India Wilds

Newsletter

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Cover Page Photograph:

Tiger by Sabyasachi Patra

Say No to Bengaluru Steel Bridge :

The Government of Karnataka, has proposed a massive 6.72 Kms long steel bridge in Bangalore that is touted to make travel to airport faster. This muddleheaded project will burn a Rs. 1800 crore hole in the public exchequer and will ensure that more than 800 hard growth old trees will be felled.

This steel bridge is to be done between Basaveshwara circle and Hebbal in Bangalore. The Steel bridge is anti-environment as it will result in more than 800 trees being cut off and will also result in destruction of old heritage buildings.

The Government is determined to push this project at any cost. KJ George, who was recently reinstated as minister for Bengaluru Development and State Town Planning, says that all the concerns of the Citizens have been taken into account before giving a go-ahead to this project.

Steel Flyover between Basaveshwara circle and Hebbal Image Courtesy - online media

Traffic & Solution:

According to the BDA document (http://www.bdabangalore.org/Steel%20flyover.pdf) tom-tomming the benefit of the flyover, the present day vehicle population is 60 lakhs and the traffic is high with 45% being taxis or personal vehicles.

Junction	Daily Traffic	Peak hour traffic
Basaveshwara circle	235769	19675
Miller road junction	78650	6286
Highgrounds junction	183941	17857
Kumarakrupa road junction	229378	18038
Cauvery theatre junction	207947	15080
Mekhri circle junction	294639	22898
Sanjaynagar road junction	219424	19261
CBI junction	187250	13153
Hebbal flyover & junction	343505	23799

The Government of Karnataka should have been pondering over the issue of high traffic and the means to reduce the same rather than trying to create a piecemeal solution of increasing the efficiency of the existing road infrastructure. Since 45% of the most of the traffic is taxis or personal cars, it is a big inefficient mode of transport which causes a lot of pollution. This can be reduced with better urban planning.

The Bangalore city is grappling with unnecessary traffic ever since the airport was shifted to a distance of 65 kms. No developed country shifts an airport to such a far off place without properly planning for a suitable mode of conveyance. Unfortunately, in India we revel in creating problems and then coming out with solutions to ensure our own personal benefits while the general populace suffers.

The Government came out with the Bangalore Metro rail, however, it is not connected with the Airport, nor is there any plans to do so. Instead, a few make money by plying taxis to the airport. This segment is completely against the idea of creating a metro rail linkage to the airport.

In developed countries, one can directly come to the metro rail and then check-in with their luggage at the individual airport counters at the local metro stations. There is seamless connectivity of the metro with the airport and the crowding of airline counters in the airports are also reduced. The travel time reduces drastically. The amount of pollution is also slashed massively.

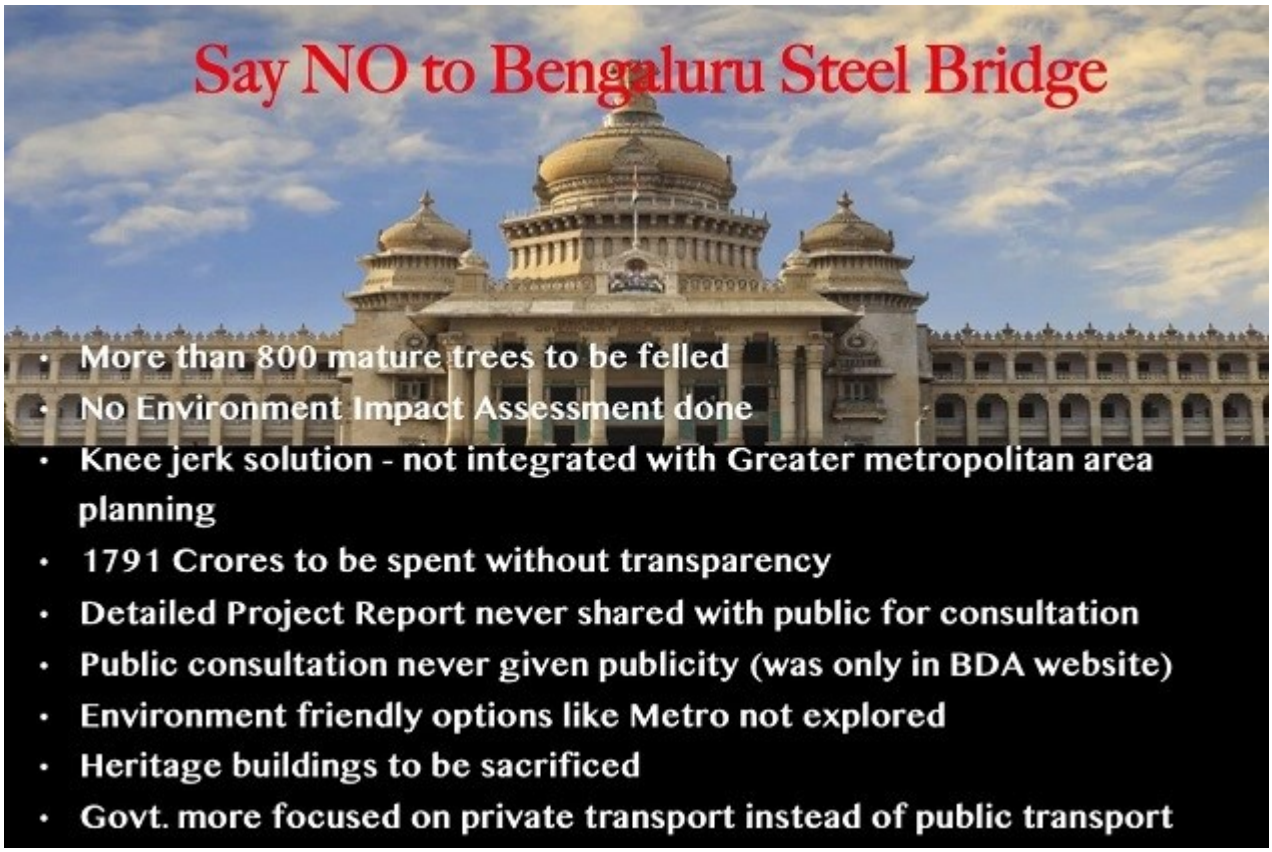
Unfortunately, the Government doesn't believe in greater level of planning for the entire metropolitan area. There has been no evaluation of the number of passengers arriving and departing from the Bengaluru airport and their commuting to Bangalore. This analysis would have clearly shown how inadequate the present and planned road communication to the airport.

The Steel Bridge decision is an arbitrarily taken decision, which is not linked with the greater Bengaluru metropolitan area planning and no alternate routes have been evaluated or planned. The way the Bengaluru city and its outskirts are growing without any planning, there

will be massive pressures even on the proposed Steel bridge and it would not even succeed in reducing the travel time by even 10 minutes. The Congress Government ruling Karnataka, doesn't appear to be bothered.

Environmentally Destructive:

Bangalore city is being progressively robbed off its greenery. An estimate suggests that about 10,000 old trees have been cut -off on some pretext or other. This and the concretization due to rampant construction of apartments has led to change in the climate of the city.



