

About time for a system update for Indian zoos?

While growing up most of us would have visited zoos, either with family during holidays or from school as a field trip. We went to zoos in the hope to see tigers roar, peacocks dance and monkeys swing from one tree branch to another, but many of us would have seen the animals in distress or other tourists teasing them. The state of most zoos in India is just as disheartening today as it was many years ago. This goes to show that the existing model is not working.

While comparing the Indian zoos to other international zoos we see there is tremendous scope for improvement. In India we need a new way to manage zoos in order to move forward, if something hasn't worked for 30 years, don't you think it's about time to change it? Perhaps, introducing some ways in which multinational corporations work could help in better zoo management.

Did you ever wonder how a multinational corporation has business running across the globe, day after day, and manages thousands of employees to get their work done on a timely basis? Well, they are able to get things done in a timely manner because the management system they use makes each individual at every level of the hierarchy accountable for their own work. To ensure every individual is accountable, the work one does will be checked by another person, and theirs by another, and this cycle goes up to all levels in the organization. And because

there is a check at every level there is no alternative, but to get the work done correctly and on time.

The intention is to see if some of the findings by CAG on compliance audit of the zoos under the Zoo Association of Karnataka can be resolved with controls and checks similar to ones in a corporate. We understand that a zoo is a place for education, conservation and recreation, so a full-fledged corporate system will not work, but the idea is to see if the non-negotiables can be met through the implementation of some controls and solutions similar to a corporate model.

Method:

Analysis of Chapter II Compliance Audit ¹, pages 7–26 (pages 30–49 in pdf)¹. The audit objective of that compliance audit was to assess whether the nine zoos under Zoo Authority of Karnataka (ZAK) were functioning as per the provisions of the Act, Rules, guidelines and circulars issued for achieving their objective of ex-situ conservation, animals and their welfare, research, education, and visitor management.

The CAG compliance audit report provides baseline information of the current conditions

¹ In: Report of Comptroller and Auditor General of India on Economic and Revenue Sectors for the year ended March 2019, Government of Karnataka, Report No.4 of the year 2020 accessed on 15 October 2021.
[https://cag.gov.in/uploads/download_audit_report/2020/Audit%20Report%20\(E&RSA\)-2018-19%20\(English\)-05fd715a-fe7edb0.27080904.pdf](https://cag.gov.in/uploads/download_audit_report/2020/Audit%20Report%20(E&RSA)-2018-19%20(English)-05fd715a-fe7edb0.27080904.pdf)

and limitations of the existing zoos in Karnataka. Through the analysis of CAG report we suggest using a few principles from the corporate model to improve the current state of affairs in Indian zoos.

Key Findings from the Compliance Audit report:

1. Recognition of zoos and their renewal by Central Zoo Authority (CZA)

Every zoo in the country is required to obtain recognition from CZA under Section 38H of the Wild Life (Protection) Act, 1972 (Act) for its operation. Some of the zoos in Karnataka have lost their recognition because of the following reasons:

- I. They were suspended because they failed to provide a full-time officer-in-charge, failed to remove domestic animals, housed rescued animals, housed single animals etc.
- II. Certain other zoos in Karnataka were operational without being recognized by CZA.

2. Planning and Development

A. Approval of Master Plan

As per Recognition of Zoo Rules (RZR), 2009, the recognized zoos had to prepare a Master Plan of the zoo for its long-term development on scientific lines and it should have been approved by CZA within one year from the date of commencement of the rules. The Master Plan is prepared for a period of 20 years with a provision for revision after 10 years.

As of March 2020, the approved Master Plan was not in place for six zoos under ZAK. The

CAG noted that this indicated ineffective monitoring, both by CZA and ZAK, as without an approved Master Plan, the zoos would lack the strategic focus to make their operations more efficient.

