmental Assessment (SEA) be carried out in other major river basins of Uttarakhand such as the Yamuna and Kali basins.”

Distance between projects in a cascade

“Scientific studies by subject experts should be conducted for establishing baseline data on river parameters, diversity and populations of floral and faunal species in different rivers of Uttarakhand at different elevation zones. Such studies should be used for deciding upon the minimum distances between two consecutive HEPs. Until such scientific studies are completed, no new HEPs (in S&I stage) should be cleared on the rivers of Uttarakhand within a distance that may later be revoked. Minimum distances for projects in the clearance stage should be significantly revised upward from the current consideration of 1 km.”



SANDRP Map of bumper to bumper hydropower projects in Alaknanda basin in Uttarakhand

National Himalayan Policy

“Since the Himalaya are our vital source of growth and abundance, a National Himalayan Policy needs to be urgently created and implemented.” “Therefore, the EB strongly recommends that a detailed study of the impacts of hydropower projects... (deforestation/tunnelling/ blasting/reservoir construction)...on the hydrogeology of the area should be carried out.” “A study on the role of large artificial reservoirs on local climate change and precipitation patterns with special reference to the Tehri dam reservoir.”

Sediment transportation studies

“The EB recommended that the studies should be done to assess “impacts on sediment transportation due to projects existing on Himalayan rivers”.

Cultural impacts of HEPs

The EB also recommended that “the Ministry of Culture along with the local representatives and spiritual leaders should commission a study “of the cultural impacts of HEPs in the spiritually rich state of Uttarakhand”.

Muck Management

The EB concluded that because inadequate muck management compounded the June 2013 floods, the present system needs a thorough revisit.

Environmental Flows (EFlows)

“Till such time as a decision is taken on the EFlows recommendations of the IITs-consortium, the EB recommends EFlows of 50% during the lean season and 30% during the remaining non-monsoon months. Sustaining the integrity of Uttarakhand's rivers and their eco-systems is not negotiable.”

Eco-Sensitive Zones

“It is recommended that legislation be enacted to (i) protect small but significant rivers (as done in Himachal Pradesh and also recommended by the IMG for Uttarakhand) as pristine rivers and (ii) designate Eco-Sensitive Zones for all rivers of Uttarakhand.”

Community-based CA and CAT

“Community-based CA and CAT plan execution must be done by the State Forest Department within the construction period of the project.”...“Community-based CAT programmes have to be systemically implemented for ensuring sustenance of the plantations. This requires training of forest officials to work with the communities through their Van Panchayats.” This is to be monitored by a committee that includes two representatives from local communities, a renowned environmentalist, among others.

Violation of the Court Order

“It was brought to the notice of the EB that clearances to start work had been granted recently to the Lakhwar (300 MW) and Vyasi (120 MW) projects. This is in violation of the spirit of the Hon'ble Supreme Court's order of August 13, 2013. It is also noticed that these projects were approved more than 25 years ago. Consequently they do not have any EIA/EMP/DMP studies that are mandatory today. Without conducting cumulative impact assessments and disaster management studies of the Yamuna and Kali basins no such projects should be allowed at the risk of fragile ecology, biodiversity and lives of people living in and around the project sites.”

Conclusions of EB: On Role of Dams in the Uttarakhand disaster

In Chapter 3 (p. 10), the chairman of the EB notes, “Thus THDC's inundation analysis results could not be substantiated by the ground survey in Haridwar city” (on THDC's claim of Koteswar dam saving Haridwar city).

“In September 2010, to retain flood inflows in the face of water levels rising beyond the permitted FRL the (Tehri) dam authorities had to seek the permission of the Supreme Court. It led to inundation of the upstream town of Chinyalisaur and later after draw down fresh landslide zones were created around the reservoir rim.”

“Geo-chemical analysis of sediment samples taken from various locations along the river stretch in Srinagar, however, indicated a significant contribution — varying from 47% near the barrage to about 23% much further downstream (Fig. 3.19, pg 101, Main Report) — from muck eroded from muck disposal sites 6 and 9 located on the concave right bank and consequently experienced an intense current of the order of 7m/sec. This raises a question that if there was heavy to very heavy rainfall from the glacial reaches of the Alaknanda valley, leading to

numerous landslides along the banks, then why was massive damage observed only downstream of the Vishnuprayag and Srinagar HEPs? A detailed investigation is warranted in order to arrive at a scientifically viable explanation.”

