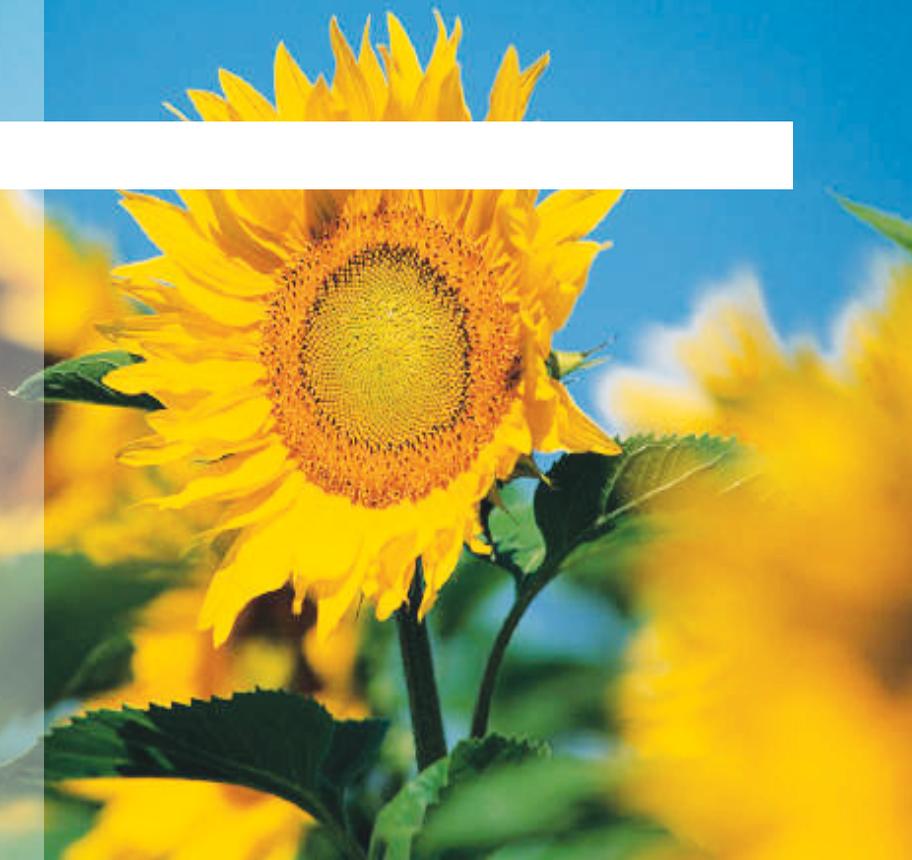


Green Governance

Newsletter

West Bengal Pollution Control Board
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2015



West Bengal Pollution Control Board is committed towards the people of this State to regulate and monitor any kind of environmental pollution happening anywhere in the State so as to ensure clean, green and healthy environment to live in. WBPCB works hard and heartily throughout the year to achieve this goal. During the year 2015, various initiatives were taken up including the regular ones and some new projects. The summary of such endeavours has been elaborated in this issue of Green Governance (January-December 2015).

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Inauguration of Solar Photo Voltaic System

The conventional sources of energy mainly coal and petroleum only. But these sources are limited and bound to exhaust in near future. At the same time these fuels generate CO₂, a Green House Gas (GHG), the most responsible agent for climate change, global warming.

The main source of emission of CO₂ is our large power plants running with coal. These power plants not only emit a huge amount of CO₂ but also responsible for production of large quantity of fly ash which pollutes the environment surrounding the power plants.

To promote the use of Green Energy and to reduce dependency on Fossil Fuel Energy, CO₂ emission and mitigate climate change, an initiative for installation of 100 numbers Solar PhotoVoltaic (SPV) rooftop Power plant in Schools and Primary Health Centersthrough out West Bengal has been taken up by the Department of Environment, Govt. of West Bengal, with joint funding from West Bengal Pollution Control Board, through MNRE, Govt. of India and being implemented by West Bengal Green Energy Development Corporation Limited, Govt. of West Bengal.

This initiative was inaugurated in various districts of the State on 12 March 2015 at the following places :

Sl. No.	District	Venue
1	Darjeeling	UdayanSangha Club Ground, Hakim Para, Siliguri
2	North 24 Pgs.	Najrul Mancha, Madhyamgram, 24 Paraganas(N)
3	Kolkata	SaratSadon, Manton, Behala
4	Burdwan, Birbhum & Bankura	RabindraBhawan, Asansol, Burdwan
5	Purba & Paschim Medinipur	Pragyananda Smriti Bhavan, Mahishadal, Purba Medinipur
6	Howrah & Hooghly	Baluhati High School, Vill. & PO. Baluhati, Howrah, Pin-711 405.