The Bangalore city used to be known for its salubrious climate. Even two decades ago, it used to be cold and hardly needed fans in the summer. However, in the summer of 2016, the city was so hot that people scrambled to purchase air conditioners (ACs). The temperature had consistently remained above 40 degrees centigrade. The mad rush resulted in a huge waiting list in installing the ACs in individual homes. In most of the houses the mechanics could only visit a week after being booked due to their workloads.

Trees play a big role in carbon sequestration. They also help reduce the urban pollution and due to releasing moisture play a role in rains. The rapid urbanization, cutting down of trees, reclaiming the lakes and other wetlands by filling them with mud and construction debris has resulted in a very hot city. The urban pollution level has also increased. In this scenario, any move to cut off old trees is extremely foolish.

Generally, it is claimed that new saplings are planted in lieu of trees being cut for road widening or for any infrastructure project. However, all the saplings are planted far away from the city, if at all they are planted. The carbon sequestration po-

tential of old hard-growth trees are much more than saplings.

The BDA proposes that it will plant 60,000 ornamental plants in lieu of the 812 old tress that will be cut off for the proposed steel bridge. This is sheer lunacy. Ornamental plants don't have long life, nor do they have the ability to fix carbon like the old hard-growth trees. The BDA move will result in further reduction of green area and a further polluted city. This shows

The Environment Protection Act 1986 as well as the EIA notification of 2006 (dated 12.09.2006) says that any project that has 20,000 square meters built-up area requires environment clearance. Unfortunately, the BJP Government in Gujarat violated this for the Sardar Vallabhbhai Patel Statue in Sadhu-bet island in Gujarat and now the Congress Government led by Mr. Siddaramaiah is violating it as well. Because of this violation, they are able to propose ridiculous moves like planting ornamental plants in-lieu of old trees.

Non-transparent consultation:

The Steel bridge project has been done in an opaque manner. The Government says "The Bangalore Development Authority has issued Press release on 27.06.2016 inviting suggestions on this project from experts and interested persons either by contacting or through email. Accordingly, 299 suggestions have been received through emails. Out of which 73% have opined in favour of implementing flyover project. The remaining persons have requested to identify alternative route, conventional concrete method and to exhibit detail project. All the requests have been examined. Salient features of DPR are also being shared."

The press release issued by the BDA (Bangalore Development Authority) was not widely disseminated. Public hearings were not conducted. We don't even know who were the persons who had responded to BDA and what is their locus standii in this issue. A project of such a magnitude receiving only 299 suggestions shows how few people knew about this process.

In view of the seriousness of the issue, the Government of Karnataka should setup a proper consultation process and before that it should share the entire DPR (Detailed Project Report), which can be examined in detail before responding to the Government.

In the famous Gettysbury address, Abraham Lincoln had used the phrase "Government of the people, by the people, for the people". If the Congress Government ruling Karnataka wants to be seen as adhering to this dictum then it should immediately call for a fresh round of fair and robust consultation process to decide on the Steel bridge. Else, many people will believe the opposition BJP that the Congress Government is raising funds for the next assembly elections.

Unfortunately, the Chief Minister of Karnataka has defended allegations about non-transparent nature of this Steel Bridge construction decision by saying that the details were put up in the BDA website. The consultation process is a part of Governance and put a notice in only the BDA website and not giving wider publicity shows that Governance is certainly not reaching the people and the Government is fine about it. As a democracy it is a worrying signal indeed. Even more worrying is the resolve not to revisit a decision taken in haste.

Take Action:

India is a country, which can plan with pinpoint accuracy in sending a satellite to millions of kilometres away to Mars, is failing to plan approach roads to an airport. Politicians of this country in recent years, as a rule, have never felt any shame in lack of planning. However, the millions of people of this country certainly feel ashamed.

People of Bangalore raised their voice by taking part in huge numbers in a silent protest forming a long human chain on 16th October at Basaveshwara Circle and Hebbal.

All of you concerned citizens may raise their voice against this steel bridge by writing to the following authorities:

To,

Shri Rahul Gandhi,

VP, Indian National Congress

Email: Office@rahulgandhi.in

Twitter: @OfficeOfRG

To,

Mr. Siddaramaiah

Hon'ble Chief Minister of Karnataka:

Phone +91-080-22253414,22253424 Fax +91-080-22253115

Email: cm.kar@nic.in

To,

Mr. KJ George,

Minister for Bengaluru Development & Town Planning,

Twitter: @thekjgeorge

Conservation News

Environment Minister Emphasises Relevance of Indian Lifestyle and its low Carbon Footprint at Negotiations for Phasing down of HFCs

India's Environment minister, Shri Anil Madhav Dave, has emphasized the relevance of Indian lifestyle and its low carbon footprint while speaking in a breakfast meeting in Kigali, in the negotiations for amending the Montreal Protocol for phasing down of HFCs. Various Developed and developing countries are keenly negotiating their positions to amend the Montreal Protocol regarding the refrigerants and want to use it to the advantage of its own industry. It has already been proved that HFCs are harmful for the environment and needs to be phased down. So these negotiations are to decide various aspects of phasing down and incentivizing etc.

The Minister for Environment & Climate Change also highlighted the significance of ratifying the Paris Agreement on 2nd October, which is celebrated as the Gandhi Jayanti in memory of Mahatma Gandhi. The minister said that Gandhian thoughts on management of natural resources to meet everybody's need rather than the excessive exploitation by a greedy few is most important and relevant in today's context.

The MoEF&CC Minister Shri Dave, clearly put forward India's stand that India needs to take measures which are required for preserving and accelerating the growth of Indian economy for improving the lives of millions of people. He acknowledged the vulnerability of India to Climate Change issues as a majority of its population is dependent on agriculture and a long coastline. India needs to also take steps to invest on infrastructure for providing people with basic amenities as well as meet their aspirations and provide a better quality of life. India has exhibited flexibility by advancing the baseline years by four years from the original amendment proposal filed in April 2015, however, the principles of Common but Differentiated Responsibilities requires reciprocating actions on the part of the developed countries.

The Environment Minister mentioned that this is the time for India and every Indian to realize their full potential with judicious use of resources. He also talked about the important programmes of the Government of India, like Doubling the Farmer's Income by 2022, 100 Smart Cities, and Make in India and highlighted that all these programmes have some dependence on the refrigeration and air-conditioning technologies, and India at this juncture has to balance the environmental and economic needs in the most judicious manner.

India's MoEF&CC Secretary, Shri A. N. Jha has put forth India's views that securing a CO_2 equivalent space of around 100 to 120 million tons in baseline of India only means that from the current level of 42 million tons, CO_2 equivalent in next 10 years the usage of HFC will grow by additional 80 million tons CO_2 equivalent. Though it means an increase of 200 % in ten years or 20% a year, but it is based on the past experience in growth of HFCs between 2010 and 2015. By not having a freeze and first reduction in 2032, the industry and different sectors can grow till 2030, using the current refrigerants, without causing any additional economic burden on account of the higher cost of the refrigerants. He emphasized that India would like to retain its global position as exporter of refrigerants, even with the new generation of refrigerants.

India's delegation also had representatives from Indian industry which is keenly following these discussions.