B. Management Plans

CAG's scrutiny showed that the planned works could not be taken up due to short release of funds by Government. The shortfall in expenditure mainly pertains to veterinary care and development works.

a. Zoos had planned to spend ₹ 92.54 crore on **development works** but only spent ₹ 61.22 crore, a shortfall of ₹ 31.32 crore (33.84%). They therefore could not achieve their planned development goals. Consequently, the development works as per approved Master Plans could not be taken up by the zoos.

b. Animals are the heart of any zoo and hence having proper health care facilities is of great importance. However, due to lack of budgetary support during the period 2014–15 to 2018–19, compared to ₹ 11.40 crore planned, only ₹ 5.16 crore was spent towards veterinary care indicating a shortfall to an extent of ₹ 6.24 crore (54.73 per cent). This had a negative impact on animal health, further details on this will be listed under the section '**Veterinary Infrastructure and Animal health**'.

CAG noted that increased financial assistance from the government was necessary to take up development works envisaged in the Master Plan, otherwise the Master Plan could become redundant.

3. Animal Upkeep

- a. The CAG report records the improper management of animal upkeep in many zoos in Karnataka.
- b. According to the report, more than one zoo had not prepared a Master Plan. The lack of a Master Plan prevents zoos from bringing in new animal species which in turn affects their ability to attract crowds, donations, adoption programs, gate collections, etc.
- c. Though the CZA norms clearly prescribe the optimum number of individuals for different species, multiple zoos were observed to violate these guidelines. For example, they found 43 stone tortoises in one of the zoos and 173 star tortoises in another zoos, which is against the recommended 20 individuals per species as per the Collection Plan. Keeping more than optimum number of individuals not only disregards CZA guidelines but leads to population explosion, inbreeding and its adverse consequences, and increased expenses.
- d. The total number of herbivores in six zoos was 619 which included 354 spotted deer (in six zoos) and 201 black bucks (in five zoos) among other herbivores. As all the zoos have one enclosure for each species and considering the optimum capacity of 20 animals per enclosure, there was surplus of 234 spotted deer **(195 per cent over optimum capacity)** and 101 black bucks **(100 per cent over optimum capacity)**.
- e. The RZR (Recognition of Zoo Rules) 2009, advocates against keeping single/ mono-sex individual animals for more than six months but the audit indicates that zoos have kept single/mono-sex animals for more than 30 species as long as one to five years.

4. Breeding and Rescue Centre

- a. The CZA has prioritized 23 critically endangered animal species for a coordinated breeding program in Indian zoos that will act as insurance for the future. One of the animal species identified for this program is the Indian Gaur. The zoo responsible for the program spent ₹ 2.13 crore for a Gaur Breeding Enclosure where one male and one female were introduced. But due to the death of the male Gaur the program came to a standstill. No record was provided for not identifying alternatives, rendering the ambitious but expensive project unfruitful.
- b. CZA Guidelines mandate that animal keepers should be screened for zoonotic diseases annually. Similarly, animals also need to be screened to make sure that they were not infected by any diseases. However, the audit did not observe any screening being conducted in one of the rescue centers.

5. Animal welfare

Existing animal enclosures- Exhibition areas and other issues.

RZR, 2009 and CZA provides guidelines for designing enclosures for the animals. Of the nine zoos audited, only two zoos conformed to the advised parameters.

Some of the flaws observed were: inadequate screening between adjacent enclosures, not limiting viewing area which makes animal enclosures susceptible to vandalism, granite/ cement flooring which causes inflammation, swelling of foot/pad and can possibly in the long run cause conditions like Pododermatitis (Bumblefoot) etc.

6. Feed and Fodder

The RZR advocates for a timely supply of food that meets nutritional and behavioral requirements of each animal. The audit examination found gross violation of the RZR guidelines in terms of procurement of feed and fodder. In three of the zoos chicken procurements exceeded the requirement by 250% to 274% which led to extra expenditure of ₹ 48 lakhs.

Along with mis-procurement of food the zoos were observed to not follow the dietary charts. Food items like oats, honey, sweet potato, soya bean meal were not procured at all, while food items like minced meat, fish, wheat, etc. that were not mentioned in the dietary charts were procured. The cost of such unrequired food items amounted to ₹ 66.48 lakhs for three zoos.