The estimated cost involvement towards the project is approx 7.5 crore including operation and maintenance for five years and completion time will nearly be 1 year. Out of 100 numbers installation, 10 nos are stand alone systems of capacity 2 kWp each, i.e. having battery back-up. The out put benefit of the system comes in terms of cutting down the electricity by isolating a pre-determined load (approx 600 Watt) to the stand alone system. This stand alone system is also useful where there is no regular electricity connection. Remaining 90 no installations are grid connected with net metering systems out of which 70 no systems of capacity 5 kWp each will be installed at different Schools and 20 no of systems of capacity 10 kWp each will be installed at different Primary Health Centers. These Grid connected systems will be connected to the Schools/PHC's, to their own regular electrical connection, through an import-export meter to register the actual conventional energy consumed by the Schools/PHCs considering the energy supplied from the Solar PV Power Plant. This arrangement is termed as "Net Metering Arrangement". If the Schools/PHC's renewable energy-generating systems ie Solar PV Power Plant generates more electricity than is consumed, they may be credited or paid for the excess electricity contributed to the grid over that same period but limited to 90% of the energy consumed under import mode. Installation of all the above systems will not only help in creating pollution free environment but also reduce conventional electricity consumption by Schools/PHC's, while at the same time reducing the electricity bills of those Institutions. The

main objective of the Department of Environment, Govt. of West Bengal and West Bengal Pollution Control Board, Govt. of West Bengal is to create and maintain the right kind of pollution free environment within the state of West Bengal. Use of Solar Energy by way of such an endeavor is the right kind of initiative it has taken to fulfill its goal. These systems by its own nature are totally pollution free, both in terms of environmental emission and sound pollution.

Various Environmental Campaign Programs

A number of Anti-noise, anti plastic and Anti-Air Pollution campaign programs were organized during January, 2015 at various prominent locations in Kolkata. Many students from schools under NGC program campaigned against using banned air horns in vehicles, unnecessary honking, using banned plastic carry bags and harmful effects of air pollution.

Anti-Air Pollution Campaign Program

Date	Venue
16.01.2015	Beliaghata Crossing

Anti Plastic Campaign Program

Date	Venue
02.01.2015	Koley Market, Sealdah
23.01.2015	Gariahat Market

Anti Noise and Anti-Air Horn Campaign Program

Date	Venue
09.01.2015	SSKM Hospital
30.01.2015	NRS Medical College and Hospital

Various developmental works performed by the State Board during 2015

WBPCB in association with the PWD, GoWB has constructed of 90 numbers roadside public toilets in Alipore, Barasat, Howrah, North Sub-Urban, Hooghly, North Kolkata, Nadia, Burdwan, Birbhum, Purulia, Tomluk and Bankura Division. The total project cost is Rs.10 crores which is being shared by the WBPCB and PWD on a 50:50 basis. PWD has reported that the construction is completed for all the toilets and has submitted utilization certificate for all 12 divisions.

The WBPCB has been undertaking rejuvenation of ponds in the recent times in several areas like Kolkata, Howrah, Purba Medinipore, 24 Paraganas North and South, Hooghly, Coochbehar and other areas. The State Board also facilitated in developing awareness parks in different parts of the state such Mahisadal, Behala Vidyasagar Govt. Hospital, Madhyamgram, Ashoknagar, Coochbihar, Sinthee, Chandipur, etc.

Celebration of World Environment Day 2015 by the State Board



The WED theme this year is therefore "Seven Billion Dreams. One Planet. Consume with Care." Living within planetary boundaries is the most promising strategy for ensuring a healthy future. Human prosperity need not cost the earth. Living sustainably is about doing more and better with less. It is about knowing that rising rates of natural resource use and the environmental impacts that occur are not a necessary by-product of economic growth.

The West Bengal Pollution Control Board celebrated World Environment Day 2015 on 5 June 2015 like every year. To celebrate this occasion a program including a rally and a seminar was organized on that day at the Auditorium of Paribesh Bhawan, Bidhannagar, Kolkata. In the early morning the rally, which was organized in association with South Dum Dum Municipality travelled from Dum Dum Park to Lake Town (Jaya Cinema Hall). The rally became attractive due to presence of colourful tableau, ran pa, baul song etc. About 2000 students, Prof. Saugata Roy, Hon'ble, MP, Dr. Sudarsan Ghosh Dastidar, Minister-in-charge, Department of Environment, Govt. of West Bengal, Sri Bratya Basu, Minister-in-charge, Department of Tourism, Govt. of West Bengal, Sri Sujit Bose, Hon'ble MLA, many other eminent personalities, Board officials and common people participated in the rally. The Inaugural session was graced by the presence of Sri Chandan Sinha, IAS, Principal Secretary, Department of Environment, Govt. of West Bengal, Dr. Kakoli Ghosh Dastidar, Hon'ble MP, Sri Sujit Bose, Hon'ble MLA, Dr. Kalyan Rudra, Chairman of the Board and Sri Protul Mukhopadhyay, well-known singer. During this session, Sri Chandan Sinha welcomed everybody present there and thanked all the participants especially the students for making the rally successful. He also encouraged them to be more environment conscious and make their families and others the same. Sri Sujit Bose emphasized on importance of plantation, wetland conservation, use of paper/cloth bags instead of plastic carry bags etc. during his speech. Dr. Kakoli Ghosh Dastidar inaugurated the following :

- Display Boards of Air Quality Monitoring
- Solar Power Projects installed in schools
- Rain water harvesting Program as climate change mitigation/ adaptation measure
- Special Plantation Program in industrial areas, such as, Asansol, Durgapur, Purulia, Bankura etc.
- Online Consent Management

She also suggested some measures like, conservation of wetlands under *Jaldhoro, JalBharo* Project, use of CFL/LED lights for energy conservation etc. for environmental protection. Sri Protul Mukhopadhyay presented environmental songs and poems.