Conservation News

Environment Ministry Orders Incineration of High GWP HFC -23

India has decided to take a stand on incineration of the HFC-23 gas, which is created as a byproduct in the manufacture of HCFC-22 gas. The HFC-23 gas is a very potent greenhouse gas and increases the global warming. The HFC-23 gas has a global warming potential of 14800 if it is allowed to escape into our environment, which is often the case. Even the HCFC-22 producers in the developed world don't handle the HFC-23 gas in a professional manner and release it into the environment.

India has thus taken a lead in steering the negotiations on amendment in Montreal Protocol for amendment for phase down of HFCs at Kigali, Rwanda. The Minister for MoEF&CC (Environment, Forest and Climate Change), Shri Anil Madhav Dave, has given the go-ahead for releasing the order for incinerating the HFC–23 by producers of HCFC–22 gas. Shri Dave clarified that companies have to internalize the cost of this environmental externality and create sufficient storage facility to take care of down time and run the incinerators to ensure and not release of HFC–23 in the atmosphere. This is a major break away from the concept of financial assistance for every action on environment.

Even with the complete phase-out of HCFCs for usage as refrigerants under the Montreal Protocol, its production will continue for feedstock purposes. This production for feedstock purpose will reach 1 million tonnes at its peak, ensuring the incineration of HFC – 23 being produced as by-product will ensure an avoidance of more than 444 million tonnes of CO_2 equivalent globally. It is said that during the discussions on amendment to the Montreal Protocol, other countries will be made aware about India's order on HFC-23 gas and hopefully other Governments and producers of HCFC- 22 in both, developed and developing countries will be motivated to emulate this practice.

It is now hard for the teams from the countries which are producers of HCFC–22 to negotiate for funding from the Multilateral Fund (MLF), for creating a facility for incineration or financial support for incinerating the gas.

Eviction Drive in Assam around Kaziranga

The Assam Government has carried out an eviction drive around Kaziranga National Park to remove illegal settlers. This eviction drive on 20th September was met with stiff resistance by the settlers, who resorted to violence. This resulted in two people losing their lives.

This eviction drive was carried out to comply with the Assam High Court judgment. It is said that the previous Government didn't act on the issue as the elections were approaching. The BJP Government had earlier made the eviction of illegal settlers from various Vasihnavite shrines their poll promise.

Encroachment is a big problem in Assam, as people from neighbouring Bangladesh are settling in many places and this has resulted in the change in demographics in Assam. About 3555 square kilometer out of 27,673 Square Kms of forest land is said to be under encroachment. Some of these encroachers also have patta lands in other places. They have illegally set up

Conservation News

huts and staying in places as they hope to convert these lands to their name by bribing officials.

The Chief Minister of Assam, Shri Sarbananda Sonowal promised that all the encroachers removed from Kaziranga will be rehabilitated using a transparent policy.

Goa Intends to Convert Sanctuaries to Tiger Reserves

The Goa State Board for Wildlife has cleared a proposal to convert their wildlife sanctuaries to Tiger Reserves and the proposal to this effect will soon be forwarded to the NTCA (National Tiger Conservation Authority). The forest minister Shri Rajendra Arlekar said that no additional areas will be included in the proposed tiger reserves.

Illegal mining is rampant in Goa and the State Government earlier had taken an anti-wildlife approach. The villagers who had complained about illegal mining had also been threatened in many cases. After many such complaints, the Government is trying an image make over, in view of the impending Goa elections, and hence is said to have sent proposal to simply redesignate the Sanctuaries into Tiger Reserves. However, the forest minister said that “Since it is proved that tigers exist in the state’s wildlife sanctuaries, the board has decided to send the proposal”.

Equipment Discussions -

DJI Mavic Pro

DJI has launched a small quadcopter which has lot of automated features.

According to DJI there are "24 high-performance computing cores" (whatever that means) and an all new transmission system which can have a range of upto 7kms (when there is no obstruction), 5 vision sensors and a 4K camera on a 3 axis gimbal.

According to DJI, the DJI Mavic Pro has redundancy built-in with two sets of sensors. Generally these tiny drones can face interference issues and so the drone can behave erratically. So DJI has put in dual IMUs and dual compasses. So it is expected that the Mavic Pro will have good control over angle, speed, acceleration as well as ensure that the copter will return to the place designated as home with accuracy.

Stable propulsion system: Only when motors and propellers are intact and normal and the battery is sufficiently charged will the Mavic Pro fly.

Stability of flight altitude: Flight altitude is controlled by the Flight Controller. Any errors in attitude could have serious consequences including crashes.

Stability of sensors: Flight altitude is calculated from the data of an array of sensors. Any errors from the sensors could have serious consequences including crashes. According to DJI, normally the propulsion system and batteries are highly reliable whereas sensors, especially the IMU and the compass are prone to errors. So DJI decided to have two sets of sensors working simultaneously. Whenever the system detects an inconsistency in one, it switches to the other, keeping the quadcopter flysteady and in a reliable manner. In flight, the Mavic uses its compass to tell it where it is heading and the Inertial Meas-

urement Unit (IMU) to tell it how it is flying. An interruption in the data flow from either of these may cause it to fly less reliably, so two sets of sensors are beneficial for keeping the flight steady and reliable.

The DJI Mavic Pro has the ability to hover at a particular place with precision. Generally the quadcopters depend upon the GPS satellite signals. When the signal gets blocked it becomes a problem. In indoor flying often the gps signal strength is less and in outdoor flying in situations like flying under a tree canopy cover or flying below a bridge with most of the other copters it becomes a challenge. The DJI Mavic Pro has dual forward vision sensors. This is supposed to help see obstacles in 3-dimensions upto 15 meters in front and enables precise hovering at upto 10meters without satellite positioning. The automatic landing and takeoff is claimed to be more accurate. The Mavic takes a burst of video of the ground during take off and landing and matches the satellite coordinates and helps land accurately. On paper this sounds very impressive.

The Mavic has an impressive range of 7Kms. It uses DJI's OcuSync transmission system. DJI claims that the OcuSync performs far better than the WiFi signals and is able to transmit HD video signals reliably even when there is strong radio interference.

The Mavic has a camera which can shoot in DCI 4k (4096x2160) at 24fps, UHD (3840x2160) at 24/25/30p, 2.7k (2704x1520) at 24/25/30p, full HD (1920x1080) at upto 96p.

The video files are in MPEG 4 format and recorded at 60Mb/s.

The still photos are at 12 Megapixels in JPEG and RAW.

ISO range for video is from 100-3200 and for stills is from ISO 100 to ISO 1600.

The lens has got a focal length of 28mm (in terms of 35mm) at f2.2 aperture

For sports afficionado's the Mavic can fly at upto 65 kmph in no wind conditions.

A major selling point of the Mavic is the small size. It is 83mm x83mmx198mm and weighs 743 gms. If you wear a trouser with big pockets, then this one can fit in.

B&H Link to DJI Mavic Pro: ***http://www.bhphotovideo.com/c/buy/DJI_Mavic_Pro/Ntt/DJI%2BMavic%2BPro/N/0/kw/search/BI/19990/KBID/13252/DFF/d10-v1-t12***

Equipment Discussions -

DJI Mavic Pro Vs Go Pro Karma drone

The DJI launched the Mavic Pro a few days after Go Pro launched the Karma drone. So which one to buy?