7. Zoo enrichment

Zoo enrichment is nothing but the behaviour enrichment where the species exhibit their natural behaviour within the enclosures along with other challenges. Zoo enrichment is important to reduce the stress of the animals in captive conditions hence there are two types of enrichment which are **habitat enrichment** and **food enrichment**. To implement these enrichment activities, biologists play a vital role and the allocation with the expenditure to make sure of execution of these activities.

The habitat enrichment is by providing animals with wooden logs, rocks and boulders for resting/hiding and also for natural movements in the enclosure.

Feeding enrichment is to delay the feeding time by hiding the food in tree logs or boxes and spilling over the food in the open enclosure. This stimulates their natural instincts such as smelling, digging, searching abilities, etc. This in-turn reduces the “stress” levels of animals, thereby promoting their health and increasing reproduction due to increased well-being.

Zoo enrichment being one of the key management issues but the welfare of the captive wild animals, only few zoos had put in place some enrichment activities for few species.

8. Veterinary infrastructure and animal health

As per RZR guidelines, all zoos, except mini zoos, should have a separate Veterinary hospital with all equipment including an operation theatre and an observation room. Mini zoos should at least have a treatment room. Further, it was stipulated that all zoos should also have feed store, basic monitoring equipment (stethoscope, digital thermometer, etc.), post mortem set, emergency first aid kit for animals and humans, medicine/ anesthesia kit, cold storage for keeping emergency medicines, animal history card, emergency medicines like anesthesia and anti-venom, etc.

Further, the Guidelines for Establishment and Scientific Management of Zoos prescribe that every zoo should have a Health Advisory Committee (HAC) to establish networks with relevant local institutions to help /guide zoo staff in proper upkeep and

healthcare of animals. In addition, CZA in its communication issued in May 2017 had advised that a State Level Health Advisory Committee for zoos be created for the state on priority.

However, it was observed that the State Level Health Advisory Committee was not formed and only three zoos had HACs.

8.1 Scanning for zoonotic diseases

RZR 2009 guidelines provides that “All staff involved with upkeep and healthcare of zoo animals shall be screened against zoonotic diseases once every year and those found positive to any communicable disease shall be provided appropriate treatment till they get cured and freed of the infection. During the period of such treatment, the infected employees shall be kept away from the responsibility of upkeep and healthcare of the animals”.

Incidentally a sloth bear died of TB in the zoo during the year 2017–18. Since it is a known fact that bears get infected with TB from humans, its death due to a possible spread of TB from one of the keepers cannot be ruled out.

9. Research and Education

9.1 Research at large zoos

Every zoo shall endeavour to carry out collaborative research for evolving innovative strategies for providing the animals housed in the zoo a better quality of life, enhanced longevity, higher genetic and behavioural viability and improved reproduction potential.

One of the zoos had booked an

expenditure of ₹ 26.03 lakh towards research activities from 2014–15 to 2018–19. Audit scrutiny of records showed that only ₹ 8.80 lakh was spent towards research while the major portion of the expenditure (₹ 17.23 lakh) was spent towards non-research activities like road survey, website designing, purchase of mementos to events, etc. Thus, funds earmarked for research activities were diverted for non-research activities which was irregular.

Further, one of the zoos spent ₹ 1.50 lakh (October 2014) on a project titled “Physio biochemical and reproductive endocrinological parameters in captive tigers”. However, the details like project report, completion report, etc., were not on record. In absence of these details, the positive impact of this project on the management of the zoo could not be ascertained.

9.2 Education

As per the Rule of RZR, “every zoo shall endeavour to educate the visitors to the zoo and people at large about the significance of wildlife conservation for the general well-being of the people and keeping the life support system of nature intact”.

The audit noticed that only three zoos were conducting different education programs. There were no Education Officers/Resource Persons in other zoos and hence no such activities were conducted. Sensitization about protecting wildlife and importance of biodiversity

through conservation measures was thus a neglected activity.

In the absence of Education Officers and involvement of locally available resource persons, the zoos have lost an opportunity in reaching out to masses on conservation activity.

10. Visitor's amenities

10.1 Visitor facilities

Visitors' facilities are an important aspect in the management of zoos. Sub rule 12 of RZR states that, "every zoo officer shall provide adequate civic facilities for visitors at appropriate and convenient places in the zoo including for physically disadvantaged persons and such facilities shall be so located that they do not mask or impact the view of enclosures. Besides, the first aid facilities including anti-venom and life-saving drugs should be readily available.