Oindrila Das, a school student was felicitated for making jingles on environmental awareness. Dr. Kalyan Rudra thanked all present in the program for making it a remarkable one.

After the inaugural session there was a seminar. The seminar was chaired by Dr.KalyanRudra, Chairman, WBPCB. He explained the WED 2015 slogan therefore "Seven Billion Dreams. One Planet.Consume with Care." and its theme. He also talked about ecological foot print, various ill effects on environment due to unsustainable and unplanned consumption of natural resources etc.

Hon'ble Justice AltamasKabir, former Chief Justice of India delivered his impressive speech covering various aspects of environmental pollution, its consequences and environmental protection. He also stressed upon importance of sustainable development and awareness generation among common people for making healthy, clean and green environment.

Prof. Samar Bagchi, former Director of Birla Institute of Technological Museum, Kolkata discussed about Consumerism & Ecological Collapse through a nice and informative presentation.The seminar was followed by an interactive session. The students asked several questions to the speakers.The whole program ended with a positive note and a great success.



Tableau and rally on World Environment Day 2015



Inaugural Session of WorldEnvironment Day 2015 Program at ParibeshBhawan, Kolkata



Seminar during WorldEnvironment Day 2015 Program at ParibeshBhawan, Kolkata

Training programmes for Police officials organized by the Board during 2015

Like earlier years, the State Board organized training programmes at ParibeshBhawan, Bidhannagar, Kolkata for in-service police personnel during March-December 2015. There were 8 nos. of such programmes in which a number of in-service police personnel of West Bengal Police Authority participated.

Date	Participants	No. of Participants	Topics discussed
12.03.2015	West Bengal Police	30	Air Horn/ Automobile pollution
11.06.2015	West Bengal Police	26	Air Horn/ Automobile pollution
25.06.2015	West Bengal Police	32	Air Horn/ Automobile pollution
23.07.2015	West Bengal Police	21	Air Horn/ Automobile pollution
06.08.2015	West Bengal Police	16	Air Horn/ Automobile pollution
08.09.2015	West Bengal Police	24	Air Horn/ Automobile pollution
08.10.2015	West Bengal Police	13	Air Horn/ Automobile pollution
17.12.2015	West Bengal Police	29	Air Horn/ Automobile pollution



Observation of Republic Day 2015
 and
Observation of Independence Day 2015

WBPCB observed both the days on 26 January 2015 and 15 August 2015 respectively. The Chairman, WBPCB hoisted the National Flag on both the occasions.

Distribution of non-toxic paints to the artisans

Like earlier, the State Board organized a program on 15 September 2015 at the auditorium of ParibeshBhawan to distribute non-toxic paints to the artisans. A number of idol-makers from and around Kolkata participated in the program. Similar type of paint distribution program were organized in other districts also.

Date	Place
1 October 2015	Durgapur, Burdwan district
3 October 2015	Krishnagar, Nadia district
10 October 2015	Siliguri, Darjeeling district

Campaign during Festive season 2015

During the festive season of 2015, including Durga Puja, Kali Puja/Diwali and Jagaddhatri Puja, about 130 nos. stall were made at various puja pandal ground throughout the State. These stalls conducted about 400 campaigns by distributing leaflets on air, water, plastic and noise pollution to generate awareness among the common people.

Noise Monitoring in Kolkata during Kali Puja and Diwali Festival, 2015

Like previous year, this year also the State Board arranged some awareness campaigns before Kali Puja and Diwali regarding restrictions on bursting banned fire crackers. This year also special monitoring was carried out in Kolkata and in other district during Kali Puja festival.

Board's various initiatives

- ✦ State Board along with Kolkata Police arranged a meeting involving the President/ Secretary of Housing Complexes situated in and around Kolkata to follow the restriction on banned fireworks. Bidhannagar, Howrah and Barrackpore Commissionerate of police were also invited to the said meeting. Approximately 1200 nos. of Housing Complexes were invited. High Officials of Kolkata Police, other Commissionerate and WBPCB were present in the said meeting.
- ✦ Banners, posters, leaflets etc. carrying various environmental messages were distributed to major Puja organisers.
- ✦ Material for awareness campaign through audio system was supplied to Kolkata Police and Bidhannagar Police Commissionerate for necessary campaign through various Police Stations.
- ✦ Scroll messages on restriction of prohibited fireworks were advertised in various TV channels.
- ✦ Advertisement on environmental issues were telecasted during the prime time in various TV channels and jingles were broadcasted in various FM Channels.