There are a few differences between these two exciting drones.

Size: Both the drones are small size. However, DJI Mavic is smaller of the two and can also fit into a small pouch. So carrying it becomes easier and you don't need a dedicated backpack. Though some people may buy this because of its tiny size, one should not use size as a differentiator as quality is more important.

Camera: Mavic has a built in camera. The Karma drone needs the Go Pro Hero 5 Black. The Mavic camera can shoot in DCI 4k (4096x2160) at 24 fps as well as UHD and Full HD. However, the Go Pro can only shoot in UHD. The Go Pro camera has a fish eye, which needs to be corrected in post. There are many plugins for that.

The Hero 5 Black can shoot in 2.7K 50p. For Full HD delivery, I shoot in 2.7k 50p and it is very smooth. However, the DJI Mavic doesn't have slow motion in 2.7k. So I won't be too happy with it.

In the 2.7K mode the Hero 5 also can correct the fish eye digitally. I expect a lot of people using the Karma drone to use this mode. One can also while flying change the camera controls ie aperture, shutter speed, ISO manually in the Go Pro. This is a huge benefit for filmmakers.

The Hero 5 also has a software image stabilization. Surprisingly it works well. The Mavic has the built in camera and gimbal, so it doesn't need it.

Overall, the Go Pro Hero 5 offers a big benefit and controls to the filmmakers, so I would prefer it over the DJI Mavic Pro.

The Karma drone has an innovative system where you can remove the gimbal and attach it with a supplied handle and you can shoot handheld videos with the Hero 5 Black. This is a huge benefit. So your camera becomes a multi-used tool even when you are not flying. This makes it very versatile. Full marks here to Go Pro Karma design. If you are into handheld shooting of videos you need another 200 usd worth of handheld gimbal stabilizer which is now free in the Karma. So great value for money. You can also use it to mount the Go Pro on your helmet, cycle, bike or on your body and get nice videos. I see this to become a big hit for adventure loving guys, fun loving guys, treks and everywhere.

Range: The DJI Mavic Pro has a theoretical range of 7kms and the Go Pro Karma has a range of 0.97 kms. I prefer to fly in line of sight. In many countries you can't fly beyond visual range. So it may or may not be a differentiator for you. Personally it doesn't make a difference for me. However, I won't mind having a long range feature when flying. So the Mavic Pro wins here.

Collision avoidance: The DJI Mavic Pro has collision avoidance system. The Karma doesn't. So theoretically this is a big benefit. However, practically, if you are into flying, then you would be careful. Nevertheless, it would help in situations and give an assurance that you are not crashing the copter. The Go Pro Karma has a crash detection mechanism which immediately senses and stops the propellers when there is a crash. I wish this technology was there in my 3DR Solo, as several times I had to land in uneven surfaces and crash and the propellers kept on running and got ruined.

Controller: The Karma controller is a small gaming style controller. You can use the Go Pro app and sync another phone or tab and another person can use it to change the camera settings etc. So the pilot only flies and the other person controls the camera. This helps a lot as for safety reasons, the pilot should only be focused on flying. This is a big benefit of

Karma over DJI Mavic.

Price: The Mavic Pro is costlier than the Karma. DJI Mavic Pro without a controller is 749 usd. However, everyone will buy the controller for the benefits as well as to take the benefit of the OcuSync transmission technology. So at a minimum one has to spend $999 usd for the DJI Mavic Pro. With the Go Pro Karma drone one can buy the drone and the Go Pro Hero 5 Black with the backpack at a price of $1099 usd. Remember you can use the gimbal with a handle, so added functionality. The Go Pro Gimbal with handle bundled with the Karma can be separately bought at $299 usd.

The Go Pro Karma drone appears to be more value for money. One needs to evaluate his/her requirements and buy accordingly.

The Go Pro Karma can be bought from this link: *http://www.bhphotovideo.com/c/buy/Karma_drone/Ntt/Karma%2Bdrone/N/0/kw/search/BI/19990/KBID/13252/DFF/d10-v1-t12*

The Mavic Pro drone can be bought from the following link: *http://www.bhphotovideo.com/c/buy/Mavic_Pro/Ntt/Mavic%2BPro/N/0/kw/search/BI/19990/KBID/13252/DFF/d10-v1-t12*

Equipment Discussions -

Sony A6500 Mirrorless Camera

Sony has launched the A6500 mirrorless camera. Earlier this year the A6300 was launched and the A6500 Camera is an improvement upto it.

Salient Features:

Sensor Size: APS-C, CMOS

Resolution: 24.2 MP stills, 4K video

Image Processor: Bionz X

ISO: 100 to 51200

Autofocus: The Sony a6500 has a trademarked "4D Focus" system which uses 425 phase detection auto-focus points. According to Sony this AF system can instantly lock focus on the subject in 0.05 seconds.

Still burst speed: The Sony A6500 can shoot full resolution stills at 11 fps and in live-view mode this speed drops down to 8 fps.

Image Stabilisation: The camera has an in-built 5 axis image stabilisation which works in stills as well as in video shooting.

Tough screen focusing: The LCD has touch screen focusing for the first time.

Video: UHD (3840x2160) at 24/25/30p in XAVC S codec. The maximum data rates at which the 4K can be recorded is 100 Mb/s. There is also an option to record a lower quality at 60 Mb/s.

Full HD video 1920x1080 can be recorded in XAVC S codec at a maximum of 120fps (NTSC) and 100 fps (PAL) at 100 Mb/s data rate.

There is also option to record Full HD in AVCHD codec at a much reduced 28 Mb/s data rate.

Sony allows the use of S-Log gamma while recording video, so that the files can be recorded flat with increased dynamic range. This is where Sony scores over other manufacturers like Canon and Panasonic. Canon only provides C-Log in the Cinema cameras and not in DSLRs or Mirroless cameras. Panasonic provides the V-Log only as a paid option.

Construction: Magnesium alloy body and the shutter is rated upto 200000 release cycles.

Price: $1400 US Dollars

It is hoped that the A6500 model would have solved the overheating problem of the A6300 model. If so, then this can act as a reasonably priced entry level 4K camera for the videographers as well as a competent still photography camera.

Buy: ***https://www.bhphotovideo.com/c/product/1289585-REG/sony_alpha_a6500_mirrorless_digital.html/BI/19990/KBID/13252***

PRESS RELEASE

Sony Introduces New α6500 Camera with Exceptional All-Around Performance

Sony Electronics - 10/06/2016

NEW YORK, Oct. 6, 2016 /PRNewswire/ -- Sony Electronics, a worldwide leader in digital imaging and the world's largest image sensor manufacturer, has today introduced their new flagship APS-C sensor camera, the α6500 (model ILCE-6500).