It is appreciated that visitor facilities like drinking water, working toilets, pathways, display signs, first aid and parking were provided in all the zoos".

One of the zoos did not have facilities regarding shelter, route map display and path-way directions. Another zoo did not have wheelchairs/ ramps for physically challenged. And one other zoo did not have a canteen.

11. Good practices

11.1 Adoption of animals

Adoption of zoo animals involves the public which is an important programme in management of zoo. The rates of

adoption of different animals were communicated to different zoos by the Member Secretary of ZAK during January 2012. Scrutiny revealed that adoption of animals happened only in four zoos during the last five years. Maximum receipt from adoptions was majorly in one with highest amount being ₹ 208.84 lakh, followed by other zoos with ₹ 63.88 lakh and ₹ 8.15 lakh.

11.2 Solid waste and Plastic management

The Central Zoo Authority had issued (November 2016) an advisory on waste management in zoos besides listing out the activities to be taken up in all zoos. It was observed that while one zoo established a vermicompost plant for addressing the solid waste problem and generated a revenue of ₹ 34.65 lakh. One more zoo did not have a vermicompost plant, it was generating money from the sale of leftover bones. The Government of Karnataka in its order (October 2003) had banned plastics from other zoos of the state. It was observed that except for two zoos, strict ban on plastics was yet (February 2020) to be implemented in the other zoos.

With reference to addressing the problem of disposing of plastic water and juice bottles, few zoos had come up with an innovative idea of collecting a deposit of ₹ 10 from the visitors and bottles being provided with stickers. At the exit, the deposit would be refunded to visitors who show the bottles with the sticker.

This acted as an incentive to visitors for not throwing the plastic bottles in the zoo premises. This innovative procedure which could have been helpful to reduce plastic bottle menace in zoos, had not been implemented in other zoos.

12. Manpower management

The posts sanctioned under different cadres in all the nine test checked zoos as seen 762 personnel were functioning against the sanctioned strength of 388 posts. The excess number of employees engaged as compared to the sanctioned posts indicate that the sanctioned strength of employees did not truly reflect the actual requirement of zoos (either there were more number of people working in the zoo than required or the sanctioned strength was not adequate enough to ensure that the entire workload was taken care of). The matter needs to be examined for necessary corrective action in this regard.

13. Conclusion by CAG:

CAG concludes that CZA norms should be complied by all zoos operating in the country and ZAK should ensure the same for the zoos under its jurisdiction. However, recognition of eight zoos were yet to be renewed and two suspended zoos were kept open to the public. One of the zoos was operated without a recognition from CZA during the years 2017–18 and 2018–19. Only three zoos had approved Master Plans while two zoos did not even have approved Master (Layout) Plans. As adequate population control measures were not in place, there were surplus animals in the zoos and CZA

norms on pairing of single animals were not complied with. Adequate veterinary infrastructure was not in place in seven of the zoos. Only one zoo had conducted screening of animal keepers for zoonotic diseases for only one year, though the same was to be conducted annually. Health advisory committees mandated by CZA were not in place in six zoos. Research and Education, which are important for conservation and protection of wildlife, were not given adequate priority. Visitor facilities were mostly provided in all the zoos. The staff deployed was more than the sanctioned posts in the zoos.

Though there were some positive steps taken by some zoos to improve the facilities and attract visitors, ZAK can take steps to enhance the quality of all zoos by implementing these good practices. The issues mentioned in the Report may be addressed on priority to ensure better management of zoos and welfare of animals.

14. Recommendations by CAG:

As per CAG report, audit recommends the following to Government for ensuring zoos are maintained and operated effectively:

- i) Strengthen veterinary infrastructure and deploy services of regular qualified personnel to ensure better ex-situ conservation of captive animals.
- ii) Put in place a monitoring mechanism to ensure that there are no unauthorized deviations in procurement of feed and fodder.
- iii) Ensure preparation and implementation of Master Plan and other sub-plans for scientific management of the zoos.