Monitoring of the State Board

The State Board had set up a special Control Room at Head Office, Paribesh Bhawan, Bidhannagar during Kali puja (10.11.2015) and Diwali (11.11.2015) till midnight to receive complaints over phone against the violation of noise norms in case of playing loud speakers and bursting firecrackers. Similar activities were carried out by Regional Offices at Durgapur, Asansol, Hooghly, Kankinara, Haldia, Malda and Siliguri. The mobile teams from the Head Office as well as the other Regional Offices patrolled in Kolkata, Howrah and other district towns of the State.

Complaints received by the State Board during Kali Puja / Diwali of 2014 and 2015

Year	Kali Puja day	Diwali Day	Total nos. of complaints received in two days
2014	31	14	45
2015	21	05	26

From the above-mentioned data it can be concluded that the number of complaints received during Kali Puja/ Diwali days have decreased prominently in 2015 compared with the previous year.

Real Time Ambient Noise Monitoring and Results :

There are ten Real Time Ambient Noise Monitoring stations in Kolkata, which are operated and maintained by Central Pollution Control Board (CPCB). Location of the stations are at Kasba

Golpark and Taratala Road, which are an industrial area, Baishnabghata-Patuli, BiratiNeelanchal and Bag Bazar, which are residential area, SSKM Hospitals, R.G. Kar Medical College & Hospitals, which are silence zone and WBPCB Head Quarter, New Market and KIT Market, Tollygunge, which are commercial areas.

Noise Level data during Diwali at ten Real Time Ambient Noise Monitoring Stations during 2015

Stations	Noise Level Leq (24hrs)
Head Quarter (WBPCB)	60
New Market	92
Baishnabghata-Patuli	81
SSKM Hospitals	63
KasbaGolpark	66
BiratiNeelanchal	63
R.G. Kar Medical College & Hospitals	63
KIT Market, Tollygunge	71
Bag Bazar	77
Taratala Road	63

Water Quality Monitoring during Festive Season, 2015

Like the previous years, this year in 2015 the State Board conducted monitoring of the water quality of river Ganga at various ghats (Monitoring Stations) located in Howrah and Kolkata before and after immersion of Durga puja idols. The main objective was to evaluate the concentration of the pollutants and their impact on the ecology of the river bed during the idol immersion activity. For this purpose, water and soil sediment samples from the upstream and downstream of the monitoring stations were collected to compare the water quality of river Ganga before and after immersion.

Presently, during the immersion, all non-bio degradable materials, like plastic items, thermocol based ornaments, synthetic cloths etc. and the biodegradable materials, like used flowers, leaves, banana plants, clay pots etc. are not thrown into the river and hence, collected in separate vats. The idols were lifted from Ganga by the workers of KMC & HMC using mechanical crane immediately after falling and were placed in a safe place away from the river.

Observation : The monitoring results revealed that there were no noticeable changes in pH, DO and BOD, except in Shibpur burning ghat at downstream of the river where, DO level was 1.80 mg/l, below the standard (4.0 mg/l) and BOD was 11.16 mg/l above the standard (3.0 mg/l) which may have happened due to contamination of sewage water. Except this, the values of DO



Just after immersion all structure were lifted from river & collected in separate place

at all stations at Howrah were well above the standard (4.0 mg/l) and BOD level were below the standard (3.0 mg/l), which reflect that the water quality was healthy for aquatic life. After immersion, no significant changes in the values of TDS were observed comparing the monthly monitoring data. The water quality in-term of toxic metal contamination was always below the detection limit in river water sample. Metal concentration in sediment sample was noticed in pre-immersion sampling but very insignificant changes in concentration were noticed in few stations after the immersion.

It is therefore summarized that, idol immersion in the river Ganga which is a common practice in Kolkata and surrounding areas, does not bring any harmful impact on the ecology of the river body.

Water Quality data of River Ganga during pre & post immersion of Durga Puja 2015

Parameter	Pre Immersion		Post Immersion		Pre Immersion		Post immersion		Pre Immersion		post Immersion	
	BabuGhatka damtala U/S	BabuGhat Police Jetty D/S	BabuGhatk adamtala U/S	BabuGhat Police Jetty D/S	Shibpur Ferry Ghat U/S	Shibpur Burning Ghat D/S	Shibpur Ferry Ghat U/S	Shibpur Burning Ghat D/S	Shovabazar Ferry Ghat U/S	Shovabazar Ferry Ghat D/S	Shovabazar Ferry Ghat U/S	Shovabazar Ferry Ghat D/S
Date	05.10. 2015	05.10. 2015	28.10.2015	28.10.2015	05.10. 2015	05.10. 2015	28.10.2015	28.10.2015	05.10. 2015	05.10. 2015	28.10.2015	28.10.2015
Temperature °C (Water)	31	31	29	29	32	32	28	28	31	31	28	29
pH	7.75	7.66	8.05	7.91	7.50	7.71	7.86	7.87	7.95	7.84	7.92	7.90
EC µS/cm	280.52	318.42	281.50	280.40	504.50	275.30	282.50	284.40	290	266	283.40	275.10
DO mg/l	5.10	5.10	5.40	5.20	4.70	1.80	4.60	4.70	5.10	5.00	5.90	5.50
BOD mg/l	4.83	5.00	3.05	2.95	1.60	11.16	1.75	3.40	2.15	2.20	1.90	2.70
COD mg/l	10.86	24.70	10.00	17.42	7.90	21.73	15.48	5.00	6.91	8.89	13.55	20.32
TDS mg/l	186.00	210.00	148.00	138.00	176.00	258.00	152	124.00	190.00	228.00	206.00	154.00
TS mg/l	178.00	252.00	172.00	292.00	214.00	266.00	234	206.00	278.00	288.00	240.00	230.00
Turbidity NTU	76.40	83.70	87.90	126.00	66.20	96.10	126.00	103.00	88.40	104.00	127.00	107.00
Cr T mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Pb mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Zn mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Cu mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Sediment sample data of River Ganga during pre & post immersion of Durga Puja 2015

