

IndiaWilds

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Inside this issue:

Demonetisation: Environmental Impact	2
Deadly Delhi Smog & Agricultural Policy	6
Conservation News	11
Equipment Discussions	16
Natural History	23
Wildlife Photography	35

Demonetisation: Environmental Impact

The Union Government declared that Rs. 500 notes and Rs. 1000 notes will not be legal tender from 9th November and would be replaced by fresh notes. The Government order required people to either deposit all the old 500 and 1000 notes in their bank accounts or exchange up-to Rs. 4000 per day in banks or post offices.

Indian economy is predominantly cash economy and a major portion of it was in form of Rs. 500 and Rs. 1000 notes. So the number of bank notes to be replaced stands at 1570 crores of 500 rupee notes and 630 crores of 1000 rupee notes. * (Ref: Former Finance Minister Shri Chidambaram's interview to Rajdeep Sardesai on India Today -

https://www.youtube.com/watch?v=zGZ_1d595KY).

This article only examines the Demonetisation exercise from an environment point of view and not the political aspect.

Enormous Scale:

The enormity of the total number of bank notes declared worthless by the Government will sink in if you realise that when placed side by side the **500 rupee notes will cover 155.43 square kilometres** and the **1000 rupee notes will cover 85.86 square kilometres**. Together they will cover 241.2927 square kilometres. This is bigger than the size of Kolkata which has an area of 185 square kilometres and is slightly more than half of Chennai area.



Cover Page Photograph:

Caterpillar by
Prajwal J Ullal

If you try to place one 1000 rupee note after another in a line along its length, then it can cover



a distance of 11,15,100 kms ie Eleven lakhs fifteen thousand and one hundred kilometres. For your information the distance to Moon from Earth is 3,84,400 kms (Three lakhs eighty four thousand four hundred kilometres). So the 1000 rupee notes when placed end to end along its longest side will be 2.9 times the distance to moon.

Similarly, when the 500 rupee notes are placed end to end along its longest side, the length will be **23,55,000 kms** (Twenty three lakhs fifty five thousand kilometers). So it will be six times the distance from earth to moon. That means you can hypothetically build a bridge from Earth to Moon which is 6 five hundred rupee notes thick.



500 Rupee notes placed end to end will cover 6 times distance from earth to moon

The total weight of 1570 crore 500 rupee notes that have been declared illegal tender will come to **12,745.26 tons**. Similarly the 630 crore 1000 rupee notes declared illegal will weigh **7,512.98625 tons**. This totals to about **20,258.2463 tons**. This weight is calculated based on a 82gsm and 85gsm paper as according to RBI**, the 500 rupee note is printed in 82 gsm paper and the 1000 rupee note in 87.5 gsm paper. GSM in paper quality denotes grams per square meter.

Disposal of this 20,258.2463 tons of old 500 and 1000 rupee notes which have been declared as illegal would be pose a big challenge. Of course, a small percentage of these notes are not expected to be deposited back in the banks or post offices. Nevertheless, even if the unreturned notes will amount to a few tons, still the overall total volume of notes to be destroyed by RBI is extremely high and RBI has never before destroyed such a huge amount of notes.

Special Paper:

According to RBI the “banknotes are printed on a special watermarked paper with substrate cotton and cotton rag”. We have no idea if those contain any harmful chemicals and incineration will release any noxious gases or not. Of course in this era of climate change incineration shouldn't be the first priority.

Pollution due to destruction of Old Notes:

No study has ever been undertaken by the RBI to understand its impact, as the amount of notes to be destroyed were never so huge. If the notes go into landfills, the chemicals used in the notes will leach into the soil and pollute the area and its ground water. The exact amount of impact cannot be quantified or estimated by us as RBI's note printing process and the ink used is by and large secret.

Since the volume is so huge, I guess RBI would be already engaged in destroying the notes. So the National Green Tribunal should take notice and ensure that this #DeMonetisation doesn't turn out to be a surgical strike on India's environment.

How many trees will be cut for replacing these notes?

Here we are making an assumption that the Government will print the same number of 500 notes (1570 crores) and the number of 2000 rupee notes will be half that of previous 1000 rupee notes (315 crores).

The new 2000 rupee notes are smaller than the 1000 rupee notes and their size is 66mm by 166mm. So the total weight of the 315 crore 2000 rupee notes will come to around 3019.74 tons.

An estimate provided by a global printing company suggests that at least 20 trees between the age of 20-50 years would provide 1000kgs of paper. There are other estimates which suggests 24 mature trees would provide 1000 kgs of paper. Also, since RBI uses "substrate cotton and cotton rag" in the notes and there is no indication about its percentage, we haven't taken it into calculation. Therefore, in this estimation we will go by the lower figure, so that critics don't accuse us of a bias against demonetisation.

So using this rule of thumb, of 20 adult trees providing 1000 kgs of paper, the total number of trees needed to be cut to print **1570 crore 500 rupee notes will be 2,54,905**. Similarly, the total number of trees needed to be cut for printing **315 crore 2000 rupee notes will be 60,394**.

So atleast a total of **3,15,300 (three lakh fifteen thousand three hundred)** trees need to be cut to get the paper for printing the new currencies.

Cutting three lakh plus trees means wiping out a big forest. That is the environmental impact of printing those many new notes due to Mr. Modi's sudden decision to make the 500 and 1000 rupee notes illegal.

Trees help in carbon sequestration. They take up the atmospheric carbon dioxide and fix it using the chlorophyll in their leaves and release oxygen to the atmosphere. Trees also help in releasing moisture and help in rainfall. Trees help in binding the soil and protect it from being eroded by wind and rain. Trees also serve as micro-habitat for a lot of species. When such a huge number of trees are going to give way for conversion into paper, it would have a big impact.

Lets think about the enormity of this impact again. In the previous month, we had protested against the proposed cutting of 800+ trees in Bengaluru for the Steel bridge protest. Read (<http://www.indiawilds.com/diary/indiawilds-newsletter-vol-8-issue-x/>) More than 5000 people had lined up for a silent protest. However, this move to declare notes

will lead to 3,15,300 trees cut off from unnamed places/plantations and hence there would be no local protests. As we grapple with the severe shortage of notes due to Government placing withdrawal limits on our own money in the banks, the environment is getting devastated.

In India every project whether for a private company or for a public utility and even for defense, there is a discussion about its environmental impact. Unfortunately, in this move where even the Central Government cabinet appears to be merely informed and not consulted, environment is a minor irritation. Nevertheless, when every private and public corporation or utility is expected to plant trees for compensating the loss of trees, RBI should also take up the responsibility of planting trees to compensate for this loss.

Some cynics may say that the paper for printing notes may be imported, so RBI would have destroyed trees in foreign country and not in India. It may be partially true. In 2015, out of the 1500 crore pieces of currency printed 1200 crores were imported and the rest 20% was from India. In fact, the Prime Minister Mr. Modi on April 2015 while speaking on a conclave to mark the 80th year of RBI, announced that *"Gandhi fought for Swadeshi and we are printing his picture on the currency notes with imported paper and imported ink...Can we not fix a date... that on any specific date, whatever currency is being printed, the paper will be Indian and the ink will also be Indian...Make in India should start from here. I believe we can do this."*

At the moment we are not sure as to the exact quantum of paper for printing notes have been procured from within India. Nevertheless, even if RBI - despite the PM's exhortation - continues with procuring only 20% printing paper from India, then, the number of trees that will need to be felled will be sixty three thousand sixty (63060) trees. That is a massive number in itself. Will the RBI Stand up to its responsibility? Will the National Green Tribunal wake up to this?

Way Forward:

With a burgeoning population which some estimates suggest to have crossed 1.3 billion, the printing of notes will continue, as India is a predominantly cash economy. Nevertheless, moving into digital economy with e-wallets will be beneficial in many sectors apart from the huge demand on paper for currency printing. However, it will take time and the Government will have to take the step to popularise the UPI (Unified Payments Interface) which has been launched in December 2015, and has some 17 banks connected and one can directly transfer money to any one using the UPI app. The Government has to also move in and see that this UPI app becomes more popular and used in every utility payment including the toll booths.

To sum up, Modi ji's decision to replace all the 500 and 1000 rupee notes will lead to a massive impact on the environment as a maximum of **20,258.2463 tons of old notes** need to be disposed off and the demand for printing of new notes to replace the old can lead to cutting of **3,15,300 (three lakh fifteen thousand three hundred) trees**. We urge that the disposal of such huge amount of notes be done under the guidance of an expert group nominated by National Green Tribunal and immediate compensatory afforestation is carried out by RBI or its affiliated agency and the public be informed about it.