As the latest addition to Sony's lineup of award winning mirrorless cameras, the new α6500 shares the same unrivaled 4D FOCUS™ system as the α6300 camera, which can lock focus on a subject in as little as 0.05 seconds, the world's fastest[1] AF acquisition time. Also shared with the α6300, the new α6500 features 425 phase detection AF points that are densely positioned over nearly the entire image area – the world's highest[2] number of AF points on any interchangeable lens camera. The new model can shoot images at up to 11 frames per second with continuous autofocus and exposure tracking and

up to 8 frames per second in a live-view shooting mode that makes it easy to track fast moving subjects, as it combines all of the benefits of an electronic viewfinder with the immediacy of an optical viewfinder.

The camera can shoot at these high speeds for up to 307 frames[3] thanks to its expanded buffer, which, along with the fast response speeds described above, are all achieved with the support of a new front-end LSI chip that has been added to the camera. This new front-end LSI also serves to enhance both still and video image quality.

Additionally, the new α6500 features Sony's acclaimed in-camera 5-axis optical image stabilization, making it the first Sony APS-C sensor camera to offer all of the benefits of advanced in-body stabilization, which include a shutter speed advantage of approximately 5 steps[4]. It also offers touchscreen AF capabilities for focus point selection and adjustment.

"We are continuing to push the boundaries of modern innovation in digital imaging, in particular within the mirrorless space," said Neal Manowitz, Vice President of Digital Imaging at Sony Electronics. "By equipping the α6500 with 5-axis image stabilization and touchscreen AF, we're offering photographers and videographers more control than ever before and a seemingly endless amount of creative possibilities. As our flagship APS-C camera, it far exceeds the performance threshold of any camera in its class, and many above its class as well."

Unmatched AF Capability

Sony's new α6500 camera utilizes the same 4D FOCUS system as the α6300 – a Fast Hybrid AF system that combines high-speed phase detection AF with extremely accurate contrast AF and allows it to capture and lock on to moving subjects in as little as 0.05 seconds[1]. It also features 425 phase detection AF points and High-density Tracking AF Technology, which significantly improves subject detection and tracking performance.

New for the α6500, thanks to faster internal processing capabilities enabled by the front-end LSI, the maximum buffer for high-speed continuous shooting is an impressive 307 frames[3], greatly increasing the chances to catch that decisive moment.

The camera's 425 phase detection AF points, focusing tracking and accuracy are also available when using non-native A-mount lenses[5] with Sony's LA-EA3 mount adapter. Additionally, it includes silent shooting, Eye AF in AF-C mode, AF in focus magnifier modes, Expand Flexible Spot AF and more.

5-axis Image Stabilization Provides 5 Steps Shutter Speed Advantage

One of the most exciting developments in the new α6500 is the implementation of 5-axis image stabilization for the first time in a Sony APS-C sensor camera. Additionally, through a total revision of the internal design of the camera, this newly developed stabilization system fits entirely within a body that is nearly the same size as the α6300 model[6]. This innovative 5-axis system provides a shutter speed advantage of 5 steps[4], ensuring the full resolving power of the sensor can be realized, even in challenging lighting.

The shake compensation provided by the system works with a variety of lenses, including E-mount lenses without OSS

Equipment Discussions -

(Optical SteadyShot) stabilization and A-mount lenses[7] when used with a compatible mount adapter. When an E-mount lens with OSS is mounted, pitch and yaw are compensated in the lens and horizontal, vertical and roll axes are compensated in the camera body, resulting in optimal 5-axis stabilization [7].

Also, with a simple half press of the shutter button, the effect of the image stabilization can be monitored in the viewfinder or on the LCD screen, allowing framing and focus to be accurately checked and continually monitored. This is available even when a lens is attached that does not have built-in shake compensation.

New Touch Screen Focusing

The new α6500 comes equipped with touch screen functionality, allowing users to lock focus on a subject simply by touching it on the screen. This is a powerful compliment to its advanced AF system and video shooting capabilities.

Additionally, in a first for Sony cameras, the α6500 features touchpad functionality. When utilizing the viewfinder for framing and shooting, the LCD screen can be used as a touch pad. Simply drag a finger across the screen to shift the focus point from one area to another.

Powerful 24.2 MP[8] Exmor CMOS Sensor, BIONZ X® Processor and New Front-End LSI

The new α6500 features an APS-C sized 24.2 MP[8] Exmor CMOS sensor that works together with a BIONZ X image processor and the newly developed front-end LSI to maximize processing power and achieve an impressive sensitivity range of ISO 100-51200[9].

The image sensor employs a thin wiring layer and large photodiode substrate that maximizes light collection efficiency, plus copper wiring in its structure for outstanding read-out speed. The BIONZ X image processor and newly developed front-end LSI ensure superior image and video quality with low noise even when using higher ISO settings, in particular those at high sensitivity values where other cameras typically struggle. The LSI is also responsible for the expanded buffer depth for continuous shooting.

Professional Video Capabilities

The new α6500 becomes the latest Sony interchangeable lens camera to offer internal 4K movie recording, as it can shoot 4K (3840x2160p) video in the popular Super 35mm format on the full width of the image sensor. When shooting in this format, the camera uses full pixel readout without pixel binning to collect 6K of information – approximately 2.4x[10] (20 MP equivalent) as many pixels as 4K UHD and then oversamples the information to produce high quality 4K footage with exceptional detail and depth.

Additionally, the α6500 will focus exceptionally fast during movie shooting thanks to its Fast Hybrid AF system, offers

touch focusing for professionally smooth focus shifts, while also offering adjustable AF transition speed and AF tracking sensitivity. The camera supports the XAVC S codec[11] during video shooting, which records at a high bit rate of up to 100 Mbps during 4K recording and 50 Mbps during Full HD shooting, ensuring maximum detail and clarity in both video formats.

Other professional caliber video features include the ability to record Full HD at 120 fps at up to 100 Mbps, which allows footage to be reviewed and eventually edited into 4x or 5x slow motion video files in Full HD (24p) resolution with AF tracking.

New on the α6500 is the incorporation of a 'Slow and Quick' (S&Q) mode that supports both slow motion and quick motion. In this mode, frame rates from 1 fps to 120 fps can be selected in 8 steps for up to 60x quick motion and 5x slow motion recording[12]. Footage shot in this mode can be previewed after shooting without the need for PC-based post processing.

The camera also offers S-Log gamma recording[13] for wide dynamic range shooting – approximately 14-stop latitude in S-Log3 gamma setting – and supports S-Gamut for a wider color space. Both options allow for greater creativity for processing video post-production.

Shooters also now have the ability to select, extract and save still images from movie footage directly on the camera. Approximately 8 MP images and 2 MP images can be pulled from 4K modes and Full HD modes, respectively.

Enhanced Operability and Reliability

The new α6500 has a refined design, maintaining the mobility of the α6000 series while adapting much of the usability of Sony's acclaimed α7 II series. The new model features the same high contrast, high-resolution 2.4 million dot XGA OLED Tru-Finder as the α6300 that offers exceptional corner-to-corner visibility.

New hardware features on the α6500 include a magnesium alloy body and a high-durability shutter with a tested life span of approximately 200,000 release cycles[14]. It also has several design features that are borrowed from the α7 II series of full-frame cameras, which include a robust lens mount, a recessed grip to improve handling, a larger release button and ten total custom buttons including 'C1', 'C2' and 'C3'. It also has an improved operation feel for its mode and control dials and rear face buttons, as well as a softer eyepiece cup for more comfortable usage.