Parameter	Pre Immersion		Post Immersion		Pre Immersion		Post Immersion		Pre Immersion		Post Immersion	
	BabuGhatkadamtala U/S	BabuGhat Police Jetty D/S	BabuGhatkadamtala U/S	BabuGhat Police Jetty D/S	Shibpur Ferry Ghat U/S	Shibpur Burning Ghat D/S	Shibpur Ferry Ghat U/S	Shibpur Burning Ghat D/S	Shovabazar Ferry Ghat U/S	Shovabazar Ferry Ghat D/S	Shovabazar Ferry Ghat U/S	Shovabazar Ferry Ghat at D/S
Date	05.10. 2015	05.10. 2015	28.10.2015	28.10.2015	05.10. 2015	05.10. 2015	28.10.2015	28.10.2015	05.10. 2015	05.10. 2015	28.10.2015	28.10.2015
Moisture %	29.33	32.02	43.68	32.64	41.58	49.43	34.69	25.62	30.00	33.68	53.93	26.23
Cu mg/Kg	18.64	21.90	30.40	27.49	29.11	27.34	26.87	25.31	18.98	21.99	25.28	24.94
Pb mg/Kg	17.67	22.20	26.73	42.53	28.54	28.48	24.65	25.13	18.44	22.37	22.38	22.32
Cr T mg/Kg	14.49	26.04	35.92	31.59	24.87	21.40	28.85	31.21	11.14	11.34	28.43	26.37
Zn mg/Kg	53.73	85.38	55.79	78.55	74.60	78.56	69.30	83.58	57.96	58.87	66.25	70.85

PHOTOGALLERY



WBPCB Stall at Kolkata International Book Fair 2015 at Milan Mela



Inauguration of Solar Panel Project on 12 March 2015 at Behala



Inauguration of Solar Panel Project on 12 March 2015 at Asansol



Inauguration of Solar Panel Project on 12 March 2015 at Howrah



Anti Plastic & Noise Pollution Campaign at Ultadanga



Anti Plastic & Noise Pollution Campaign at College Street



WBPCB Stall at Asansol Shramik Mela 2015



WBPCB Stall at Madhyamgram Paribesh MelaMela 2015



WBPCB Stall at Banipur Lok Utsav 2015

NEWS FLASH

COCHIN AIRPORT BECOMES WORLD'S FIRST TO OPERATE COMPLETELY ON SOLAR POWER

Cochin International Airport Ltd (CIAL) of Kerala has become the first airport in the world to fully operate on solar power. It achieved this feat after Kerala Chief Minister Oommen Chand officially commissioned the 12 MWp solar power plant near the cargo complex of airport. Key facts The plant comprises 46,150 solar panels laid across 45 acres near the cargo complex. The plant has been installed by the Kolkata-based Vikram Solar Pvt. Ltd. It is capable of generating 50,000 units of electricity daily. It is coupled with an existing 1 MW solar plant commissioned in 2013. It will make airport absolutely power neutral in terms of energy consumption as it consumes around 50000 to 60000 units of electricity per day. The plant system is without any battery storage as it is directly connected to the grid. Environmental impact: This green power project will not result in any carbon dioxide emissions over the next 25 years. It will produce clean source of energy equivalent to non-clean energy produced from coal fired power plants by burning more than 3 lakh metric tonnes of Coals. This plant is also equivalent to planting 30 lakh trees. Cochin International Airport Ltd (CIAL): It was the first airport in India to be constructed in public-private-partnership (PPP) model in 1999. It is only PPP airport in the country that has handled more than 5 million passengers in a year.

[Source: General Knowledge Today, 21 August, 2015]

CALIFORNIA TO HELP INDIA IN REDUCING AIR POLLUTION

Known for its pioneering environmental effort, California has agreed to help India reduce air pollution and combat climate change, State Governor Jerry Brown said after his meeting with Prime Minister Narendra Modi over the weekend.

The global fight against climate change was the center of discussion when Mr Brown met PM Modi in San Jose over the weekend.

The Governor and the Prime Minister agreed to a partnership between California and India, in which California would provide expertise to help India reduce air pollution and combat climate change, said a statement issued by his office.

"California and India have a very close and very dynamic relationship," said the Governor.

"California has pioneered cleaning up the air and cleaning up the environment over many years. Collaboration on a regulatory and technical level could be helpful. There's a lot to do," Mr Brown said in the statement.

The meeting with Prime Minister Modi is the latest in a series between Governor Brown and world leaders.