Problems with the composition of the EB and its Report

Role of CWC, CEA chairpersons

CWC (Central Water Commission, India's premier technical body on water resources development under the Union Ministry of Water Resources) and CEA (Central Electricity Authority, India's premier technical body on the power sector) are largely known to act as lobbies for hydropower projects, instead of the independent technical and regulatory bodies that they are expected to work as. In view of this, inclusion of chairperson of CWC and CEA in the EB was a wrong step on the part of MoEF.

Role of MoEF

The EB failed to critically examine the functioning of MoEF. Possibly, with the committee having been appointed by MoEF and member secretary of the committee being a MoEF official this was a difficult task. However, this had imposed a congenital limitation on the EB and its report and in fact provided a free reign to the 'guilty party'. This became apparent when on April 28, 2014, during the Supreme Court hearing, the MoEF tried to argue that there were two reports of the committee, one by 10 members (wrongly called activists) and another by Vice Chair B P Das, with CWC and CEA chairpersons, though the note from the latter can at best be considered a dissent note, that too in violation of SC orders.

Conclusion

In spite of certain weaknesses, most of the recommendations of the committee need to be immediately implemented, pending which there should ideally be a Supreme Court order for a status quo on hydropower projects. The EB headed by Dr Ravi Chopra should be congratulated for this report in spite of difficult circumstances under which the committee operated.

▷ We also hope the Supreme Court would ask MoEF to issue a stop-work order on Lakhwar and Vyasi projects that have started recently, violating the Supreme Court order.

▷ The work on 24 hydropower projects, which were part of the terms of reference of the EB should immediately stop. The EB should have made this explicit recommendation, but even if they have not done that, it is implicit in its recommendations.

▷ The Supreme Court should ask MoEF to provide a time-bound action plan on implementation of the various recommendations of the EB. The SC can also possibly appoint the EB (minus Dr Das, and CWC and CEA persons) to oversee the implementation of the action plan and continue to provide independent feedback on the adequacy of such implementation.

▷ The lessons from Uttarakhand are relevant for all Himalayan states of India from Kashmir to the North-East and we hope the Supreme Court will ask the MoEF to ensure that these lessons are duly noted. These will also provide guidance to our Himalayan neighbouring countries.

P The failure of environmental governance is one of the clearest messages from this episode and we hope MoEF will put its house in order in this respect, revamping its present faulty systems.

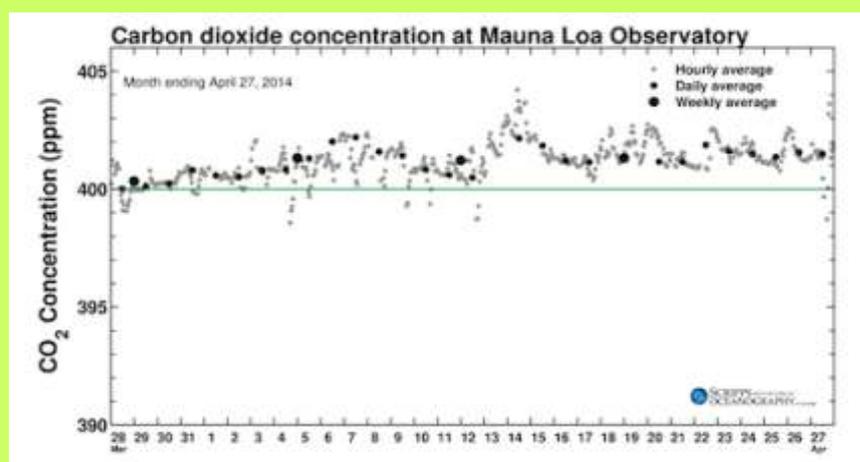
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Atmospheric CO₂ at over 400 ppmv all April

Soumya Dutta

For the first time since 'modern humans' originated on planet Earth, the atmospheric carbon dioxide levels have reached and stayed at or over 400 ppmv (parts per million by volume), or 0.04% for over a month. Modern humans (*Homo Sapien Sapiens*) are said to have originated around 60,000 years ago, and in that short span of time – about four seconds, if we take the Earth's age of 4.57 billion years as one year– we have managed this remarkable (negative) feat.