On the software front, there is a new overall user interface, which allows for a much smoother process for searching and adjusting menu settings, as well two new metering modes – Highlight, where exposure metering is focused on the brightest area of the frame, and Entire Screen Avg, which maintains an average metering for the entire image.

The camera is Wi-Fi®, QR and NFC compatible and fully compatible with Sony's PlayMemories Mobile™ applications[15] available for Android™ and iOS platforms, as well as Sony's growing range of PlayMemories Camera Apps™. The α6500 also offers location data acquisition via a Bluetooth[16] connection to a compatible mobile device and an updated menu structure to deliver a smoother navigational experience.

Pricing and Availability

The Sony α6500 interchangeable lens camera will ship this November for about $1,400 US and $1,750 CA. It will be sold at a variety of Sony authorized dealers throughout North America.

There is also a new genuine leather body case (model LCS-EBG) that will ship in November and a new eyepiece cup (model FDA-EP17) that will be launched at a later date.

Equipment Discussions -

Sandisk unveils 1TB SDXC card

Sandisk, a part of Western Digital, has unveiled a massive 1TB SDXC card. This card is in the prototype stage and when launched can come in handy for the high resolution video captures. At the moment the 4K videos eat up cards fast and when one shoots slow motion in 4K, the file size gets a big jump. Moving to 8K in the near future will further push the demands for higher capacity capture cards. This 1TB SDXC card promises to solve those problems.

Sandisk had shown a 512 GB card in 2014 at the Photokina show. Doubling of that capacity within two years shows how fast this company's technology is progressing. As of now, this 1TB SDXC Card appears to be a technology demonstrator and there is no information about when this card will be in production or what would be the tentative pricing when it would be available. Nevertheless, recording 1TB in such a small form factor would be a massive help. Camera manufacturers would be keenly observing this pace of growth as a small form factor can be a big boon in designing as it would free up lot of space and the design can become ergonomic.

Following is the Press Release from Sandisk:

SEP 20, 2016

COMPANY GIVES PHOTOGRAPHY AND VIDEOGRAPHY INDUSTRY A PREVIEW OF FUTURE SANDISK IMAGING TECHNOLOGY

PHOTOKINA, COLOGNE, GERMANY, Sept. 20, 2016 – Western Digital Corporation (NASDAQ: WDC), a global storage technology and solutions leader, today unveiled its SanDisk® 1TB terabyte (TB) SDXC™ card prototype at the world's leading trade fair for photo and video professionals. With increasing demand for high resolution content, such as 4K and 8K, the company continues to push the boundaries of technology with solutions that support the exponential growth of data -intensive production demands.

“Showcasing the most advanced imaging technologies is truly exciting for us,” said Dinesh Bahal, vice president, product management, Content Solutions Business Unit, Western Digital. “Sixteen years ago we introduced the first SanDisk 64MB SD™ card and today we are enabling capacities of 1TB. Over the years our goal has remained the same; continue to innovate and set the pace for the imaging industry. The SanDisk 1TB SD card prototype represents another significant achievement as growth of high-resolution content and capacity-intensive applications such as virtual reality, video surveillance and 360 video, are progressing at astounding rates.”

Since the introduction of the record-breaking 512GB SanDisk Extreme PRO® SDXC UHS-I Memory Card at Photokina 2014, Western Digital has proven it can nearly double the capacity in the same SD card form factor using proprietary technology. Higher capacity cards expand the possibilities for professional videographers and photographers, giving them even greater ability to create more of the highest quality content, without the interruption of changing cards.

“Just a few short years ago the idea of a 1TB capacity point in an SD card seemed so futuristic – it’s amazing that we’re now at the point where it’s becoming a reality. With the growing demand for applications like VR, we can certainly use 1TB when we’re out shooting continuous high-quality video. High-capacity cards allow us to capture more without interruption, streamlining our workflow, and eliminating the worry that we may miss a moment because we have to stop to swap out cards,” said Sam Nicholson, CEO of Stargate Studios and member of the American Society of Cinematographers.

Equipment Discussions -

Nikon Launches KeyMission 360 action camera

Nikon has launched a series of Action cameras and has energized this segment. The KeyMission 360 is a 360° camera to capture immersive photos and videos. It has two lenses in the front and back each capturing 180°. The internal software will stitch the two to create one seamless video. These 360° videos can be viewed in youtube as well as VR goggles.

This camera has got two ½.3 inch CMOS sensors with 21.4 Megapixels. ISO sensitivity ranges from ISO 100 to ISO 1600.

The Nikon KeyMission 360° is a small camera and is 2.6 inch wide, 2.5 inch tall and 2.4 inch in breadth and weighs 198 grams.

This camera is rugged and is waterproof upto 100 feet. It doesn't need any additional housing for making it waterproof, so underwater recordings are expected to be better. There is however an additional lens protection cover that can be fitted when the camera is taken underwater. It helps in better focusing the lens under water. As a comparison, one can state that the recently launched Go Pro Hero 5 Black, which is not a 360° camera but a normal action camera, is waterproof upto 33 feet, whereas the Nikon KeyMission 360° is waterproof upto 98 feet. Nikon shows its pedigree here. This camera is also freeze proof upto 14 degree Fahrenheit or -10 degree centigrade.

The Nikon KeyMission 360° camera is shockproof and can be dropped without any problem from a height of 6.6 feet. It is

also fully dustpoof and hence will be a big help in our incredibly dusty country. The camera has glass lenses and consist of 7 elements in seven groups. The minimum focusing distance is 12 inches.

The Nikon KeyMission 360° captures 23.9 MP still images as well as UHD video (2840x2160) at 24p. Wish it had a 25p mode for PAL countries. There are other video modes like Full HD (1920x1080) at 24p, 1440x960 24/25p. A camera which is capable of UHD capture at 24p should be technically capable of shooting Full HD at 25p. So it sounds a bit weird. Nevertheless, I hope, Nikon cares about users in PAL countries like India and comes with a firmware update later to include 25p mode in UHD and also in Full HD modes. Else, a vast user base in PAL countries may skip it.

In the Full HD mode, there is a vibration reduction done electronically. For handheld videos it may prove to be useful. However, how its efficacy can be seen in physical testing.

Nikon has created apps for connecting with android and iOS platforms. There is a Micro HDMI output and Micro-USB 2.0 interface. Whether this camera can actually output UHD videos through the Micro HDMI port needs to be seen. The images and videos are recorded to Micro SD cards.

According to Nikon the sensors in Nikon KeyMission 360° has 21.4 MP resolution and it can record 23.9 MP still image. We are yet to ascertain how it is achieved. One can connect to WiFi and Bluetooth.

The Nikon KeyMission 360° is **priced at $496.95 US Dollars.**

B&H Link: ***http://www.bhphotovideo.com/c/buy/Nikon_KeyMission_360___/Ntt/Nikon%2BKeyMission%2B360%25C2%25B0%2B/N/0/kw/search/BI/19990/KBID/13252/DFF/d10-v1-t12***

Equipment Discussions -

Nikon launches KeyMission 170 Ultra HD 4K Action Camera

Nikon has also launched a KeyMission 170 camera which is a 4K action camera. It captures 170° view in upto ultra HD (3840x2160) at 25/30 fps. Full HD can be captured in slow motion at 100/120 fps.