In Seattle last week, Brown met with Chinese President Xi Jinping after co-chairing the Third US-China Governors Forum.

[Source: Press Trust of India, 30 September, 2015]

NOISE POLLUTION HARMS WILDLIFE, DEGRADES HABITATS

Traffic noise is just another inconvenience for many of us. But for wildlife, noise from honking, and zooming vehicles can often be an insidious threat: it can degrade habitats without leaving any physical evidence of change, warns a recent study published in the Proceedings of the National Academy of Sciences.

Road noise — even in moderate levels — pushes migrating birds away from their stopover habitats, researchers from Boise State University in Idaho found. Those that stay back become weak.

“I was initially surprised that even moderate road noise — comparable to a suburban setting — would have such a wide-ranging impact on migrating birds,” William Laurance, a professor at James Cook University in Cairns, Australia, who was not involved in the study, told Mongabay. “On reflection, however, I guess such migrators have to be hyper-vigilant about noise, as they’re constantly moving to new areas where unseen predators could be lurking.”

Threats from roads can be aplenty. To tease out the independent impact of traffic noise on birds from those of other threats, such as collisions, visual disturbance, and chemical pollution, the team set up an elaborate experiment. They created a “phantom road” — a road that was made out of noise alone.

Along half-kilometer forested section in Lucky Peak State Park in southwest Idaho, the researchers arranged an array of speakers that played road noises at moderate volumes, simulating traffic on an actual road.

The team also kept this phantom road away from any actual road noise by keeping the speakers’ locations very remote, Heidi Ware, lead author of the study, told Mongabay. This meant hiking and backpacking with 40 pounds of batteries a day to keep the phantom road running, she added.

In addition, the team had a comparable control site nearby that lacked any traffic noise. Then for two years, between 2012 and 2013, the researchers counted the number of migratory birds coming to the area, and assessed their body condition.

“Migration is an energetically stressful time,” Laurance writes in a commentary about the study. So any unpredictable noise in their stopover locations could potentially affect the time they spend being vigilant or feeding, ultimately affecting their health.

The team found that around 31 percent of the birds kept away from the phantom road. Of the remaining birds that stayed, most suffered loss of body mass.

[Source: Environmental News Network, 5 October, 2015]

INDIA'S FIRST DOLPHIN COMMUNITY RESERVE TO COME UP IN WEST BENGAL

India's first Dolphin Community Reserve will be established in West Bengal to protect the endangered mammal, Gangetic river dolphins. Decision in this regard was taken at a meeting of the State Wildlife Board chaired by state Chief Wildlife Warden Azam Zaidi. The reserve would be set up in the Hooghly River between Malda and Sundarbans as per provisions of Wildlife Protection Act, 1972. State Forest department also has announced that it would also conduct a

census to estimate the population of dolphins. About Gangetic river dolphins Gangetic river dolphins is India's national aquatic animal and is often known as the 'Tiger of the Ganges'. This dolphin species is an indicator animal which represent healthy river ecosystem in a same position as a tiger in a forest. Their population is estimated to be less than 2,000 in the country. Threats: Some of the major threats are habitat fragmentation due to construction of dams and barrages, direct killing, indiscriminate fishing and pollution of rivers. Hooghly River in West Bengal is the last stretch of the Ganges River. It passes through the densely populated Kolkata city and finally meets Bay of Bengal in the Sundarbans.

[Source: General Knowledge Today, 9 October, 2015]

WI-FI THREATENS WEATHER FORECASTS

Wireless technology dangerously clutters the airwaves that meteorologists rely on to monitor thunderstorms, hurricanes and tornadoes, blacking out large swaths of weather radar maps.

Wi-Fi, remote surveillance cameras and other wireless tech emit radio waves that can disrupt those from weather radars. This interference, which creates blind spots on radar images, is a growing problem, meteorologists report October 14 in the BULLETIN OF THE AMERICAN METEOROLOGICAL SOCIETY.

“Interference could hide an approaching tornado or a strong convective system and we wouldn't have any warning,” says coauthor Elena Saltikoff, a meteorologist at the Finnish Meteorological Institute in Helsinki.

Weather radar dishes blast radio waves that ricochet off water droplets in the air. Measuring these echoes allows meteorologists to monitor weather conditions up to hundreds of kilometers away. The returning radio waves can be less than a quintillionth the strength of the original signal, though, making the system vulnerable to devices that emit radio waves on similar frequencies. This disruption looks like blotches and streaks on radar images. While software can remove interference, it often can't salvage the underlying weather data.

Interference has been a meteorological nuisance for decades, but the problem has grown stratospherically, says study coauthor John Cho, an atmospheric radar scientist at the MIT Lincoln Laboratory in Lexington, Mass. In Europe, reports of wireless devices interfering with weather radars went from zero before 2006 to more than 200 in 2012. These incidents largely involved equipment such as Wi-Fi routers that had been hacked to circumvent built-in safeguards meant to reduce interference.

In South Africa, interference became so bad that meteorologists switched radar frequencies, a move that cost millions of dollars in new equipment. Even after the switch, operators say they still battle rising interference.