Ref **: <https://www.rbi.org.in/upload/content/pdfs/62916.pdf>

Deadly Delhi Smog & Agricultural Policy -

Those who ignore history are condemned to repeat it.

We are not even talking about history dating back to hundreds of years. We just want the politicians to look back a year or two to realise that the pollution situation in winter in Delhi is not only a recurring phenomena but also becoming more deadlier than ever before.



Deepavali or Diwali as it is popularly known, is an annual festival and the dates may differ a bit according to the Hindu calendar, but it falls mostly in the October/November time of early winter in Delhi. A day after Deepavali, people wake up to massive smog, partly caused due to the millions of firecrackers burst in one night. Each year, the media carries out news articles about the impact of firecrackers. Every year, I get solemn pledges from our readers that they are going to stop bursting crackers as the level of pollution is becoming unbearable. But it seems the number of people who are aware about pollution is way too low to make a difference or may be some of them make a pledge as it is a good thing to do despite not having any intention to implement the same.

Similarly, the Government too wakes up and makes noises about containing pollution and then moves on to other priorities once the pollution has abated a bit.

However, this year, the level of pollution has been unprecedented. It was difficult to breathe. There was irritation in the eyes. The Delhi Government had to declare all schools to be closed for three days and advised people to work from home. It also banned construction for five days, ordered watering of roads to subside dust and also declared that it may bring back the controversial odd-even vehicle rationing scheme. The blame game on pollution became full blown with each accusing

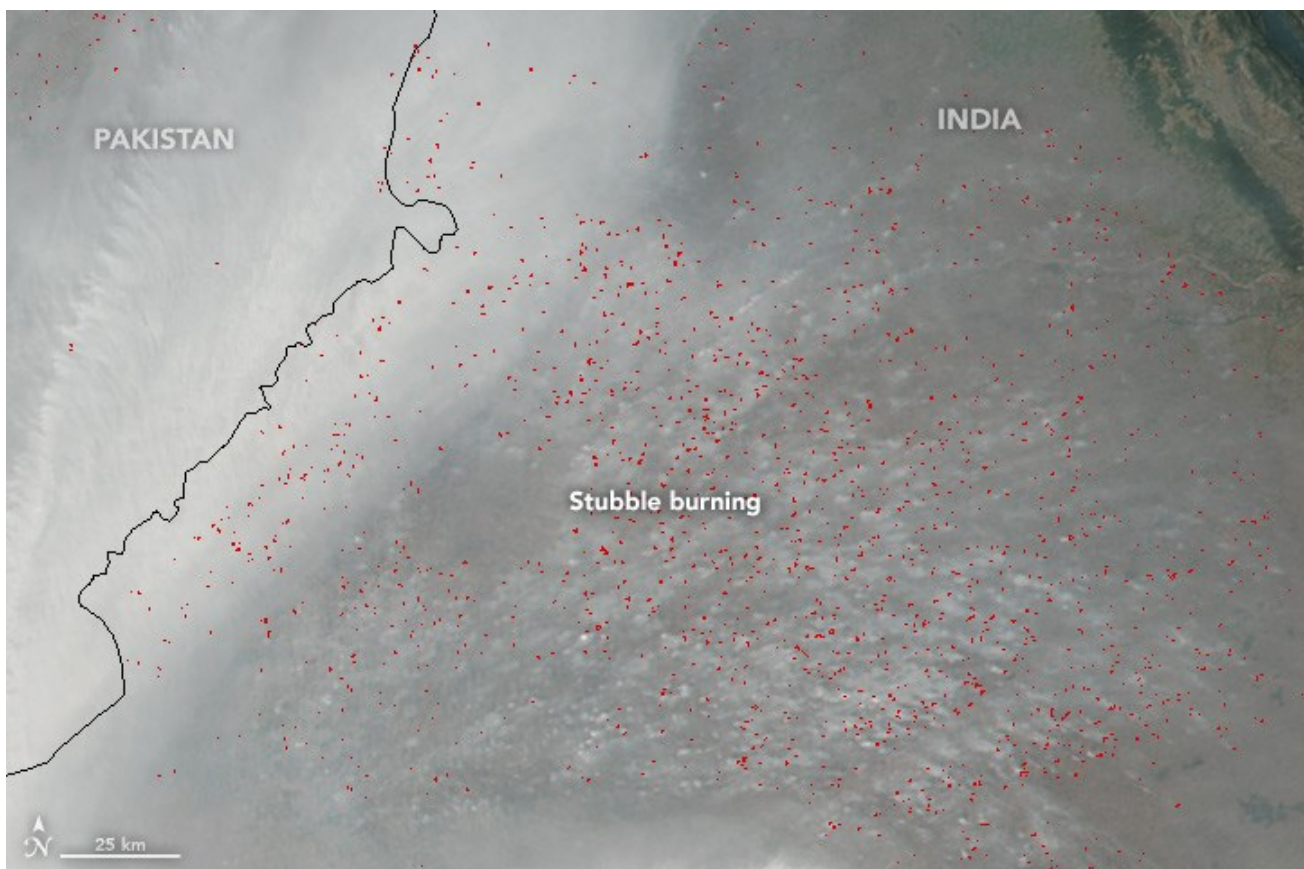
the other because the main causes for pollution are known and the Central Government, State Government of Delhi as well as the Governments of bordering states of Punjab and Haryana haven't done much to improve the situation. Fortunately, the Hon'ble Supreme Court banned the sale of fire crackers in the National Capital Region (NCR) on November 25th, 2016 so atleast one reason for pollution is tackled.

Smog, Paddy Straw Burning & Systemic Deficiencies:

One of the major cause of the heavy smog over Delhi is due to farmers in Punjab and Haryana burning the paddy stalk after harvesting. This issue is known and it was also brought to the notice of the Supreme Court in 2012. "We are concerned about the level of smog in Delhi. With each passing day, the smog level is rising. Every day we are also hearing about the rising level of pollution in the city. We will deal with the matter," a Supreme Court Bench, led by Chief Justice Altamas Kabir, had made this observation.

The Supreme Court appointed Environment Pollution (Prevention and Control) Authority had issued a statement that Punjab will immediately issue a notification under Section 19(5) of the Air (Prevention and Control of Pollution) Act.

On April 16, 2012, The Punjab and Haryana High Court had banned stubble burning in Punjab and Haryana. This judgment was given by a Division bench comprising the then Chief Justice Ranjan Gogoi and Justice Mahesh Grover. They had ordered "*Since both paddy and wheat straw can be used as fodder, setting up of cattle feed industry can be encouraged, which in turn will provide another opening for absorption and use of the straw*".



Unfortunately, even after four years of the Supreme Court making that observation and the Punjab and Haryana High

Court banning it, nothing has changed in the ground as farmers continue to burn paddy stalk and as a result Delhi chokes. So we take a fresh look into the problem and the core issue.

Faulty Agricultural Practices:

The farmers in Punjab and Haryana after harvesting the paddy, burn the paddy stalk in the fields. This is not practiced in other parts of India. They do it because they don't want to spend money in tilling the soil and allowing time for the paddy stalk to decompose in the soil. The farmers immediately sow another crop after harvesting paddy. They think that if the stalk is not decomposed and they go ahead and sow the seeds in the fields then the germination of seeds won't be effective. In other parts of India, farmers till the soil and the stalk gets mixed in the soil. The sowing of other crops are done and the slowly decomposing stalk in the soil does no harm to the seeds. In fact, the slowly decomposing paddy stalks acts as a good fertiliser.

The farmers feel that the paddy stalk is not good for cattle and hence even if they cut it, they will have no way to dispose it off except burning it.



The farmers don't realise that burning off the paddy stalk also means killing of the micro-nutrients of the soil. Since the time of the so called "green revolution" farmers in Punjab are used to pumping in huge amounts of synthetic fertiliser, and have essentially forgotten the impact of micro-nutrients

The farmers also have a time pressure as they need to plant another crop. Since they believe that the paddy stalk have to be removed from the fields and the labour is costly, they resort to burning the stalk to prepare the field in time for the next crop.

This time pressure is a result of the faulty procurement practices of Government of India. Rice is a crop that needs lot of water and Punjab is a semi-arid land. Conventional agricultural practices in India had developed based on the climatic conditions of our country. Unfortunately, we are fighting against nature to produce crops which are not suitable in a particular place.