This camera is waterproof upto 33 feet like the Go Pro Hero 5 action cameras. Shockproof upto 6.6 feet as well as dustproof.

Digital image stabilization is available in HD and below resolutions. The free Nikon app can help connect to iOS and android devices for playback and control.

There is a small 1.5 inch LCD at the back and it will help in framing as well as playback. According to Nikon the battery will last for 110 minutes of video. So if you are action freak, then you may need to have couple of batteries each costing $24.49 US dollars. One battery will last for one hour under water and will also alternately help in capturing 250 still shots before

running out.

There is built-in WiFi and Bluetooth, HDMI output and USB 2.0 interface. There is one micro SD card slot.

The lens is made of glass and has an aperture of f2.8 and has a minimum focusing distance of 16 inch. In terms of 35 mm equivalent, the lens is 15mm.

The Camera has ISO sensitivity from ISO 100 to ISO 1600.

Price: **$396.95 US Dollars**

B&H Link: ***http://www.bhphotovideo.com/c/buy/Nikon_KeyMission_170___/Ntt/Nikon%2BKeyMission%2B170%25C2%25B0%2B/N/0/kw/search/BI/19990/KBID/13252/DFF/d10-v1-t12***

Natural History -

COUNTRY NOTEBOOK: M. Krishnan: 'A MIDDAY CHORUS'

The Sunday Statesman: 10-June-1962 (shared by Shri. Saktipada Panigrahi)

A MIDDAY CHORUS

"ABOUT one o' clock it came on to rain. It began gradually and mildly, with a great pearl-grey cloud spreading itself across the sky, rendering the midday light wonderfully soft and clear. There was a refreshing coolness in the air, but no palpable breeze. In fact, it was as if the hot, sweltering jungle has been magically air-conditioned and furnished with diffused artificial illumination and a mother-of-pearl ceiling.

I was lying on my back in sandy riverbed, in a shade tall tree. I had gone to sleep dog-tired and feeling ill, and woken only minutes later to find the sky and air and jungle transformed, and euphoria in me. Almost a hundred feet above me was the top of a giant clump of bamboo leaning over the nullah; a pair of GREY DRONGOs was perched on that swaying bamboo-top and all at once they burst into song -- a series of trilling, wildly sweet calls.

IMMEDIATELY, as if this was the signal for which the other birds had been waiting, a medley of the musical bird voices filled the air. It was a chorus such as I have never heard before -- and I have heard the exhilarating chorus of WHITE-BELLIED DRONGOs in the cold greyness before dawn, the RACKET-TAILED DRONGO's ecstatic song to the rising sun, the welling rhapsody of the SHAMA at the dusk in the bamboo jungle and many mixed dawn-choruses, but this was something different, differently compound.

White Rumped Shama Image Courtesy - Shyamala Kumar

A TREE-PIE, nearby, joined in with almost-chimed metallic calls, varied from time to time with its familiar " ting-a-'ling "; the loud melody of a party of HILL-MYNAHs came through clearly, and nearer at hand some other DRONGOs (probably White-bellied) were singing; the cadenced "broken pekoe" of the INDIAN CUCKOO, a call that I love, was so pleasantly re-

Natural History -

peated from behind the bamboo clump, and less musical voices, the distant screams of PARAKEETs, the jabber of JUNGLE MYNAHs and even the faintly heard axle-crack call of a SERPENT EAGLE circling high overhead somehow did not seem out of place in that chorus. And dominating everything was the insistent, never-ending "papiha, papiha, papiha!" of the HAWK-CUCKOO -- the bird was some distance away, but its call cuts through distances effortlessly and has a peculiar penetration gets through nearer bird voices.

A great black woodpecker almost the size of a crow (this was the MALABAR GREAT BLACK WOODPECKER) was hammering away a dead limb of the tree above me, providing the throbbing drum accompaniment to the many-voiced chorus. The hammering of this bird is sustained over a length of one -and-a-half to two seconds, and I have often timed it with a stop-watch. I have often tried to count the number of evenly-spaced bill strokes within this period, but never was able to get a precise count. There were from 15-20 "beats" in each long-drawn throb of hammering. Since these were evenly spaced, each impact and interval must be about 1/20 of a second long. I had thought it would be much shorter.

The chorus was sustained and continuous and ended as suddenly as it began. I heard the mahout and his assistant summoning the elephant, browsing at a nearby clump of bamboo, just before the Drongos burst into song, and since it takes about 15 minutes to get a reluctant elephant to abandon its lunch and lie down, lay the pad on its back and tie it down securely, probably the chorus extended over that space of time. A lazy drizzle arrived with the elephant, and gradually the rain gathered momentum. The bird voices were stilled the minute the drizzle grew brisk.

We reached the shelter of a permanent observation platform just as the rain came down in earnest. For two hours, it rained heavily without a break, the long, vertical streaks of water coming down relentlessly all around us. Visibility was very poor, and no sound came through the dreary noise of the rain. But when the rain stopped abruptly and the sky began to clear, I saw a curious sight.

There was a great mango tree close by, and two HILL-MYNAH were practising a remarkable exercise right at the top of its towering bole. There were some holes in the wood high up in the tree, and when I saw them first, through the slackening rain, the birds were sitting in these holes, ruffled up and sheltered from the downpour.

Then they came out, and clinging to the bark with their claws, slithered down a few yards and then climbed up the bole again using both feet and violently flapped wings to propel them: then they slithered down again and flapped their way up once more. I thought that there was a definite purpose in this game to dry the flight feathers before the birds dared to take wings again. They flew away after five minutes to another tall tree, where they went through the exercise again, thrice of four times, and they flew away for good."

-M. Krishnan
This was published on 10 June 1962 in The Sunday Statesman

Natural History -

Food collecting behavior of dung beetles (the rollers)

By Arun Acharjee

Dung beetle has fascinated humans for thousands of years- including the Egyptians who incorrectly believed that the beetles reproduced only from the males. But their observation that the beetles' ball rolling is influenced by the sun is accurate and could be the first recorded accounts of animal behavior. [1]

My experience on these two beetles from Scarabaeinae subfamily under the family Scarabaeidae shows no exception to the behavior studied approximately 5,500 years ago. Almost, all the beetles under this particular subfamily are known to feed on dung and thereby collectively called Dung Beetles. A layman may consider this practice of carrying dung as a dirty and vulgar habit, and seek reasons for such behaviour. However, one should remember that in nature nothing goes waste. The waste of one species may become food and/or shelter for another. There is a continuous recycling of nutrients and these tiny dung beetles play an ecologically important role.

When one tries to understand a bit more about these tiny creatures, one is bound to find many astounding facts.

Dung beetles like feeding more on dung of the herbivorous animals than that of the carnivorous animals because generally the excreta of herbivores is fertile with many undigested ingredients, which would appease the hunger of these creatures [4].

From my personal experience I find rabbits feeding on their own excreta directly from/out of their anus. Though the excrements of the omnivores may be more palatable [4].