“We have to protect these frequencies; otherwise, forecasts and observations of storms will suffer,” says Robert Palmer, a radar meteorologist at the University of Oklahoma's Advanced Radar Research Center in Norman.

[Source: Science News, 26 October, 2015]

PARIS PACT ON WATER AND CLIMATE CHANGE ADAPTATION ANNOUNCED

Paris Pact on Water and Climate Change Adaptation has been announced by a broad coalition of nations, river basin organizations, business and civil societies from across the globe. It was announced during the on-going 2015 United Nations Climate Change Conference, Conference of Parties (COP-21) in Le Bourget, Paris, France. The announcement was made as part of the Water Resilience Focus event under the Lima to Paris Action Agenda (LPAA) on climate change. Paris Pact on water and climate change adaptation Aims to make water systems which are very foundation of sustainable human development more resilient to climate change impacts. It involves a wide geographic coalition of national and cross-border river basin organisations along with governments, local governments, funding agencies, companies and civil society Highlights other key partnerships and coalitions to make river basins, aquifers, lakes and deltas more resilient to climate change and reduce human interference with oceans. It encompasses individual commitments to implement adaptation plans, strengthening water monitoring and measurement systems in river basins. It also seeks at promoting financial sustainability and new investment in water systems management. It was signed by almost all countries and have committed for over one billion dollars. India also has agreed to contribute 20 million dollars to build climate resilience through improved groundwater management. About Lima to Paris Action Agenda (LPAA) The LPAA on climate change is a joint undertaking of the Peruvian and French COP (conference of parties) presidencies, UNFCCC Secretariat and the Office of the Secretary-General of UN. Aims to strengthen climate action through 2015 and beyond by mobilizing robust global action towards low carbon and more climate resilient societies. It seeks to provide enhanced support to the existing initiatives and help to mobilize new partners by providing them a common platform for the visibility of their commitments, actions and results in the run up to COP21.

[Source: General Knowledge Today, 4 December, 2015]

INDIA'S TREE AND FOREST COVER INCREASED BY 5,081 SQ. KM: ISFR 2015

According to the recently released India State of Forest Report (ISFR) 2015, India's forest and tree cover has been increased by 5081 Square kilometre. The report was released by the Union Environment Minister Prakash Javadekar in New Delhi Key facts The total forest and tree cover in the country is 79.42 million hectare, which accounts for 24.16 per cent of the total geographical area. The total forest cover of the country has increased by 3,775 sq km and the tree cover has gone up by 1,306 sq km. The majority of the increase in forest cover has been observed in open forest category mainly outside forest areas, followed by Very Dense Forest. Open Forest area: Increased by 4744 sq km and accounts for 9.14 per cent of the total geographical area. Very Dense Forest area: Increased by 2404 sq km and accounts for 2.61 per cent of the total geographical area. Total carbon stock: Increased by 1.48 per cent (103 million tonnes) and is estimated to be 7,044 million tonnes in the country's forest. Around 40 per cent forest cover in

India is in 9 big patches of 10, 000 sqkms and more. The increase in mangrove cover also has been included in the increase in total forest cover. State wise maximum increase in forest cover: Tamil Nadu (2, 501 sq km), Kerala (1, 317 sq km) and Jammu & Kashmir (450 sq km). Largest forest cover in terms of area: Madhya Pradesh (77, 462 sq km), Arunachal Pradesh (67, 248 sq km) and Chhattisgarh (55, 586 sq km). Highest percentage of forest cover: Mizoram (88.93%), Lakshadweep (84.56%). States/UTs having forest cover above 33 per cent: 15 States/UTs have forest cover above 33 percent of the geographical area. Out of these 7 states/UTs have more than 75 per cent forest cover. They are Mizoram, Lakshadweep, Andaman & Nicobar Island, Arunachal Pradesh, Nagaland, Meghalaya and Manipur. 8 states have forest cover in between 33 per cent to 75 per cent. They are Tripura, Goa, Sikkim, Kerala, Uttarakhand, Dadra & Nagar Haveli, Chhattisgarh and Assam. Background The India State of Forest Report (ISFR) 2015 is the fourteenth report in the series. It is based on interpretation of LISS (Linear Imaging Self-Scanning Sensor) III data of indigenous remote sensing satellite, Resourcesat-II. The satellite data interpretation is based extensive and rigorous ground truthing.

[Source: General Knowledge Today, 5 December, 2015]

GLOBAL CARBON EMISSIONS FELL IN 2015, DESPITE ECONOMIC GROWTH

Global carbon emissions probably fell slightly in 2015, largely due to decreased coal consumption in China (coal plant in Beijing shown). Society's oversized carbon footprint shrank slightly in 2015, a new bookkeeping of greenhouse gas emissions suggests. If confirmed, the 0.6 percent reduction marks the first drop in carbon emissions since the 2008–2009 financial crisis and the first decrease ever during a period of economic growth, researchers from the Global Carbon Project report December 7 in NATURE CLIMATE CHANGE.