Indications of possible ways of how a corporate would deal with the shortcomings

The following section will describe some of the principles that are used by corporates that could be implemented for zoos for some of the problems identified by the CAG in their report and to other problems based on anecdotal data.

Some of the common principles used in a corporate environment that could be implemented for zoos to improve the problems stated by the CAG are:

1. Segregation of duties – The duties within a process is segregated to two or more employees. This is to ensure that one person does not have the ability to perpetrate an error or fraud and conceal it. For example, the maker-checker process. The maker-checker process requires two separate people to authorize a transaction — the first user (“maker”) creates a transaction request, and the second user (“checker”) validates and approves the activity².

2. Independence – The concept of being independent of an entity is used to avoid conflicts of interest and to ensure integrity. Corporates usually have an independent auditor, but the concept of independence can be used in other ways such as having an independent veterinary doctor (vet) who reports directly to the Board of Directors (BOD) for inspection purposes.

In the following section we are indicating possible solutions for some of the

shortcomings identified by CAG in zoos under ZAK and for some other problems based on anecdotal data from zoos across India. Although the shortcomings were identified by CAG for zoos under ZAK, much of these apply to all the other zoos across India.

1. Problems within health care of animals:

A. Deficient health care for animals

Due to limited vets in the zoos, there is inadequate health care. The vets also work on a rotation basis and move from the animal husbandry department to zoos and vice-versa. This is not good for the zoo animals because each time the new vet has to get to learn the ropes of wild animal care.

Due to limited vets in the zoos, there is inadequate health care. Overall, in India the number of vets is lesser than the requirement. “In a year there are only 2,100 vets graduating from India. There are 63,000 registered veterinarians today, whereas the requirement is between 1.1-1.2 lakh” estimates Umesh Chandra Sharma, president, Veterinary Council of India (VCI)³.

B. Inadequate preventive care for animals

Some zoos in India, especially the smaller ones, do not have the capacity to vaccinate animals.

² <https://www.saggezza.com/robotic-process-automation-my-coworker-is-a-robot/#:~:text=The%20maker%2Dchecker%20process%20requires,validates%20and%20approves%20the%20activity.>

³ <https://indianexpress.com/article/india/india-others/30-crore-cattle-and-rising-but-where-are-the-countrys-vets/>

C. Infrequent testing for zoonotic diseases

The test for zoonotic diseases needs to be done for both humans and animals. The measures to check for zoonotic diseases are not done frequently for humans and in many instances, it is not done for animals at all.

Possible solutions:

- i. The solution for the above three problems would be to have an independent vet for inspection who reports directly to the BOD. Every month an independent vet (with expertise in wildlife veterinary practices) can visit the zoos once for inspection, to check on the health of the animals, to check the status of preventive care and to ensure testing for zoonotic diseases is done periodically. As the external vet does not deal with the zoo management and reports directly to the BOD, he acts a quality check on the internal vet.
- ii. The smaller zoos need to channel some of their existing funds towards vaccinating the animals. The government should also give these small zoos additional aid so they can vaccinate animals. Zoonotic diseases (e.g., SARS) aren't to be taken lightly, the respective state governments along with the central government need to take immediate action on this subject matter.

2. Lack of documentation and trails

of evidence – Most zoos in India today use a hybrid of electronic systems and physical paper or only physical paper for documentation purposes. The disadvantage of paper documentation is that information

and evidence can be meddled with or removed.

Possible solutions:

- i. Zoos in India should have all their documentation online through software and applications, that will help leave a trail of evidence that cannot be misused. An example of a trail of evidence from the corporate working model that many would be familiar with is returning a product you had purchased online. When you request to return a product, you immediately receive a system generated message confirming your return request and a ticket is raised for the same within their system. Your return request cannot be deleted without your permission or knowledge.
- ii. Zoos in India should use project management tools like Microsoft Project to track the status and progress of projects. The zoos must invest in and meticulously use softwares such as ZIMS/ARKS/ SPARKS or Species360 that are made specifically for zoo management.