Faulty Cropping Patterns:

Punjab being semi-arid, there is no reason what-so-ever to cultivate paddy. However, Punjab is the third largest paddy producing state in India. Due to the Bhakra-Nangal dam water is available and in other places ground water is exploited to cultivate rice. The **Commission for Agricultural Costs and Prices** in its report titled “**Price Policy for Kharif Crops, The Marketing Season 2016-2017**” clearly states the fact that Paddy Cultivation in Punjab is not water efficient. (page 33)

*“Land productivity, i.e. production per unit of area, reflects only one dimension and ignores natural resource like water, which is becoming scarce. Punjab has the highest rice productivity (39.29 qtl/ha), followed by Haryana (32.12 qtl/ha) and Andhra Pradesh (30.45 qtl/ha). The per hectare water use by irrigation in these states is 161.78 lakh litre in Punjab followed by Tamil Nadu (137.50 lakh litre) and Uttar Pradesh (102.00 lakh litre). As against these states, per hectare water use by irrigation in Assam, West Bengal and Bihar is 50 lakh litre, 59.86 lakh litre and 66 lakh litre, respectively. If water consumption is measured in terms of per kilogram of rice, West Bengal becomes the most efficient state which consumes 2169 litre to produce one kg of rice, followed by Assam (2432 litre) and Karnataka (2635 litre). The water use is high in Punjab (4118 litre), Tamil Nadu (4557 litre) and Uttar Pradesh (4384 litre). It shows that the most efficient state in terms of land productivity is not necessarily the most efficient if irrigation water is factored into. This is because of high rainfall in the eastern region. **Given that water tables in various states are depleting very fast, there is an urgent need to improve water use efficiency.***

The country’s farm sector alone accounts for 83 percent of total water use. It is, therefore, imperative to augment the water productivity. Subsidizing electricity for agriculture in some states leads to its over use. The Commission in its previous report recommended metering electricity/water for their efficient use and reward farmers through cash incentive equivalent to unused units of water/power at the rates of their domestic resource costs. The Commission reiterates direct interventions in order to encourage the farmers to adopt water efficient practices like drip and sprinkler irrigation.”

India has already started witnessing water wars between various states and has already seen steady depletion of ground water levels to such an extent that in some places people are boring wells upto 900 feet deep. So India can’t be oblivious to the inefficient use of water in crops. Its procurement policy, as rightly suggested by the Commission for Agricultural Costs and Prices, should be based on water productivity ie crop per hectare per litre.

The same report also throws another interesting point about procurement of rice.

“Procurement of rice in Assam was almost negligible during TE 2014-15, even though it contributed 4.7 percent to the total rice production. The procurement share of West Bengal is only 5.3 percent though marketed surplus share is 12

percent. Similar is the case in Bihar and West Bengal. As against this Punjab procured 24.9 percent of rice against its marketed surplus share of 13 percent during the corresponding period. **The perpetual skewedness in the procurement for different states raises the issue of equity which needs to be addressed urgently to achieve the objective of the instrument of pricing policy**". (page 85)

The staple food in Punjab is roti and not rice. However, due to the skewed procurement and inequitable policy much higher level of procurement of rice is done in Punjab by the Government. This ensures that the farmers of Punjab who waste much more water, even exploiting ground water due to free electricity and despite causing pollution and pushing some 16 million population of Delhi towards cancer, bronchitis etc are rewarded with higher paddy procurement.

Way Forward:

The Government has to put an end to this nonsense. The Government has to also slap an environment surcharge on the Paddy Farmers of Punjab, Haryana. The Hon'ble Supreme Court of India has agreed to the concept of Environment Surcharge on trucks entering the National Capital Region. If Environmental Compensation Surcharge can be slapped on trucks, then surely it can also be slapped on Paddy procurement. So this surcharge has to be deducted from the all India MSP (Minimum Support Price) for Paddy. So effectively the MSP for paddy in the Punjab and Haryana region should be lower than the all India MSP of Paddy. Environment Surcharge on landholding would be difficult to administer and would breed corruption. So it is imperative to directly deduct the environmental surcharge from the MSP itself. In a few years there would be enough peer pressure from the farmers to other farmers for stopping the paddy stalk burning as the MSP of the entire state is lowered because of it.

Similarly, the Government has to give a disincentive to the Punjab and Haryana paddy farmers for higher water usage ie lower water productivity in the paddy crop and lower the MSP of Paddy for procurements in these areas.

A Government has to be just. It should treat every citizen as equal irrespective of their state of residence. The Government shouldn't be supporting one state over the other. So the Government has to increase the procurement of rice from the eastern states of Assam, West Bengal, Bihar, Odisha based on their surplus and slash the procurement from Punjab and Haryana.

Announcements have to be done before hand that the official MSP for Rice in Punjab is lower than the eastern states due to the lower water productivity and due to environment compensation surcharge. This will ensure that there will be less of paddy grown in Punjab and less of paddy stalk burning in the winter.

This will help solve the major problem of Toxic pollution over Delhi by a big margin.

Ref: Price Policy for Kharif Crops, The Marketing Season 2016-2017

<http://cacp.dacnet.nic.in/ViewQuestionare.aspx?Input=2&DocId=1&PageId=39&KeyId=574>

Conservation News

Baba Ramdev's Park turns into Killer trap for Elephant:

Baba Ramdev's Patanjali Herbal and Mega Food Park which was given 150 acres of land in Baliapara near Tezpur by Assam Government has caused death of a wild elephant.

Assam Chief Minister Shri Sarbananda Sonowal had laid the foundation stone for the project on 6th of November and soon it has come into news for all the wrong reasons. Baba Ramdev's company had dug 12 large pits which were about nine feet deep for construction in the site. A herd of elephants while passing through it didn't realise that the pits have been dug up and got snared in it. First a calf fell into the pit and then a female elephant fell into it. The female elephant got severe head injury and fractured its leg as an adult male elephant fell on top of the female elephant. The male elephant could come out. However, the female elephant succumbed to its injuries on 24th November.

This area has not been declared as elephant corridor. Unlike conventional wisdom, only a small part of the elephant's habitat are notified as reserve forests or National Parks. Increasingly elephants come in contact with human beings as we have been reclaiming land for our use. Whenever there is contact with such large animals, the result has been to the detriment of the elephants.

The local congress spokesperson has said that in view of the elephant activity, the previous congress Government hadn't allotted this Government land to anyone. We couldn't independently verify the veracity of this claim.

In this case, an FIR has been launched against the coordinator constructing the food park for Patanjali. However, locals say that given Baba Ramdev's good equations with the BJP, this issue will quietly die down in a few days.

GM Mustard Likely to be allowed in India

India's Minister for Environment, Forests and Climate Change Shri Anil Madhav Dave in a written reply to the Lok Sabha has given a very clear signal about his intentions to introduce Genetically Modified Mustard in India.

The Minister has asserted that all concerns expressed by the public about the safety of GM Mustard has been adequately addressed. *"Genetic Engineering Appraisal Committee (GEAC) and its sub-committees involve representatives of National Institute of Nutrition (NIN), Bio-Medical Group of Bhabha Atomic Research Centre (BARC), Ministry of Health and Indian Council of Medical Research (ICMR). All the members of GEAC and its sub-committees have been regularly and actively involved at several stages in the assessment of food safety of GM mustard."*

He said that the GEAC had provided opportunities for people to raise their concerns. *"The AFES document prepared by sub committee on GM Mustard was placed on the website of the Ministry for a period of 30 days from September 5 to October 5 for inviting public comments from stakeholders."*

Conservation News

"Entire dossier submitted by CGMCP was also made available for review by public during consultation period. A total of 759 comments have been received from various stakeholders and 29 people in person reviewed the dossier".

With the powerful GM lobby now pretty sure of winning the battle for GM Mustard, the floodgates for Genetically modified vegetables are not far behind.

Environment Ministry Constitutes Four-Member Team for Conservation of Loktak Lake

The Ministry of Environment, Forest and Climate Change (MoEF&CC) has constituted a four-member team for conservation and management of Loktak Lake in Manipur. The four member team visited Loktak Lake from November 7 to November 9 and held discussions with various stakeholders, including the State Government, concerned agencies NGOs and activists. The team also consulted with people who are living in the vicinity of the lake.