Far from any industrial centre, the Mauna Loa observatory atop the mountain of the same name, in Hawaii, has been recording atmospheric CO₂ levels daily, from 1958. CO₂ levels touched 400 ppmv briefly on May 9, 2013, but went down again with the yearly cycle. Every year, atmospheric CO₂ levels rise in the northern winter, as the cold northern hemisphere forests/ vegetation are less active. At the beginning of northern hemisphere's summer, plant photosynthesis gets more active, sucking up more CO₂ from the air, and reducing the CO₂ ppmv level as summer progresses.



The figure above from the Mauna Loa records (put out by the Scripps Institute of Oceanography) shows that in 2014, CO₂ levels reached 400 ppmv by the end of March, and stayed above that 'psychological level' throughout April.

This level of CO₂ in the atmosphere was not seen on Earth for at least the last 800,000 years, and when it existed before that – the average temperature of the earth was much higher, sea levels were way higher and the Earth looked a completely different place than the one we are familiar with. Sobering thoughts, but are the political leaders watching?

Changing Climate and Unchanged Responses: The Killer Hailstorms in Maharashtra

Pareneeta Dandekar

The Killer Hailstorms

February and March were exceptionally hard months for farmers in Maharashtra (as also in Madhya Pradesh, Karnataka, Rajasthan and Punjab) as untimely rains and strong hailstorms battered the state, affecting more than 25,00,000 hectares in 28 districts of the state. At least 21 people died due to the hailstorms, twenty farmers committed suicide because of their ruined crops and debts which they could now no longer hope to repay. Thousands of domestic animals and birds also died. The crops most affected include grape, sugarcane, cotton, wheat, pomegranate, banana, etc. The loss is even more poignant due to the fact that most of the crops were very near harvesting: some crops were in fact harvested and lying on the fields to dry when the horrific hailstorms hit the region.

High untimely rainfall

The rains that followed the hailstorms broke the past hundred years' records several times over, according to calculations by the civil society organization SANDRP (South Asia Network on Dams, Rivers and People). For example: 208 mm rainfall in Madha in March 2014 is 771% higher than the highest recorded monthly district rainfall for Solapur district for the entire month of March in the hundred years between 1901-2002! The previous highest recorded rainfall in March was 26.95 mm in 1915. Similarly, 65 mm rainfall reported from Ausa Taluka in Latur is 146 % higher than the previous district high in 1944. Places like Parbhani, Akola, Wardha also reported similar figures. The untimely rainfall events recurred in April when Beed, Osmanabad and Kolhapur received heavy rains, causing three deaths and a staggering loss of rabi crops all over again.

Causes of the unseasonal rain: weakened polar vortex?

The exact reasons behind this intense hailstorm and unseasonal rain may not be known for some time, but the immediate explanations include a weakened polar vortex. Weakening of the polar vortex is being attributed to reduced snow cover in the northern hemisphere, which in turn is directly linked to global warming and anthropogenic climate change. According to a recent report published in *Down to Earth*, in early January this year, the polar vortex in the Arctic weakened and collapsed, allowing cold air to escape down to the mid-latitudes: the disturbed jet stream further pushed down cold air from the Arctic, causing the cold westerlies that normally flow across the Himalayas to come down to peninsular India. Here, they were met with warmer moisture-laden southern westerlies, and hence could not cross the Bay of Bengal. This resulted in heavy precipitation in Central India.