3. Problems related to funds

A. Lack of transparency for funds:

- i. Not all zoos give a break up of their income and expenses. For example, the Statement of Income and Expenditure in the Annual report for National Zoological Park, New Delhi for 2020–2021⁴ only had two line items in total, they were '**total allocation of budget**' and '**expenditure incurred**'. There was no break up given

⁴ https://nzpnewdelhi.gov.in/system/publications/documents/000/000/007/original/NZP_Annual_Report_2021-Readable.pdf?1628850874

for what constituted the income or expenses.

ii. Donations made by the public towards the adoption of an animal and the usage of these funds are not available on the annual report. Funding needs to be transparent. Transparency is the key. Donors will be happy to know how the funds were used and honesty will be much appreciated, which gains the trust in people to donate more.

Possible solutions:

- i. It should be a mandatory requirement by CZA and CAG to have a breakup of their income and expenses so that we know where the money is being allocated and used.
- ii. All donations must be online to ensure there is a trail of evidence of how much money was donated. This will also reduce the chance of swindling away donated funds.
- iii. The accounting and spending of funds for government and private zoos should be like the mandates non-governmental organizations (NGOs like societies, trusts, and section 25 companies) in India currently follow.

B. Lack of prioritization of funds and fraudulent expenses:

As per our review of the annual reports of some of the zoos in India that give a break up of their expenses, it shows that they spend the majority of their funds on administrative expenses while only a small fraction is spent on the animals and their veterinary care and maintenance.

As seen in excerpts from the CAG Compliance audit report above, the zoos under ZAK have misallocated funds.

Possible solutions:

1. With both CAG and CZA being government bodies, CAG should use its expertise to help CZA come up with a mandatory framework that will help close the loopholes the zoos use to swindle money. Considering that both are government bodies wouldn't that be a win-win situation?
2. There should be controls around the access and dispensation of funds, similar to the maker-checker process mentioned earlier. There should also be an internal auditor appointed, who's role will ensure that these controls put in place are working effectively.

C. Collusion between employees: In the current zoo setup, employees from different levels in the hierarchy collude and skip their duties. This is evident in CAG's findings within ZAK because if an error is happening over a long period of time and there is no rectification, it shows that the people at all levels within the hierarchy are aware and are working in unison.

Possible solution:

The introduction of zoo management software, project management tools and internal controls will reduce the collusion between employees as it acts as a check point between employees at different levels in the hierarchy. Each person will have to take up ownership for their work, and assigned duties, if not, the software or tool will show who hasn't performed their duties. This

check will ensure that employees at all levels will become accountable for their work.

Practical applications of controls through technology:

1. For feeding on time - Once the food has been served to the animal, a live photograph or selfie with time stamp and location (similar to the function in apps like Huli, Hejje & Gastu) should be updated into the application. If it is not served on time and there is no photo uploaded within the window of feeding time, a notification in the project management tool will be generated. The number of notifications per individual will also help monitor the performance of the employee.

2. Having mandatory online systems –

Currently, not all zoos in India maintain their data electronically. To ensure there is a trail of evidence all documentation must be moved to a safe electronic system. The current system fails to document the birth, health, death and injury, migration of animals accurately. As seen above, it also fails to account properly for funding, income, and expenses.

It's quite shocking that all zoos aren't yet maintaining their data securely in an electronic version through applications even in 2021. While the whole world is running on tech and artificial intelligence (AI) in this day and age, it's high time all zoos across India make the switch.

3. For project management – To ensure work is done on time, not missed out

or deleted zoos should use a project management software that tracks all projects, from the past, ongoing ones and or ones planned for the future. Having a one stop place to look up all projects will help the management in monitoring projects better and ensure that projects are completed.

4. Having annual third-party anonymous

surveys for employees – The annual third-party anonymous surveys will help the higher management and BOD be aware of employee concerns and issues that they would be afraid to bring forward in person. Employees being heard will also boost their morale.

Finance and budget concerns for the above proposed controls and technology:

1. Although the implementation of technology can be expensive, it is a one-time investment. In the long term it could actually help decrease cost. Introducing technology will also prevent employees from colluding, which will help the zoos in achieving its goals and objectives more efficiently.