The terms of reference of the team that will visit Loktak Lake are:

- (a) To review the implementation of works carried out with financial assistance provided by the Central and State governments so far for the conservation and management of Loktak Lake and suggest further interventions required for conserving the lake in a holistic manner.
 - (b) Enumerate the steps required to be initiated for declaring Loktak Lake as a UNESCO World Heritage Site.
 - (c) Identify the steps and actions to be taken to increase the tourism potential of Loktak Lake.
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Sundarbans to get respite from Loud Music

The National Green Tribunal (NGT) has noticed the trend of people playing loud music through loud speakers in motor boats and launches in Sundarbans. Marriage parties and also for tourists employ DJs to play loud music by anchoring the motor launch and boats inside Sundarbans and these parties often go on pretty late in the night. Most often they don't park at one particular place but keep moving, so it becomes difficult to notice and nab them.

"This is the tourist season and the authorities will have to take all steps to ensure that their entry into the Sunderbans does not adversely effect the ecology and environment". This order was delivered by the bench comprising Justice S P Wangdi and Prof P C Mishra.

The NGT bench is also reportedly upset with the State Government because the Chief Secretary of West Bengal has not yet submitted a report on the health of Sundarbans.

Conservation News

Sunderbans is reported to have 173 hotels and lodges and West Bengal Pollution Control Board officials have been asked to visit those and check about the dates of establishment, whether they have any licence and consent to operate and applicability of other regulatory conditions and report back to the NGT.



Sundarbans is a fragile ecosystem. Use of Styrofoam plates and plastics and dumping them into the waters is resulting in polluting the creeks and waters and the scale of pollution is increasing with each passing day. Given the burgeoning population in the Sundarbans, the impact of pollution by people is becoming noticeable. Unless people become aware and careful and the officials take up their duties seriously, Sundarbans will continue to suffer at the hand of man.

Heavy Metal in Hyderabad Fish

A study by Dr Sreenivasa Rao National Institute of Nutrition, ICMR (Proximate Composition and Determination of Heavy Metal Content in Indian Fish using ICP-MS after Closed Vessel Micro Wave Digestion) has investigated the heavy metal content in fresh water fish from outlets in Hyderabad and Secunderabad.

The study found that the Heavy metal content in fresh water fish were from 52-680 µg/kg for Nickel in *Rastrelliger kanagurta* and *Stromateus sinensis*, 38-690 µg/kg for Arsenic in *Rastrelliger kanagurta* and *Pompus argenteus*, 3-62 µg/kg for Cadmium in *Mastomys symbolon* and *Pompus argenteus* and 27-108 µg/kg for Lead in *Panaeus monodon* and *Rastrelliger kanagurta* respectively. The heavy metal content of fresh water fish varieties was investigated using Inductively Coupled Plasma Mass Spectrophotometer (MD-ICP-MS) after microwave digestion.

The results were in accordance with recommended human daily intake values except for arsenic, which were in agreement with WHO/FAO recommended values and indicates the health of the aquatic ecosystems from where these fish were procured to be within normal limits.

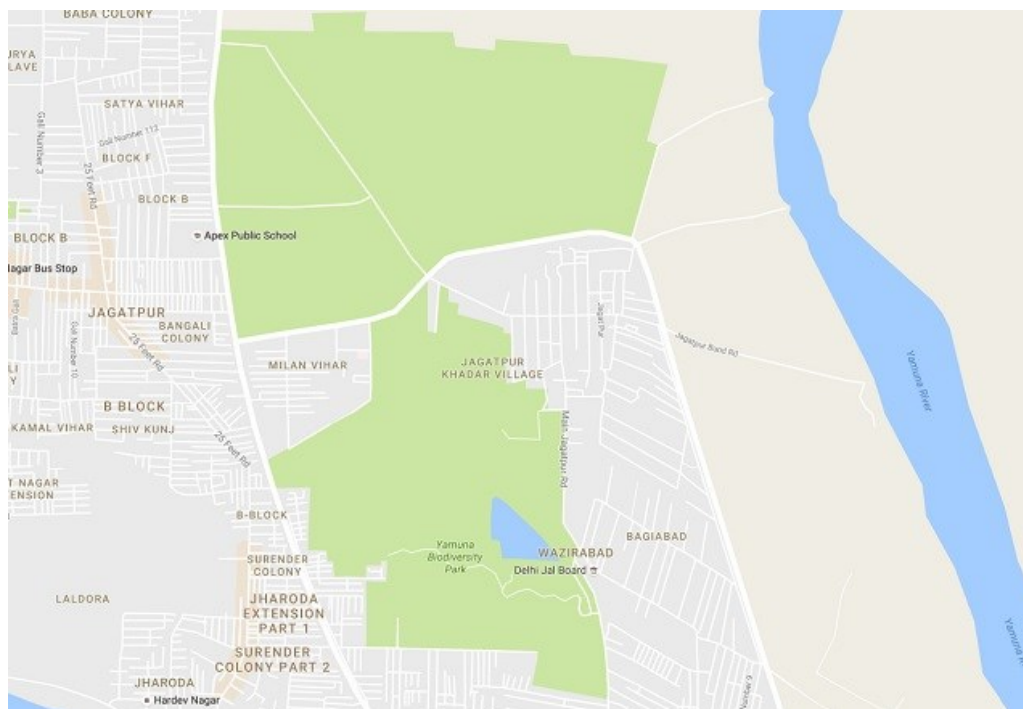
It would be pertinent to mention that a 2004 study titled *Fractionation Studies and Bioaccumulation of Sediment-Bound Heavy Metals in Kolleru Lake by Edible Fish* (K. Chandra Sekhar et al. / *Environment International* 29 (2003) 1001–1008) conducted on fish sourced from Kolleru lake in Andhra Pradesh had found that the metal concentrations were greater than the background concentrations of sediments which indicated the anthropogenic origin of metals. Good recovery values were obtained for metal contents in sediments and fish. The authors noted “*Large fractions of Zn, Cd and Cu were associated with mobile fraction of sediment and showed greater bioaccumulation in fish whereas Ni and Co were least mobilisable. The results clearly indicate that the fish of Kolleru lake are contaminated with metals and not advisable for human consumption*”.

So it would be important to periodically find out the heavy metal content in the fish obtained from various ponds, rivers and other wetlands so that the health of various aquatic ecosystems are known and tracked.

Leopard in Yamuna Bio-Diversity Park

A leopard has appeared in Yamuna Bio-Diversity Park in the National Capital Region. The leopard appears to be a grown up male and has made this 457 acre park its home.

The Yamuna Biodiversity Park was earlier established near the Wazirabad village to restore some of the lost native vegetation of the area. Leopards are known to survive in areas close to human habitations. So this leopard may have wandered into the Yamuna Bio-Diversity Park and found it suitable habitat. That is a heartening sign because if you create a large enough



green area and leave it wild, nature will take its course to repopulate it. Of course, there has to be some wildlife in the nearby areas and contiguity or at least a broken corridor for wildlife to come from.

Unfortunately, these days people panic when they sight a leopard and soon a mob forms to hunt the leopard. The forest department is now considering shifting the leopard from this habitat to Delhi zoo. Just because of fear of

being killed, a leopard is going to lose its independence. More number of officials can be placed in the area and the people in the surrounding villages need to be educated to calm their fears and also to adopt certain dos and don'ts for peaceful coexistence with these charismatic mega fauna.

COP 22 Concluded at Marrakech

Overall Outcome hailed as forward movement for Climate Action

The main focus of COP22, which was held at Marrakech between 7th to 18th November, was to develop the rules for operationalization of the Paris Agreement which was signed last year and for doing advance work on Pre-2020 actions.

In these discussions, India was led by its Minister of State for MoEF&CC (Independent Charge) Mr. Anil Madhav Dave. and

India Worked with Developing Nations to Ensure that Climate Actions are based on Equity and Common but Differentiated Responsibilities (CBDR) and Climate Justice. The Paris Agreement has clearly recognised the principle of differentiation between developed and developing countries and the current ground was focused on operationalizing it in rules pertaining to Adaptation, Mitigation, Finance, Technology transfer, capacity-building and transparency frameworks.

The “Marrakech Action Proclamation for our climate and sustainable development” captured the sense of urgency to take action on climate change, while ensuring sustainable development. It initiated work on Adaptation Fund to serve the Paris Agreement. The Pre-2020 action, including mobilization of \$ 100 billion per year and other support to developing countries was a key element of the Proclamation.

Overall, the outcomes represent a forward movement in the climate actions, especially on the implementation front. Procedural discussions and decisions to develop the Rule Book for Paris Agreement were advanced in many ways at this conference. It was agreed that submissions from Parties will be invited and technical workshops will be held to develop clarity and understanding on these issues.