Not all the members of Scarabaeinae use to roll their food items. A great number of them use to make tunnel directly beneath the dung source and make their nest underground (called the 'Tunnelers') and some of them like the dung source as its residence (called the 'Dwellers').

The following image shows another kind of dung beetle whose common English name is influenced with their food collecting behavior of rolling dung ('food' from their perspective) to their favorite place; these are the 'Rollers'.

Natural History -

A cursory observation of their habit is bound to evoke admiration for the way in which these tiny creatures understand the laws of physics and create spherical balls out of the dung so that it can roll and require considerable less effort to transport the dung. During our student life, many of us would have read how the people in ancient days discovered that a round stone falls fast and deep than the ones that are not round in shape or of the fact that the lessons from watching of round logs rolling from hilltop resulted in invention of wheels, which in turn led the civilization many steps ahead towards modernization.

If we take these beetles activity in account from their appearance in this planet (though many anatomical and behavioral changes would have followed) it might be possible that human beings may have studied the food rolling behaviour of dung beetles as a practical instance of the benefits of round shape and may have used the knowledge in inventing wheels, which dates back almost to the very late Neolithic age[3], to 3500 BC, whereas the evolution of dung beetles occurs at about 115 to 130 million years ago in the Lower Cretaceous period[2].

This is not the only similarity found between these rollers and the human beings. Carrying a huge dung ball is not always an easy task. To decrease labor, alike giving it a round shape, they also follow an almost straight line from the source of the dung to their favorite place and thereby travel the shortest possible distance. To measure the distance by a planned map or straight line is not an easy work for such little fellows. To ensure it, as the ancient Egyptians discovered, they study celestial bodies like as the sun (in day) and the moon (at night) and make them their compasses. Even some of them use Milky Way in doing so [1].

I found them midway and the process of rolling or transportation last roughly for just forty seconds within which they covered approximately eighty centimeters of distance. At the near end of their destination they lifted the ball against a plant-part. For carrying out their work ie. making a ball of dung, which is sometimes heavier than their own weight, rolling the dung ball and lifting, they have evolved strong legs.

During my observation, first I found them comparatively on a fresh and clean ground rolling their ball. Almost in one second they had covered a distance of approximately two centimeters.

They are lifting the ball against a plant-part. They were just busy in reaching their targeted area and to do that in possible short time and they didn't appear to look for an alternative way to reach that place.

Natural History -

However, in this case there was no other alternative way to reach the spot. So it may be said that they were well aware about the topology of that place.

Having reached their favorite destination, I found one of them immediately became busy, without taking a bit of rest, in making a tunnel from the surface of the land. Its hurriedness surely indicates its stamina level and dedication for duty. Meanwhile, another one was taking care of the ball by clasping it from the beginning to the end of the process of digging the tunnel. When it was done both of them helped the ball went therein.

Start digging the tunnel in a hurry. Another one is guarding the ball.

The beetle was lifting the loose mud upwards to make a clean tunnel. The job of digging was not complete still then.

Natural History -

The tunnel was almost done. The beetle was nearly disappearing in that empty tunnel. Another one was still guarding the ball.

When the job of digging was complete it came out of that and both of them helped the ball went into the tunnel.

Natural History -

That beetle which dug up the tunnel remained inside the tunnel while that one who was once guarding the ball tried to push the ball into the tunnel from different angles. The beetle inside the tunnel may be trying to make the passage smooth, however, I have no way of knowing it.

The beetle that remained always out of the tunnel was then at a little distance when the dung ball is almost set to the tunnel. Another one remained into the tunnel.

The location for the burying of the dung is significant too. When I first discovered them they were driving their ball on a relatively clean land. They carried that to a place where one could find grasses, leaves etc. Studying from a common man's perspective I think that is for securing their possession from any unexpected threat. They are also known for laying eggs on/into the collected dung. Sometimes, the male alone carries the dung, buries that and comes back to the opening of the tunnel to make pheromone signal to the nearby female for mating and laying eggs therein [1]. So, the security angle behind the choice of the location cannot be ruled out, as every species on this planet earth is concerned about the security of their future generations.

I neither know the sex(es) of these dung beetles I found in the field nor all the reasons behind their actions. However, after watching them I find they possess a good many number of attributes to influence a common man like me.

Special thanks to:
Surajit Bhadra Roy and Samrat Sarkar to inspire me to write this, and few internet sources to provide additional information.

Sources of additional information (links):

[1] http://theconversation.com/five-things-dung-beetles-do-with-a-piece-of-poo-47367
[2] http://phys.org/news/2016-05-evidence-dung-beetle-evolution-dinosaurs.html
[3] https://en.m.wikipedia.org/wiki/Wheel
[4] http://insects.about.com/od/beetles/a/10-Fascinating-Facts-About-Dung-Beetles.htm

Natural History -

Dust bath of a Bengal Bushlark (*Mirafra assamica*)

By Samrat Sarkar

Generally, birds engage in dust bath as-

1. The dust bath is an important part for the day to day maintenance of their feathers.

2. Dust absorbs the excessive preen oil from the feathers. Dust also helps to make loose dry skins and other foreign materials and let them get out at the time of preening.

3. Getting rid of additional preen oil helps the feathers from becoming too much oily and they remain fit for flying. It also helps the body temperature remain balanced.

4. The feathers remain free from parasites like mites, lice and so on.

This Bengal Bushlark was discovered having its dust bath just beside a man-made narrow footpath in the field. It was not very far from my house. A cursory glance by an amateur may give an erroneous impression that the bird is injured and wincing in pain.

The main challenge in documenting this behaviour is in choosing a suitable position for my camera without disturbing it. One needs to be ready within the range of a telephoto lens and capture it because this dust bath only lasts for five to six minutes.

Natural History -

In that place there were plenty of naturally stored rain water here and there in the ploughed field. Some other birds are often found having their bath there. But I never before came across a Bengal Bushlark bathing there. Although it was an amazing experience to witness their dust bath.

The main challenge to a bird during dust bath is to drench the whole body parts with dust. For that the main trick is to flap the wings rapidly into the dust.

Natural History -

For different parts of their body they practice different skills. Like for the throat and lower bill they lie and rub those parts very hard in the dust.

For upper-head they make that portion rub directly there supporting their back against dust.

Natural History -

Though they never forget to look around to secure themselves from any unpredictable or sudden threat.

Sometimes, they scratch the dry ground with their tough nails to make the dust loose.

Natural History -

Even, using their end of tail they make the dust move on their back to ensure complete dust bath for the upper-back feathers.

Wildlife Photography -

Indian Treeshrew by Subhash Shrivastava

Malabar Whistling Thrush by Shyamala Kumar

Wildlife Photography -

Yellow footed green Pegion by Mangru Minz

White eyed Gull by Abhishek Jamalabad

Wildlife Photography -

Eurasian Cuckoo by Sandipan Ghosh

Central Stripe Frog by Prajwal Ullal

Wildlife Photography -

Painted-Grasshopper and its Molt by Anil Kumar Verma

Lobster moth Caterpillar by Prajwal Ullal

Wildlife Photography -

Spines by Arun Acharjee

Blister Beetle by Dheerendra Singh

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 you user id and/or password you can mail administrator@indiawilds.com

Regards,
Sabyasachi Patra

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