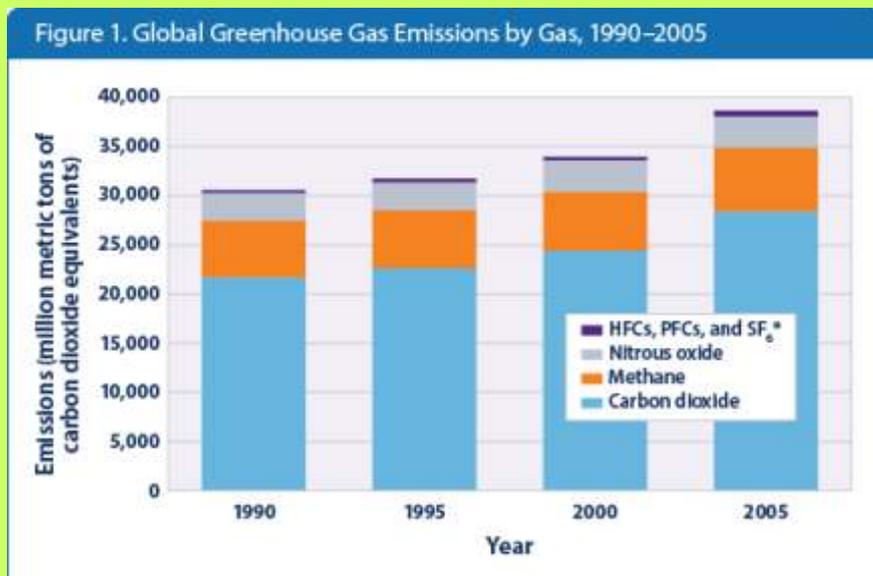
Climate Change and Maharashtra: governmental apathy

The impacts of climate change are not entirely surprising or unexpected, especially in Maharashtra. In the past decade, Maharashtra has witnessed several freak weather events as well as outbreaks of farm diseases. The year 2012-13 became infamous as the worst drought year in the past 40 years. The Intergovernmental Panel on Climate Change (IPCC) has predicted that in peninsular India, rainfall patterns will become more and more erratic, with a possible decrease in overall rainfall, but an increase in extreme weather events. Despite warnings by the IPCC and

Leading countries in terms of Renewable Energy production

Soumya Dutta

As every serious research has shown, for any reasonable chance to avoid catastrophic climate change, the total GHG emissions from every source everywhere has to peak by around 2015, and then drastically come down to less than 20% of the world's 1990 emission levels, latest by 2050 (IPCC). That is the "official" stand, while recent scientific works show that this needs to be done even much faster, and the cut needed is nearly 90% from the 1990 levels.



The world's energy systems are still far away from reducing their massive GHG emissions, with the total primary energy supply heavily dependent (nearly 80 % as per IEA) on carbon dioxide emitting fossil fuels, as is clearly visible in the chart above. The total CO₂e GHG emissions have reached about 50 Gt in 2012, from about 32 Gt CO₂e in 1990, an increase of about 60%, inspite of UNFCCC, IPCC and the Kyoto Protocol! And the rise in CO₂ itself – mostly from energy related fossil fuel burning – has shown the fastest growth. For any fair chance of reversal of this trend, the world needs to rapidly move towards very-low CO₂ energy sources, like solar and wind. Keeping that in mind, let's see which countries have produced (not installed MW) the maximum amount of this low-carbon renewable energy (data till 2011).

Top 5 Countries ranked by Renewable Power (-Hydro) Generation TWhr (2011)

Country	Solar Power Generation (A)	Wind Power Generation (B)	Geothermal Generation (C)	Biomass based Generation (D)	A + B + C + D TeraWattHrs
1. European Union (multi)	23.1	139.1	05.6	123.3	291.1
2. United States	01.8	119.7	17.0	56.7	195.2
3. China	03.1	73.2	-----	34.1	110.4
4. Germany	28.0	45.3	00.2	40.9	114.4
5. Italy	18.6	13.3	05.2	09.2	046.3
Next important 4					
Brazil	-----	02.7	-----	32.2	034.9
Japan	03.8	04.4	02.9	23.1	034.2
India	01.0	26.1	-----	04.1	031.2
Canada	00.5	19.7	-----	06.4	026.6

a series of weather disasters that had hit the state in recent years, climate change is still a non-issue for the government in Maharashtra: neither its impacts nor ways and means to cope with them have entered the official agenda yet. Instead, there has been sheer indifference in the face of accumulating scientific evidences and warnings. The administration of Maharashtra continues to ignore expert advice as well as ground reports.

No State Action Plan on Climate change (SAPCC) yet!

One would have expected Maharashtra to address climate change issues strongly in its State Action Plan on Climate change (SAPCC). The National Action Plan on Climate change which came out in 2008 asked all states to work on their respective State Action Plans on Climate Change (SAPCC). Shockingly, Maharashtra does not have an SAPCC even in 2014 although the process started in 2009! Information obtained by SANDRP under RTI underlines the fact that most state governments have given no priority, time or importance to consider climate change or its impacts on societies and ecosystems.