India participated in the Facilitative Dialogue on Pre-2020 actions and highlighted various time-bound actions that can be taken to bridge the emission gap and provide accelerated support to developing countries.

Equipment Discussions -

DJI Inspire 2

DJI has announced their Inspire 2 model of quadcopter for aerial filming. This quadcopter has got a special image processing system that now records 5.2K in CinemaDNG RAW as well as Apple ProRes helping in capture way more details than was possible earlier and allowing for a much higher degree of post-processing.

The DJI Inspire 2 can fly at a maximum speed of 108 kmph. For filming one needs the copter to fly slowly. However, the maximum speed as well as the ability to accelerate from 0 to 80 kilometers per hour in 4 seconds can help the pilot to position the copter at the starting point much faster. The Inspire 2 can also descend at the rate of 9 meters/second which is pretty fast.

The DJI Inspire 2 has got dual batteries. It can fly for 27 minutes.



It has obstacle avoidance technology as well as sensor redundancy. So if one sensor fails, then the other extra sensor takes over and it doesn't affect the stability of the copter. This makes it safer. DJI says that the forward and downward vision systems enable the Inspire 2 to detect obstacles up to 30 meters ahead, which allows for protected flight at up to 34mph (54kph) at a controllable attitude angle of 25°. The Forward and downward vision systems allow the Inspire 2 to create a real-time map of its flight route as it flies. If the video transmission system signal is lost and Smart Return Home is enabled, it is able to fly home along its original route, and change to a straight line when it regains a signal. As it returns, it will use the primary camera to identify obstacles as far as 200m in front, allowing it to plan a safe route home. It is also able to reconnect more quickly after losing connection.

The Upward facing infrared sensors scan obstacles 16ft (5m) above, adding protection when flying in enclosed spaces as well as hovering in indoors. Obstacle sensing systems are active during normal flight, RTH and all Intelligent Flight Modes.

For colder climates, Inspire 2 has self-heating technology

The Inspire 2 has DJI's Lightbridge technology. In this version it transmits from upto a distance of 4.3 miles or 6.8 kms in ideal conditions. It can send 1080p/720p video as well as the FPV view to pilot and camera operator. Users can also switch between 2.4 GHz and 5.8 GHz control frequencies to avoid interference for greater signal stability.

Master and Slave setups are also supported. The master controller can transmit an HD video signal to the slave controller up to 300' away without image quality loss.

Broadcasters can also directly start broadcasting from the Inspire 2 in 1080 @50i and 720@60p.

The weight of the Inspire 2 is 4kgs. It can fly upto a height of 2500 meters or 8200 feet with the standard propellers. With Hi-Altitude propellers it can even gain a height of 5000 meters or 16400 feet.

The DJI Inspire 2 can be used with two cameras namely Zenmuse X4S and Zenmuse X5S.

The X5S is an interchangeable lens camera and has a Micro Four Thirds Mount. Depending on requirements, one can use different micro-four thirds lenses from 9-45 mm which is equivalent to 18 to 45mm in 35mm terms. This gives a lot of flexibility to shoot aerial imaging. The X5S has a 20.8 Megapixel sensor with a pixel pitch of 3.4 µm. It can shoot at 5.2K resolution at 30 frames per second and 4K at 60 frames per second. DJI claims that this camera has got 12.8 stops of dynamic range. If it is true, then this camera can shoot a lot of contrasty scenes. It comes with an integrated three axis gimbal which gets attached to the Inspire 2.

DJI also has launched a lower version camera called X4S with 8.8 mm lens with f stop of 2.8-11 and 84° angle of view. It has a 20 MP sensor which is of 1" size having pixel size of 2.4 µm. The X4S camera shoots in 5.2K and then converts it to DCI 4K video (4096x2160) at 60 frames per second in H.264 codec and 30fps in H.265. The data rate at which these videos are recorded is 100 Mbps. DJI claims that the X4S has a dynamic range of 11.6 stops. Dynamic range is a highly subjective test and it needs to be seen how true these claims of DJI are.

Price: The DJI Inspire 2 camera costs **2,999 USD**.

The X5S camera without lens costs **1,899 USD**. The X4S costs **599 USD**.

The DJI Premium package costs **5,999 USD**.

Preorder Link in B&H: http://www.bhphotovideo.com/c/buy/DJI_Inspire_2_DJINSPIRE2PC/Ntt/DJI%2BInspire%2B2%2BDJINSPIRE2PC/NI0/kw/search/BI/19990/KBID/13252/DFF/d10-v1-t12

Equipment Discussions -

Go Pro Karma Drone Recall

Go Pro has announced a recall of its just launched Karma Drone. The Karma drone had some instances of power loss in flight and Go Pro has done a complete recall including the attached Go Pro 5 camera and handle.

Go Pro has said that only a small number of its Karma drones have got the power problem. However, it is doing a complete recall.

Karma Drone was priced at 799 usd and had a unique feature of having the Go Pro camera attached which can later be used with a handle as a three axis handheld gimbal.

Go Pro perhaps to counter the negative perception has announced that all buyers who have returned their Karma drone package will get a Go Pro Hero 5 Black camera for free.

The following is the statement issued in their site:

“GoPro is committed to providing our customers with great product experiences. To honor this commitment, we have recalled Karma until we resolve a performance issue related to a loss of power during operation. We plan to resume shipment to Karma once the issue is addressed. The recall was announced after we discovered that in a small number of cases, Karma units lost power during operation. We are investigating the issue and working in close coordination with the U.S. Consumer Product Safety Commission and the Federal Aviation Administration. We are recalling all Karma units and providing a full refund. We are investigating the issue and plan to make the Karma available once it has been resolved. Once your complete refund has been processed and refund issued we will send you a Hero5 Black as a thank you”.

Equipment Discussions -

Canon Firmware Update Announcements

Canon has announced a slew of firmware updates for the Canon Cinema C300 and the C300 Mark II cameras as well as for using the new servo zooms.

Features	EOS C300 Mark II EF-mount	EOS C300 Mark II PL-mount	EOS C300 EF-mount	EOS C300 DAF EF-mount	EOS C300 PL-mount
EVF-V70 Support	■	■			
Shutter Angle Priority	■	■	■	■	■
Support for Zebra at 65% or Less	■	■			
2K Crop Audio Recording	■	■			
Built-in Mic Audio Off	■	■			
WFT-E8 Support	■	■	■	■	■
Dual Pixel CMOS AF Function for the CINE-SERVO 17-120mm (EF) and the COMPACT SERVO 18-80mm	■			■	
Grip Zoom Function for the CINE-SERVO 17-120mm (EF), CINE-SERVO 50-1000mm (EF) and COMPACT SERVO 18-80mm	■		■	■	
Auto Iris and Push Iris Support for the CINE-SERVO 17-120mm (EF) and the COMPACT SERVO 18-80mm	■	■	■	■	
Peripheral Illumination Correction for the EF 24-105mm f/4L IS II USM	■		■	■	
Date Available	Firmware scheduled to be available on December 13th, 2016				

EVF-V70 OLED Electronic Viewfinder Support

This optional EVF-V70 OLED Electronic Viewfinder is now supported by the camera, offering industry-standard operability and quality. The 1920x1080 resolution currently outclasses many competitors, helping to make 4K video production easier.

Shutter Angle Priority

A constant shutter angle can now be maintained, regardless of any other camera settings being changed.

Zebra Range Expanded Below 65%

The range of the Zebra 1 setting has been expanded to between 5% (±5%) and 95% (±5%) in steps of 5%. Previously, the Zebra 1 setting range was between 70% (±5%) and 95% (±5%).

The range of the Zebra 2 setting has been expanded to between 5% and 100% in steps of 5%. Previously, the Zebra 1 setting range was between 70% and 100%.

While higher numbers can help facilitate correct overall scene exposure, helping to prevent over-exposure, the expanded range in the lower end can help correctly expose a variety of skin tones.

2K Crop Audio Recording

Audio can now be recorded when the camera is set in 2K crop mode. Audio must be recorded in the following combinations with a resolution of 2048x1080/1920x1080:

System Frequency	Frame Rate	S&F Frame Rate
59.94Hz	59.94P	60P
	29.97P	30P
	23.98P	24P
50.00Hz	50.00P	50P
24.00Hz	24.00P	24P

Built-in Mic Audio Off

The internal microphone on the camera body can now be turned off.