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Much of the carbon-emission cutback can be attributed to China, which produced roughly 27 percent of global emissions in 2014. This year China significantly decreased its coal consumption and boosted its use of low-emission energy sources such as wind, solar and nuclear power. That decrease probably won't be sustained, however: China's carbon emissions are expected to continue to rise until 2030, when the country has committed to begin tapering off its carbon emissions.

[Source: Science News, 8 December, 2015]

COMPOSTING FOOD WASTE REMAINS YOUR BEST OPTION, STUDY FINDS

A new University of Washington study confirms that sentiment, and also calculates the environmental benefits associated with keeping these organic materials out of landfills.

The biggest takeaway for residents of Seattle, San Francisco and other places that offer curbside compost pickup is to take advantage of that service -- and pat yourself on the back for using it.

"You should definitely pay attention to where you put your food waste, and you should feel good you live in a place where compost is an option," said paper author Sally Brown, a UW research associate professor of environmental and forest sciences.

Food waste in particular generates a significant amount of the greenhouse gas methane when it's buried in landfills, but not so when composted. U.S. cities and counties that offer composting prevent otherwise trash-bound food scraps from decomposing in landfills and generating methane -- and they get a significant carbon credit as a result.

"That gives municipalities a big incentive to do this," Brown added.

Brown's study, appearing in the January 2016 issue of *Compost Science & Utilization*, analyzes new changes to a U.S. Environmental Protection Agency model that helps solid waste planners estimate greenhouse gas emission reductions based on whether materials are composted, recycled, burned or thrown away.

With compost, the model calculates how much methane is produced over time in landfills as organic materials decay. It also considers how much methane from landfills is currently captured in collection systems versus being released into the atmosphere.

The results are overwhelmingly in support of composting food waste rather than sending it to landfills.

"Putting your food waste in the compost bin can really help reduce methane emissions from landfills, so it's an easy thing to do that can have a big impact," Brown said.

In the U.S., about 95 percent of food scraps are still thrown away and eventually end up in landfills. The scenario is better for yard waste -- grass clippings, leaves and branches -- with more than half diverted to compost facilities instead of landfills.

Brown's analysis found that the benefits of composting yard trimmings is less clear on paper, because the speed that the material decomposes depends on location and season. For example, yard waste in Florida in December will likely break down a lot quicker in landfills and create more methane gas than the same amount of yard waste in Minnesota during the same month.

Food scraps, alternatively, decay and start producing methane at about the same rate in all regions. The content of food waste is relatively consistent across seasons and locations, and the same can be said for conditions in landfills. While it may be snowing in Minnesota, the temperature within the landfills is likely to be over 70 F.

The variation for yard trimmings makes it hard for the Environmental Protection Agency model to cast a broad generalization of the material's methane production, and thus the overall environmental cost and benefit of composting versus landfilling, Brown said.

But composting food scraps and woody yard materials together makes sense because dryer, high-carbon, yard trimmings mix with soggy food scraps to create ideal conditions for the compost process, she added.

Seattle and King County were among the first municipalities nationwide to adopt food waste composting and curbside pickup. Other leaders include San Francisco, New York City and the states of Vermont and Massachusetts.

The study was funded by the King County Wastewater Treatment Division and the U.S. Environmental Protection Agency.

[Source: Science Daily, 16 December, 2015]

THE IMPACT OF CLIMATE CHANGE ON PHYTOPLANKTON

As nations across the globe negotiate how to reduce their contributions to climate change, researchers at Penn are investigating just how the coming changes will impact the planet. What's clear is that the effect extends beyond simple warming. Indeed, the very physics and chemistry of the oceans are also shifting, and are forecast to change even more in the coming decades.

These changes have implications for, among other things, the single-celled organisms that comprise the base of the ocean's food web and are responsible for half of the world's photosynthetic activity: phytoplankton. Not only are phytoplankton sensitive to changes in climate, they also contribute to those changes, as they can remove carbon from the atmosphere and store it deep in the ocean when they die.

A micrograph of phytoplankton. Like plants on land, phytoplankton growth is controlled by environmental factors such as light, nutrients, and temperature.

Irina Marinov, an assistant professor in the University of Pennsylvania's Department of Earth & Environmental Science in the School of Arts & Sciences, and her lab members have published two studies this fall that concern themselves with what climate models have to say about how phytoplankton and ocean ecosystems will respond to the profound changes Earth is undergoing. "The goal is to understand model projections of ocean ecology, productivity, and biogeochemistry for the year 2100, and check the consistency of those predictions across the current generation of climate models," says Marinov.

The latest Assessment Report by the Intergovernmental Panel on Climate Change (IPCC), released in 2013, included 16 different models, each produced by different groups working around the globe. Marinov and colleagues, including recent graduate Shirley Leung and postdoc Anna Cabré, investigated how phytoplankton would be predicted to respond to such changing variables as nutrients, light, and ocean stratification under each of the models.

Their analyses reveal complex patterns of phytoplankton response. In a paper in *Biogeosciences*, they show that, in the Southern Ocean, future climate change will bring increases or decreases in phytoplankton abundance and production in distinct latitudinal bands -- a pattern the researchers had not anticipated.

[Source: University of Pennsylvania via ScienceDaily, 20 December, 2015]

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