The Maharashtra State Council on Climate Change was formed in September 2008, chaired by the Chief Minister and including ministers from various departments such as agriculture, water resources and industries. On August 20, 2009, this Council commissioned TERI (The Energy Resources Institute) to do a draft SAPCC. TERI was supposed to complete this study in two years. More than four-and-a-half years later, TERI has still not completed the report and the government of Maharashtra does not seem too bothered by this inordinate delay. One of the terms of reference of the Maharashtra State Council is: “To evaluate the study being done by TERI in the State and recommend strategies.” This Council was to meet “at least twice a year to review situation on CC and adaptation strategy” as per the GR. It has met just once in last the 33 months. However, in its first and only meeting in 2013, there was absolutely no discussion on TERI's report! Strangely, TERI and the Met Office, UK had already published a note on the Maharashtra State Action Plan in 2012 itself, when the SAPCC is still not final even today!

There is also the issue of conflict of interest: when TERI is given the task of preparing Maharashtra's SAPCC, how can Dr. R K Pachauri, who heads TERI, be on the State Council to oversee the preparation of the SAPCC? Secondly, Dr. Pachauri is a member of the Prime Minister's Council on Climate Change, which recommends state action plans and then his own organisation, TERI, is awarded the work to prepare the action plan for Maharashtra. Is there not a conflict of interest here?

A SAPCC will not wish away climate change, but it may lead to some governmental efforts at least, to build the adaptation capabilities of the most vulnerable sections of the society – of agricultural and coastal ecosystems and the poor who depend upon them.

(Based on earlier articles: <https://sandrp.wordpress.com/2014/04/08/maharashtra-state-action-plan-on-climate-change-farmers-suffer-state-and-consultant-teri-unaffected/> and <https://sandrp.wordpress.com/2014/03/11/maharashtra-farmers-face-impacts-of-hailstorms-and-states-inaction-plan-on-climate-change/>)

Parineeta Dandekar is a member of South Asia Network on Dams, Rivers and People (SANDRP).

Clean Delhi by Including Waste Pickers in Waste Management

Chintan.

Delhi is drowning under its own waste. Recent estimates suggest that per capita waste generation is currently 0.57 kg/day and is expected to double by 2025. Landfills are filled, waste-to-energy pollutes the air and waste lies uncollected. Things would be worse if it was not for the informal recycling sector: wastepickers, kabaris and recyclers. In Delhi, 150,000 such persons recycle at least 2,000 tonnes of paper, plastic, metals and glass daily. They save the municipality up to Rs 1 crore a day. A Chintan study shows that the recyclers save 3.6 more times greenhouse gases in Delhi alone, compared to any other waste project in India receiving carbon credits.

Chintan's report on informal sector contributions to reducing greenhouse gas emissions found that the informal sector in Delhi reduces emissions by an estimated 962,133 tonnes of CO₂e each year, which is over 3 times more than any waste projects slated to receive carbon credits in the city. Although the informal sector is the backbone of India's highly successful recycling system and provides crucial environmental and public health services, it is being ignored. Although there are several national rules, policies and report in place, these are routinely ignored by the Delhi Government and the municipalities. These are as follows

- *Plastic Waste (Management and Handling) Rules 2011* deals with plastic bags and multilayered plastic packaging. Section 6(c) states that it is the municipality's responsibility "to engage agencies or groups working in waste management including waste pickers".
- *Electronic Waste (Management and Handling) Rules 2011* includes the informal sector by emphasizing that associations can also act as collection centres, with the understanding that associations are a form of informal sector organization. A 'collection centre' is defined as a centre established, individually or jointly, a registered society, a designated agency, a company, or an association to collect e-waste.
- *The National Action Plan for Climate Change 2009*, which aims at finding ways to handle climate change within India, states, "While the informal sector is the backbone of India's highly successful recycling system, unfortunately a number of municipal regulations impede the operation of the recyclers, owing to which they remain at a tiny scale without access to finance or improved recycling technologies."
- *National Environment Policy 2006* states, "Give legal recognition to, and strengthen the informal sector systems of collection and recycling of various materials. In particular, enhance their access to institutional finance and relevant technologies." (Section 5.2.8, point (e), Pg. 36).
- *The CAG Audit on Municipal Solid Waste in India (December 2008)* also recommends (Chapter 3, Section 3.5) that "MOEF/states should consider providing legal recognition to ragpickers so that recycling work becomes more organized and also ensure better working conditions for them."