WFT-E8 Wireless File Transmitter Support

The optional WFT-E8 Wireless File Transmitter is now supported, adding wireless operation, metadata input and speedy image transfer from the camera, while offering expanded versatility with an enhanced user interface.

Dual Pixel CMOS AF Function

The camera can now take advantage of the Dual Pixel CMOS AF technology when used with the CINE-SERVO 17-120mm (EF-mount) and COMPACT SERVO 18-80mm lenses.

Grip Zoom Function

The zoom functions of the CINE-SERVO 17-120mm (EF-mount), CINE-SERVO 50-1000 (EF-mount) and the COMPACT-SERVO 18-80mm lenses can now be controlled directly from the camera's grip unit.

Auto Iris and Push Iris Support

The Auto Iris and Push Iris functions will now work when the camera is used with the CINE-SERVO 50-1000mm, CINE-SERVO 17-120mm (EF) and COMPACT SERVO 18-80mm lenses. The Auto Iris feature allows the camera to automatically adjust to maintain proper exposure. The Push Iris feature allows the camera operator to temporarily take control and adjust the aperture (f/stop) for an optimal exposure.

Peripheral Illumination Correction

The camera can now collect Peripheral Illumination Correction data when used with the EF24-105mm f/4L IS II USM lens. This allows the camera to automatically adjust the picture to correct for corner shading, helping to maintain consistent brightness across the image area and reduce vignetting.

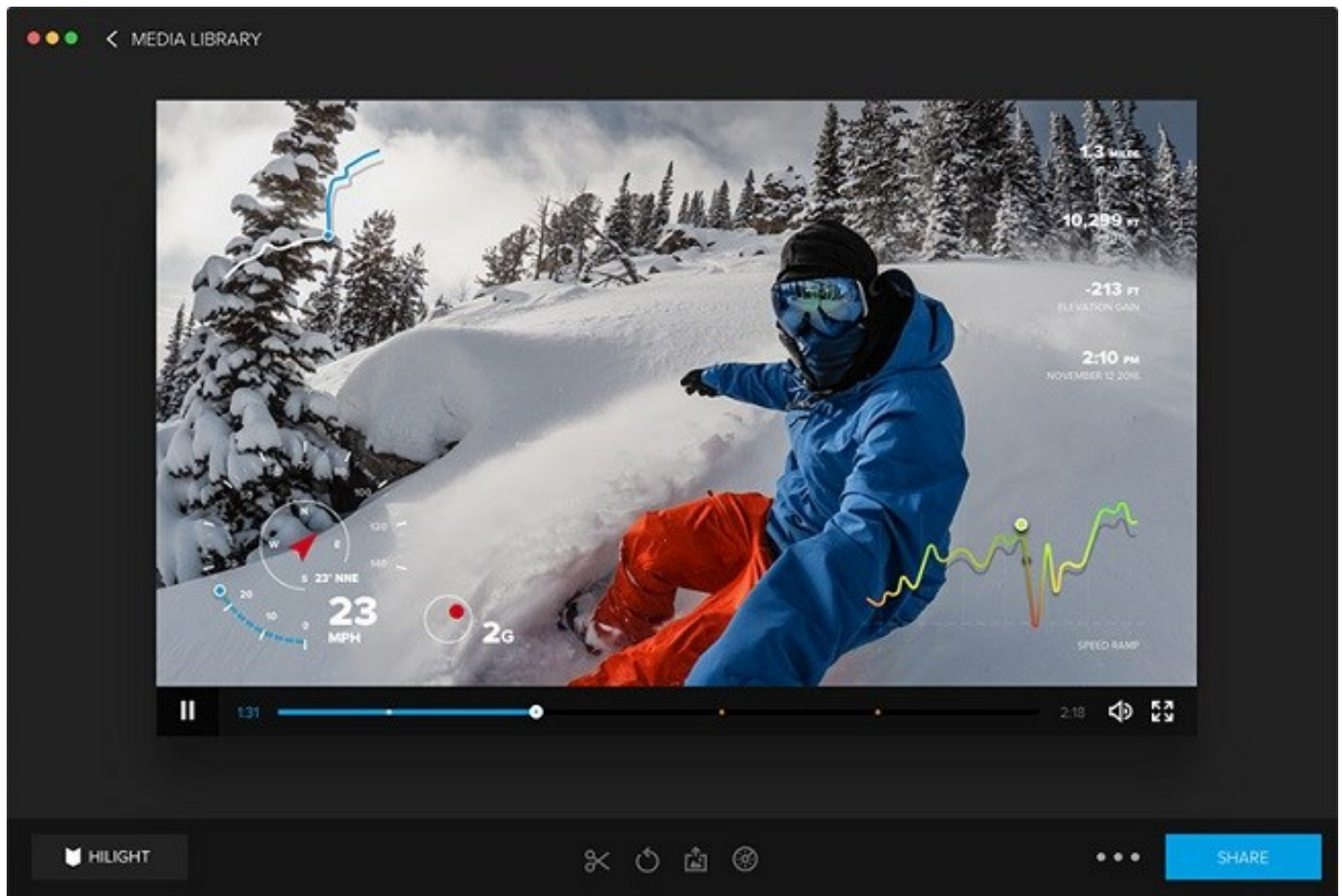
Equipment Discussions -

Go Pro unveils Telemetry feature for Hero5 Black

New Telemetry Feature in Quik for Desktop Unlocks Your HERO5 Black's GPS

Unlock the data behind your GoPro content with telemetry gauges available today on the Quik for Desktop app. The new telemetry feature adds an immersive layer to your story by providing stats about the action as it unfolds on-screen, from how fast you were speeding down the line on your last mountain run or big wave, to how high you climbed or how many g's you pulled in your best track turn.

GoPro telemetry taps into the GPS capabilities of the Hero5 Black by capturing data about your GPS path, speed, altitude, g-force, elevation gain and more. The results are overlaid as graphics on your videos, making your content more meaningful and providing benchmarks and milestones for your experiences. The overlays are also customizable, allowing you to resize and move the gauges and turn on or off each data graphic.



Here's a more detailed overview of the telemetry data you'll see in Quik for Desktop with your GPS-activated HERO5 videos:

Info Cluster: see an overview of real-time stats as you watch your video

- Distance (km or miles)
- Altitude
- Elevation Gain
- Date & time

Speed:

- Speedometer tells you how fast you were going and includes a compass for orientation

Speed graph displays your speed over time and charts your fastest moments and spikes in activity. Speed graphs also serve as a great tool in the editing and scrubbing process, allowing you to easily identify highlight moments from your footage.

GPS Path: see the route you took and pinpoint your position as you move along the path

G-Force: check out how much g-force you're pulling against as you accelerate or change direction

Natural History -

COUNTRY NOTEBOOK: M.Krishnan: 'The Painted Stork'

The Sunday Statesman: 1-September-1963 (shared by Shri. Saktipada Panigrahi)

THE PAINTED STORK

"The Painted Stork is a remarkable bird whichever way you look at it, from far away or near, when sailing on high in wide circles or when standing stiffly on one leg on the margin of a leg. Like many other storks, it has an awkward, camelish profile, but then its colouration is both striking and beautiful, and in flight it is strongly graceful.

It is a white stork, patterned in black, and the colours that go best with black and white, so delicately and artistically that its name is almost inevitable. The distinctive beak is neither straight nor curved, but thick and bent near the tip, and is an Indian yellow with just the suspicion of burnt sienna in it; the naked face is also yellow, but with a more pronounced brush of warmth. It would be that the precise shade of this yellow varies somewhat, but descriptions of it vary slightly, but I have observed the bird in my native Thirunelveli area, and more recently at the Ginigera Lake on the Mysore-Hyderabad border, and I noticed no difference in the bill or face. The flights are a glossy, metallic black, and so is the tail (which is hardly seen in repose), and across the breast is a low, wide necklace of black delicately laced with white. On the back and wing, the plumage is rather full, and a shell-pink in colour, or a soft carmine edged with white. The legs and feet are a dull, deep flesh tint.



© Sabyasachi Patra/www.indiawilds.com

No wonder, then, that this bird is called Painted Stork, but the old name, Pelican Ibis, by which it was known to our early

ornithology, is almost equally apt. If you look at the bird's ungainly figure, it does suggest a very fancy kind of Ibis, with more than a touch of pelican in the bill and head.