2. CZA can get the required software created by competent students from reputed colleges as an internship program. This will be cost effective from CZA's point of view and work experience for the students. A standard software for management can be created and this can be used by all zoos in India.

3. Although the overall budget allocated to zoos needs to increase in the long run, the starting point would be to reallocate funds based on priority. Priority should be given for animal health, conservation, research, and maintenance over administrative expenses.

4. Zoos should have more volunteer programs to fill in human resource crunch. The volunteers should be recognized for their efforts publicly and they should also be given certificates for their contribution to the zoo. An example of an effective program is the docent program in the United States.

Education in zoos:

Zoos play a major role in education. Unfortunately, the information boards and signages in the zoos across India are not interesting or compelling. In many cases, the signages are either broken or in bad condition.

A different approach to educate the visitors in the zoos is to have a full-time permanent education team, who can also work with and train volunteers. These trained volunteers can then guide and educate the visitors during their tour of the zoo.

Actions to be taken by Indian Zoos and related authorities:

1. CZA should make it a mandatory requirement that CAG compliance audit findings such as the ones mentioned earlier in this article should be mentioned, addressed and fixed in the specific zoo's subsequent years Annual report.
2. CZA should have a mandatory requirement for an internal auditor. The role of an internal auditor is to provide independent assurance that an organization's risk management, governance and internal control processes are operating effectively.

3. Many of the zoos in India will benefit from partnering with the World Association of Zoos and Aquariums (WAZA). WAZA is the global alliance of regional associations, national federations, zoos and aquariums, dedicated to the care and conservation of animals and their habitats around the world. The membership consists of nearly 400 leading institutions and organizations around the world, and this number continues to grow.⁵ Some of the best zoos around the world have partnered with WAZA. While comparing the international zoos that partnered with WAZA and the Indian ones that have partnered with WAZA, we can see the Indian zoos are still lacking.

WAZA should make it a requirement that any zoo they partner with in India must have an internal auditor to ensure the controls are working and those in charge are accountable.

4. Even if CZA and WAZA choose to not make it a rule to appoint an internal auditor, the BOD can appoint an internal auditor.
5. The BOD in Indian zoos should be appointed based on their background and knowledge of zoos and wild animals, not only because of the influence they have in society. The BOD should have independent authority and should make use of it to work independently to oversee the zoo management.
6. The BOD should also appoint an independent vet for inspection who reports to them directly.

⁵ <https://www.waza.org/about-waza/>

7. The employees should get hikes in their salary in regular intervals. This will help them stay motivated to do the work they do.

8. The zoos should provide their employees and families with good health insurance coverage.

9. CZA should make CCTVs mandatory at all enclosures within the zoos.

10. To prevent unethical practices, they should have an online portal for feedback and complaints. This way the public, employees or volunteers of the zoo can give feedback/complaints and if there is any evidence in the form of photos or videos that can be uploaded too. If there is a complaint of an unethical practice without any footage or photo the zoo management can look into their CCTV footage for verification.

11. Indian zoos can also partner with other international zoos and have a sister zoo concept, where they can assist, help and learn from each other.

12. CZA has to rate

zoos across India based on compliance of CZA guidelines and the parameters used by CAG in their compliance audit.

13. The veterinary courses in India are currently only for domestic animals. Hence, the domestic vets train for wildlife directly on field or in the zoo. There needs to be a veterinary course for wildlife in India where the vets can learn before they directly treat wild animals.

Conclusion:

We think that the analysis of the CAG compliance audit report and the possible solutions indicated in this

article is just the beginning of the conversation. Perhaps, we need a larger discussion with different stakeholders on how zoos in India need to engage themselves to be better organizations for conservation, education, and welfare. The idea is not to dwell in the past or point fingers at each other but to move forward from here on, and to keep pushing the boundaries to get better.

Vardhini Suresh, Ashritha Anoop, Dhanush Shetty, Shweta Madgulkar, Trisa Bhattacharjee, Usha Ravindra, Supriya Samanta, Nilesh Murmu, Arpan Joshi & Aakanksha Komanduri.
 RHATC Fellows, 2021-22,
 Zoo Outreach Organization,
 Coimbatore, TN, India.