Including waste pickers in waste management systems in Delhi will not only let the city conform to established rules and policies, but also ensure stable, safe and secure livelihoods of a large section of the urban poor, thus securing their trust in and support for the municipal government.

Another report by Chintan in 2011 showed that none of the 14 sampled cities, including Delhi, had implemented comprehensively the policies and rules that call for informal sector inclusion.

This note **summarizes 5 key ways to clean up the city in a sustainable way**, which is inclusive of the informal sector and offers citizens cleanliness.

1. Doorstep Collection *Only* by Wastepickers

Doorstep collection prevents open dumping of waste and enables recycling. In New Delhi Municipal Council (NDMC) and parts of East Delhi Municipal Corporation (EDMC), organized waste pickers provide this service. Unfortunately, their jobs are being snatched thanks to an ignorant government, as it proposes to contract such work to private companies. For example, in RK Puram, SPML Pvt Limited has quietly displaced several waste pickers by taking over doorstep collection.

Action: A registered association or group of informal sector waste pickers must be treated as ideal contractors for door-to-door collection. All municipalities to allow identified waste pickers to pick up waste from doorstep. Service fees may be collected by them with receipt or by municipality and minimum wages paid to them. All waste to be kept by waste pickers, not municipalities.

Any tendering should identify eligibility norms where the organization should either be of waste pickers or represent them, and have at least 2 years' experience in the work. Ideally, there should be a shift from tendering to a call for proposals, judged by waste pickers inclusion and technical specs.

2. Space for Waste

The Master Plan of Delhi does not adequately ensure ward and colony level segregation of waste and provide for ward and district level space to store it. Neither has it any space for recyclers. Instead, the Plan currently under review bans junk shops, thus illegalizing several hundred kabaris, who are key to recycling and facilitating corruption, as bribes are asked for in order to let them work.

Action: Space for waste segregation, composting and storage at colony, ward, district and municipal levels.

3. Re-think Privatization of Waste Handling

Privatization of waste management by assigning contracts to waste management companies has taken place in Delhi for the last 8 years. Neither has it cleaned the city nor shown a way to include the poor waste pickers. Instead, data shows it has adversely affected the informal sector forcing the waste pickers to lose access to their livelihood.

Existing contracts for waste management with private companies have expired, and new tenders for comprehensive waste management companies are being prepared. This will only result in **corporate monopoly**.

Action: Municipalities should not be allowed to assign any single contractor (or agency) the entire waste handling – from doorstep collection to transportation and dumping. If at all needed, only transportation should be contracted out, while under no circumstances should doorstep collection by waste pickers be discontinued. Waste pickers will keep the dry waste. All dhalaos should be allocated for segregation by waste pickers, and training for working standards given.

Usually, the L1 style bids create a disincentive to pay workers, as the contractor bids in order to get the contract. Instead, the bidding process should state that each worker will get minimum wages, and ask contractors

to identify worker usage and efficiency as a means of identifying the contractor.

Apart from the challenge of L1, **technical capacity** remains key to selection of contractors.

4. Reduce the Burden on Landfills

According to the MSW (Management and Handling) Rules, 2000, no recyclable dry waste may be put in landfills. Yet, both dry and wet waste is dumped in landfills. These may be diverted through both decentralized and centralized ways, with only inert or non-recyclable waste sent to the landfills. It is to be noted that even large cities like San Francisco have done this.

Action: Dry Waste: Space of 4000 ft² for a Material Recovery Facility (MRF) to be allocated near landfills for segregation and sorting (non-mechanized value addition) to remove any recyclable waste. Existing wastepickers on landfills can run these MRFs. Delhi needs one each at Ghazipur and Bhalaswa right away. Chintan can offer site plans etc.

Wet Waste: Give incentives for local composting. These should include training, a buy-back by Delhi Government and others at fixed rates for minimum quantities, and allowing composting in colony parks/open spaces.

5. Recognize and Strengthen Existing Recyclers

In a survey on the informal recycling sector conducted for the Delhi Pollution Control Committee, Chintan found a total of informal 5,695 recycling units with 19,451 workers. In fact, 80% of the recycling in Delhi is non-formal and concentrated in a few sites. Sustaining this sector that provides employment to such a large section of the urban population and handles several hundred tons of waste every day requires that recyclable materials continue to be channelized into this system with state support.