Sometimes it feeds in large gatherings, but I have seen it in small parties of about half-a-dozen, and even by itself. It patrols the marshy edges of lake sedately, stiff-legged and deliberate, as if it suffered from the old-fashioned complaint of wind in the knee-joint; and it wades in shallow water searching the squelchy bottom with the parted tips of its mandibles. Its appetite is voracious even for a stork, and it spends much time in feeding. It is also given to roosting in trees, and at time rests flopped down on bent hocks, squatting on its folded legs, a position that must be more comfortable to the bird than it seems.

Though never a bird with a continuous distribution, this stork is less common now than it used to be. The occupation of open country by humanity, which has been such a feature of life in India in the past two generations, has hit our resident water birds hard, particularly those species that find their best hunting grounds in inundated low-lying land.

Painted storks often nest in large mixed heronries, alongwith hundreds of waterbirds, but sometimes they breed in a small colony of anything from half-a-dozen to two dozen pairs, in a tall tree, building their nests very close together. In South India, the breeding season is generally late in January or February.

I think that it is when these birds are soaring on a sunny day that they are most fascinating to watch. Like all storks, they are strong fliers, though they do not have the acrobatic air-mastery of the smaller Openbills, and they glide on taut wings high up in the sky, circling with swift ease. They look extraordinarily beautiful then, with the metallic black of their wings contrasting with the glistening white of their sunlit plumage, and the yellow of their beak and the occasional glimpse of the pink of their back as they bank and turn, clear against the deep, dazzling blue of the sky."

- M. Krishnan

This was published on 1 September 1963 in The Sunday Statesman

The prolonged flood situation in Manas – contributing towards the changes in ecosystem :

By Samrat Sarkar

During the rainy season Manas turns almost inaccessible and formidable to the visitors from outside.

However, I could manage to visit Manas twice; once during the onset of the monsoon and once during its end. It is not so easy to get a permission from the Forest Department for the entry, to collect information regarding the condition of the roads, to find a Gypsy to get there into the forest during this period. Still, I got a fair chance to visit Manas once again this time. This visit, to say the truth, is not only to see through the eyes of a researcher, not a visit by an analyst either. It was a visit by a common man who wants to feel the wild in the wilderness and to explore the Manas with curious eyes.

I have an yearning not only for the bio diversity of the Manas, but also for its landscapes, for its unparalleled ecosystems, for the rivers and rivulets coming down from the hills of Bhutan, for the different tribes of people who live near fringe areas in scattered manner and their simple and effortless life styles centered around the forest, for the political turnarounds and the adversities arising out of that.

Manas has got a unique ability to arouse your curiosity and then that starts engulfing you, building up the urge to visit it often into a burning desire like a small fire reaching its crescendo.



Manas Tiger Reserve is 2837.31 square kms [Core area 526.22 sq. kms. and buffer area 2310.88 sq. kms] and includes four different tribal people dominated districts, namely Kokrajhar, Chirang, Baksa in the south-west and Udalguri in the east. The whole area has been demarketed as Important birding area, Elephant reserve, Tiger reserve, Biosphere reserve and Natural World Heritage Site. Many different types of tribes live in this region namely, Bodo, Assomia, Rava, Koch-Rajbangshi, Garo, Bengali, Saontal etc, among which the Bodos constitute the majority. The BTAD[Bodoland Territorial Area District] has been formed comprising these four districts in the year 2003 and are governed by the BTC [Bodoland Territorial Council] From the eighties the Bodos have been engaged in terrorist activities in favour of their campaign for a separate Bodoland. Very recently, many such separatists have renounced terrorism and have joined the mainstream society. They are now in control of the BTC since many years and are now a part of the present government of Assam. But the NDFB(S) [National Democratic Front of Bodoland (Sangbijit)]Assam are now still engaged in armed and rebellious activities.

This political tussle is a long chapter in the history of Assam and has many bloody activities which had claimed many innocent lives in the past. Still, in spite of all these horrible activities of loss of life and bloodshed peace and calmness of this unparallelly beautiful and vast forest range have remained disturbed. There are three ranges of the Manas National Park in the Manas Tiger Reserve. Its total area is about 500 sq. km. Panbari in the west, Bhuinapara in the east and Bansbari is in between them. In the north spans the vast hilly area comprising the “Royal Manas” of Bhutan. Safari inside the Panbari range is practically impossible. The NDFB[S] terrorists are still very much active inside it. But Bansbari and Bhuinapara range are open for tourist.

The river Beki, the lifeline of the Manas NTR, is flowing along the western fringe of the Bansbari Range. The river Beki and the river Hakua are two tributaries of the main Manas river. The river Mans has separated the Bansbari Range from the “Royal Manas Rnage” of Bhutan. But the River Beki has gradually been shifting towards the Bansbari Range due to various



man-made and natural causes. The banks of the National Park are eroding every year and in the past 15 years the river has shifted about four kilometers in towards the east, towards Bansbari Range.

This yearly shifting of the river is still continuing in full swing. And this year the situation is alarming. A part of the road that ran parallel to the river and leads to Latajhar has been fully engulfed by the river in the very beginning of the monsoon.

A herd of wild buffaloes are seen here on their journey towards some areas of upper level in the forest. They are preparing themselves for the hardships of the ensuing long and difficult monsoon season.



During our second visit to Manas towards the end of monsoons in Mid October, the meteorological department had forecast a heavy spell of rain. The sky was full of thick sheets of black clouds and heavy rains had engulfed the Bhutan Hills. The road leading to Latajhar had been completely washed away. The Beki was continuously engulfing its banks and flowing near the foot of the forest check post at Panchmile. There on a number of lump of clays have sprouted some toadstools.



It was known from the local people that the inherent nature of Manas is gradually deteriorating due to the newly constructed dam intended for the two hydroelectric projects one on Kurichu river , [HEP (60MW)] and the other on Mangdechhu river [HEP (270MW)]. These two rivers have joined themselves with the Manas-Beki river system in their downstream.

As a result, a large part of the Manas gets flooded whenever excess water is released from these two dams. This year the flood situation here is worse than that of the previous five years. The anxious faces of the local people of the villages of this fringe areas confirms and authenticate the grim flood situation here.



Flood water starts entering their villages. The silt brought along with the flood water spoils the cultivated land and causes a great financial damage to the cultivators. In the natural course, the possibility of trafficking of forest wood increases to a great extent due to the financial crunch of the local people.



The earnings of the local people wane at the end of the long monsoon period spanning five months. Collection of firewood by the local people stops completely. The economy relating to the local tourist lodges becomes sluggish. People start a parallel source of income by catching fish in the Beki river along with usual work in the tea garden. Besides these I have seen them being engaged in some other professions such as rearing cattles, livestock etc. People swim into the river and collect trunks of trees that come downward from the hills along with the river water. They sometimes even risk their lives to do this. These are used as firewood and are also sold in the local market as per demand.



On the other side, in the Manas mainland the situation becomes grave. The water of the Beki river starts flowing in full swing through the natural streams and inundates the whole region. This concrete bridge on the way to Bhutan had armed



guards posted with sombre faces. Later the approach roads to the bridge got washed away by the ferocity of the flood waters.

There are a couple of bungalows known as the Mathanguri FRH on the lap of the hill at the Bhutan border. I think this FRH is one of the best FRHs among all other best known FRHs in India in terms of the scenic beauty.

On the way to Mathanguri we noticed that the streams of different sizes have shifted their channels. In some places the flow of water in the original streams have dwindled considerably. Last year the flow in this channel was so forceful and tremendous that the concrete bridge over it got completely washed away. A new bridge had to be constructed in that same place. But this year the flow in this channel is almost absent even after very heavy spells of rains as the channel has shifted its route.



And, in this small channel the flow of water is totally absent, though at the onset of the monsoon season there was flow of water in it. It is very much natural for these small rivulets of the forest to shift their channels during monsoon as the beds of the channels wither. the ecosystems of the surrounding areas change. This way the flood has been inducing changes in the nature of Manas unawaresly. The local administration regularly hold Bhutan responsible for the flood. But the Bhutanese administration claims that there is no reservoir in the Kurichu over Project and they also claim that all the vital informations from their part are shared with India as per requirement. In this connection it may be mentioned that the Kurichu Dam was designed, constructed and monitored jointly with Indian experts and financial support.



With water overflowing in the small streams in the forest, it is difficult to know whether the gypsy was moving along the road or not.



We had to wait for two days for the harsh weather to go away. I came to know that the water level inside the park had started receding. I managed to get a written permission to enter the park. All the roads towards the park were closed. We could proceed maximum 6 to 7 KM with some difficulty along the main road towards Bhutan upto the bridge which recently got washed away.

I experienced the Manas in a completely new perspective as the slant afternoon sun-rays beamed over the lines of trees. A thick layer of sand of about 10 inches and a layer of silt over it have accumulated in the areas of deep forest from where the flood water have subsided.



There is a large amount of controversy about the floods and the ensuing siltation in the forest. To some this is beneficial for the ecosystem of the forest but some others opine differently.

The positive side –

- 1.The fishes in the water bodies of the park easily proliferate. This is due to the fact that they are encouraged to lay eggs in the flowing flood water.
- 2.As the new and fresh flood water enters this stagnant hyacinths are forced to move away from the water bodies. As a result the migratory birds such as duck, herons and pelicans find a favourable condition foraging in the upcoming winter season.
- 3.As a result of the floods the natural qualitative property of the water of the water bodies is maintained naturally.
- 4.The siltation due to flood overlays the old and rotten vegetation of the forest floor which helps for the new vegetation to grow. A new ecosystem comes up.



Negative sides –

- 1.A lot of wild animals lose their lives being immersed in flood water. Incidence of poaching of wild animals increases rapidly as the poacher take advantage of the helplessness of these poor creatures as they try to flee away from the flood water.
- 2.When the park gets submerged the grazing area of the wild animals gets reduced; food for them become scarce.
- 3.When the river channels are shifted the ecosystem surrounding the old riverbed changes. The depths of the water bodies decrease. They become fragmented in a number of smaller parts. The banks of the large rivers fall down and causes land erosion.
- 4.The anti-poaching infrastructure jeopardises when the roads and bridge inside the park get damaged.

Different researches have proved that swamp grassland in the Manas has increased slowly and gradually post 2004 flood. On the other side the part of rivet Manas near Mathanguri have withered and shifted away to some distances as the river Beki has moved towards the park.

The siltation due to water logging is increasing every year for different reasons in the downstream of the river Beki. The sandy soil area in the park is increasing. The rivers are carrying chunks of stones from the hills and all these stones are getting deposited in the Bhabar Savanna area in the hills of the northern side of the park. And in the southern side where the depth of the channels are low and where the velocity of flood water is less fine alluvium deposition occurs naturally. There is still a need of extensive research regarding this landmass dynamics of the park.



The moment we left Banshbari range and was heading towards Bhuinapara in the east I came across a lonely Stonechat brooding over a bunch of catkins. The winter guest of the Manas have arrived.



I sighted a number of herd of elephants in the long swamp grassland climbing upwards in the hills of the eastern side. I also sighted two Rhinos close to the fringe areas. Our forest guard companion immediately sent a SOS to the Beat office; new lives are springing up once again all over Manas, and a new preparation is underway for the upcoming winter seasons. As innumerable incidents of turmoil and adversities could not cow down it during the past 111 years, this year as well it has emerged victorious; It is Manas.

Written in Bengali by Samrat Sarkar

Translated into English by Biswajit Debnath.

Equipment used – Canon EOS 7D + Canon 500mm f4 IS II L USM + Monopod and Olympus OMD EM-1 + Zuiko 12-40mm f2.8 PRO.

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 3. Land-use and Land-cover change and future implication analysis in Manas National Park, India using multi-temporal satellite data by Prasenjit k Sharma, Bibhuti K Lakhar, Sonali Ghose, Abhijit Rava, Jyoti P Das, Naba K Nath, Santanu Dey and Namita Brahma.
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 5. The Positive and Negative Impacts of flood on Biodiversity by Deeptirekha Jain.
 6. Various newspapers of Assam and Bhutan.
-

Wildlife Photography -

Nilgai by Mrudul Godbole



© Mrudul Godbole

Elephants by Prashobh Aiyam Nair



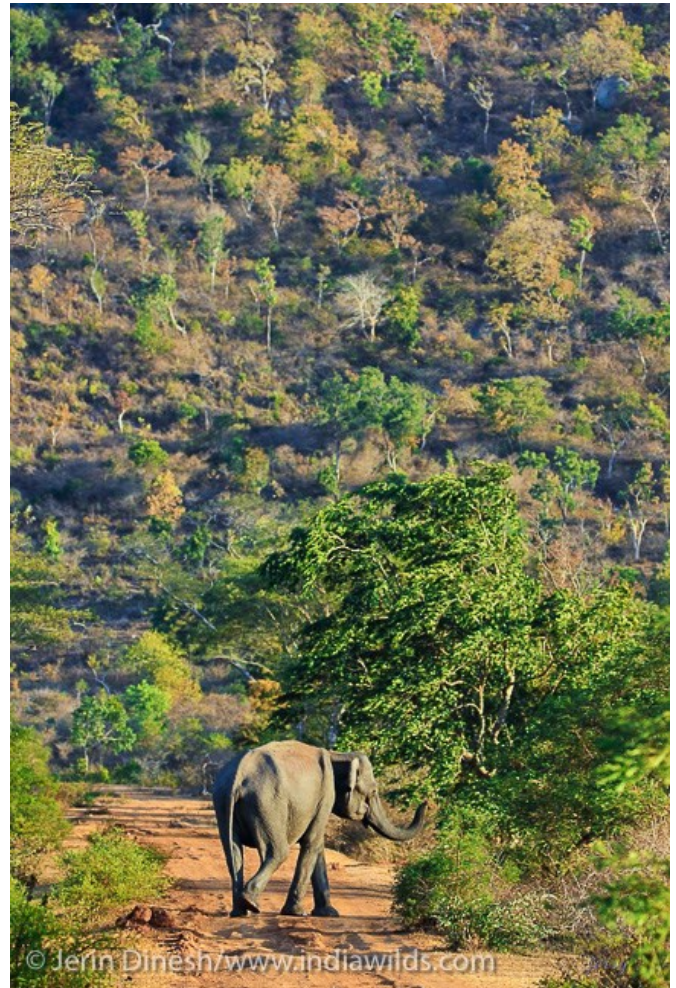
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Wildlife Photography -

Prince of Bandipur by Ulhas Kalyanpur



Elephant in Bandipur by Jerin Dinesh



Wildlife Photography -

Chakradhara Meadow by Debasis Bose



White Rumped shama male by Subhash Shrivastava



Wildlife Photography -

Eurasian Wryneck by Sandipan Ghosh



Skink by Prajwal Ullal

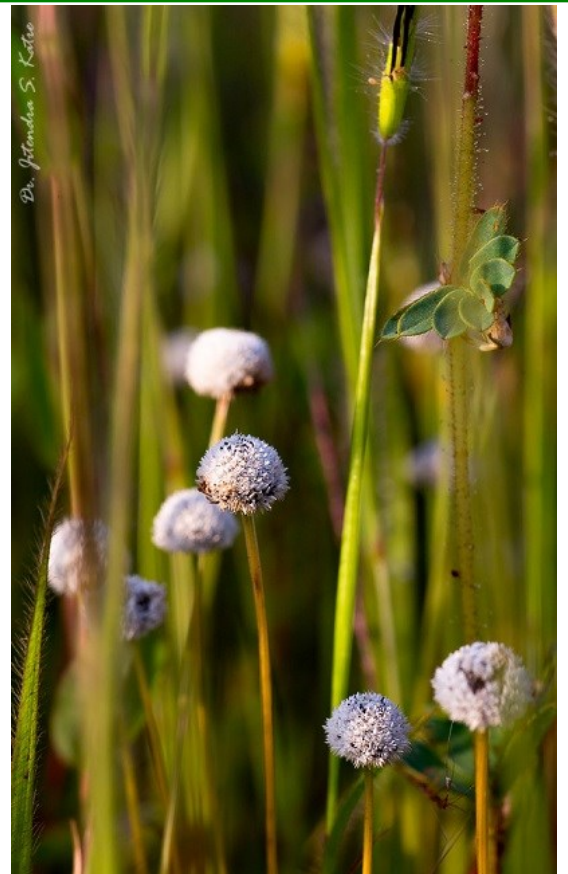


Wildlife Photography -

Bamni Falls by Arun Acharjee



Eriocaulon Carsonii by Dr.Jitendra Katre





I look forward to your inputs and support in preserving the last tracts of wilderness and wildlife left in our beautiful country. For other interesting articles and images check - <http://www.indiawilds.com/forums/>

To post in the IndiaWilds forums, you can register free of cost using your Full Name as user id at - <http://www.indiawilds.com/forums/register.php>

If you are already a member of IndiaWilds and have forgotten your user id and/or password you can mail administrator@indiawilds.com

Regards,

Sabyasachi Patra

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