Action: Convert key recycling clusters in the Master Plan into Industrial Areas, followed by a drive to help recycling units to learn to register according to the Rules. There is no point in sending the waste to highly polluting waste-to-energy plants, which also reduce livelihoods.

Conclusion

The government should not show interest in increasing privatization of waste but ensure that key players such as informal sector waste recyclers are allowed and incentivized to do their job of waste management. It should not be forgotten that they provide crucial services to the environment and play an important role in mitigating climate change.

Climate Change News

(ICJ and Mausam may or may not agree with the ideas/concepts/analysis/solutions the news stories in this section express or suggest)

Carbon Tax vs Cap-and-trade: Which is better?

theguardian.com

A [carbon tax](#) imposes a tax on each unit of [greenhouse gas emissions](#) and gives firms (and households, depending on the scope) an incentive to reduce pollution whenever doing so would cost less than paying the tax. As such, the quantity of pollution reduced depends on the chosen level of the tax. The tax is set by assessing the cost or damage associated with each unit of pollution and the costs associated with controlling that pollution. Getting the tax level right is key: too low and firms and households are likely to opt for paying the tax and continuing to pollute, over and above what is optimal for society. Too high and the costs will rise higher than necessary to reduce emissions, impacting profits, jobs and end consumers.

By contrast, a cap-and-trade system sets a maximum level of pollution, a cap, and distributes [emissions permits](#) among firms that produce emissions. Companies must have a permit to cover each unit of pollution they produce, and they can obtain these permits either through an initial allocation or auction, or through [trading](#) with other firms. Since some firms inevitably find it easier or cheaper to reduce pollution than others, trading takes place. Whilst the maximum pollution quantity is set in advance, the trading price of permits fluctuates, becoming more expensive when demand is [high relative to supply](#) (for example when the economy is growing) and cheaper when demand is lower (for example in a recession). A price on pollution is therefore created as a result of setting a [ceiling](#) on the overall quantity of emissions.

(Source: <http://www.theguardian.com/environment/2013/jan/31/carbon-tax-cap-and-trade>)

Soccer and Carbon Trading? World Cup visitors to 'offset' carbon footprint offset for free

SAO PAULO Thu May 1, 2014, Reuters

(Reporting by Marcelo Teixeira)

Individuals who score tickets for the 2014 World Cup in Brazil but worried that the jet travel required to get to matches will contribute to global warming can rest easy. FIFA, soccer's governing body, on Wednesday said it will cover the cost of programmes to neutralize carbon emissions related to travel.

FIFA and BP Target Neutral, a not-for-profit carbon management program run by British energy company BP Plc, on Wednesday launched an online system where ticket holders worldwide can sign up to have their carbon footprints neutralized. Participants will be entered in a contest to win a pair of tickets for the tournament's final. BP said FIFA will offset the equivalent of 250,000 tonnes of CO₂e to cover its operational needs, in addition to the volume that will come from the online system launched on Wednesday. FIFA is sharing with the Brazilian government the responsibility to offset the event's carbon footprint. Brazil announced two weeks ago a programme

to swap publicity in the event for carbon credits. FIFA's offsetting web page can be found at: worldcupoffset.fifa.com

(Source: News extracted from <http://in.reuters.com/article/2014/05/01/us-carbon-worldcup-idINKBN0DG21H20140501>)

Global warming 'not uniform'

Monday, May 05, 2014, 09:38, Zee News, ANI

Washington: Researchers have found that the world is indeed getting warmer, but historical records show that it hasn't happened everywhere at the same rate. Zhaohua Wu, assistant professor of meteorology at Florida State University, said global warming was not as understood as they thought.

Wu led a team of climate researchers including Fei Ji, a visiting doctoral student at FSU's Center for Ocean-Atmospheric Prediction Studies (COAPS); Eric Chassignet, director of COAPS; and Jianping Huang, dean of the College of Atmospheric Sciences at Lanzhou University in China. The group, using an analysis method newly developed by Wu and his colleagues, examined land surface temperature trends from 1900 onward for the entire globe, minus Antarctica. The research team found that noticeable warming first started around the regions circling the Arctic and subtropical regions in both hemispheres. But the largest accumulated warming to date is actually at the northern mid-latitudes. They also found that in some areas of the world, cooling had actually occurred.

Chassignet said that the global warming is not uniform and that there are areas that have cooled and areas that have warmed. The study has been published in the journal *Nature Climate Change*.

(Source: http://zeenews.india.com/news/eco-news/global-warming-not-uniform_929744.html)

Indian environmental activist wins 'Green Nobel' for fighting against mining industry

Associated Press | Gare | April 28, 2014, Indian Express

The man walked into Ramesh Agrawal's tiny Internet cafe, pulled out a pistol and hissed, "You talk too much." Then he fired two bullets into Agrawal's left leg and fled on a motorcycle. The 2012 attack came three months after Agrawal won a court case that blocked a major Indian company, Jindal Steel & Power Ltd., from opening a second coal mine near the village of Gare in the mineral-rich state of Chhattisgarh. For a decade, Agrawal, who has no formal legal training, has been waging a one-man campaign to educate illiterate villagers about their rights in fighting pollution and land-grabbing by powerful mining and electricity companies. He's won three lawsuits against major corporations and has spearheaded seven more pending in courts.

"When I started this fight, I knew I'd be a target. It will happen again. Let it happen. I'm not going anywhere," the soft-spoken yoga enthusiast said in an interview this month in the city of Raigarh, where he hobbled around his modest home with a cane and a metal brace screwed into his shattered femur.

On April 28th, 2014, Agrawal, 60, was recognized in a ceremony in San Francisco as one of six recipients of this year's \$175,000 Goldman Environmental Prize, often called the "Green Nobel."

(Source: <http://indianexpress.com/article/india/india-others/indian-environmental-activist-wins-green-nobel-for-fighting-mining-industry/>)

Programme Announcement

Like in earlier years, **Sambhaavnaa Institute of Public Policy and Politics**, Himachal Pradesh, is organising a two-week summer programme for interested students and young people, on the broad topic – **“Development and its Ecological Impacts”**. The programme will run from May 26 to June 08, 2014, at its campus in Kandbari, Palampur, District Kangra, Himachal Pradesh.

Sambhaavnaa Institute (<http://www.sambhaavnaa.org>) and **The Forum for Policy Dialogue on Water Conflicts in India** (<http://www.waterconflictforum.org>) are happy to announce that we are organising a training program on **Understanding Water and Water Resources Management: Issues, Struggles and Solutions**, on **16-19 June 2014**. The program is specially designed for young people who wish to work or are working on water related issues, and want to expand and deepen their knowledge and understanding about water. This can include young activists in various *sangathans*, struggles, NGOs; they could be researchers doing M.Phil / PhD; lawyers working on water related cases; or could be media people wanting to report in this area, and so on.

For more details, mail to programs@sambhaavnaa.org, or contact

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Losses will far outweigh 'Economic Benefits' of Climate Change, 2014 US National Climate Assessment finds

Soumya Dutta

Warming can reach 5 Degrees C by 2100

In the recently released National Climate Assessment report of the United States government (available at nca2014.globalchange.gov/report/our-changing-climate/future-climate-change), dire warnings were issued that if business-as-usual emissions keep growing, the temperature rise by the end of this century can approach 10 degree Fahrenheit or about 5 degree Celsius.

With a typical capitalist business approach though, the report also points out some 'economic benefits' of a warming planet, like longer growing season for the northern regions, ice free shipping lanes in the northern lakes and in the Arctic rim etc. It goes on to say that the increasing costs will outweigh these benefits, like increased, more severe droughts, damaging floods, intense heat waves and forest fires. It needs to be noted that California suffered an intense drought this year, the US east and north-east faced unprecedented cold waves in January, and almost every year, thousands of hectares of forests in that western US state goes up in difficult-to-control forest fires, often burning down hundreds of homes.

An alarming point to be noted – out of the different temperature trend scenarios (figure below) that are projected for different emission scenarios, only the most aggressive reduction scenario show a temperature rise of just less than 4 F / 2 C, while some goes up to over 4.5 C by the year 2100. The sobering truth is that neither the US, nor any other major country is taking that kind of drastic emission reduction measures.

Emissions Levels Determine Temperature Rises

