

Zoo Education Master Plan



Zoo Education for a Sustainable Future

Networking and Partnerships

Training and Capacity Building

Education and Outreach

Interpretation

Understanding Visitors to Zoos in India

Zoo Education - Why, What, Whom?

7 6 5 4 3 2 1



केन्द्रीय चिड़ियाघर प्राधिकरण
Central Zoo Authority

CEE

Centre for Environment Education

Master Education Plan for Indian Zoos

A document reviewing present status and providing guidelines for strengthening educational programmes and facilities in Indian zoos

developed by
Centre for Environment Education
and
supported by Central Zoo Authority



केन्द्रीय चिड़ियाघर प्राधिकरण
Central Zoo Authority
(STATUTORY BODY UNDER THE MINISTRY OF ENVIRONMENT & FORESTS, GOVT. OF INDIA)

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Centre for Environment Education(CEE) is a national institution of excellence for Environmental Education supported by the Ministry of Environment and Forests, Government of India and affiliated to the Nehru Foundation for Development. The main objective of CEE is to create environmental awareness among children, youth, decision makers and the general community. CEE develops innovative programmes and materials and field tests them for their validity and effectiveness. The aim is to provide models that could be easily replicable to suit local conditions.

Central Zoo Authority (CZA)

In India, functioning of zoos is regulated by Central Zoo Authority (CZA) which is a Statuary body of Ministry of Environment & Forests Government of India; constituted in 1992 under the Wild Life (Protection) Act, 1972. The Authority performs the following functions: (a) specify the minimum standards for housing, upkeep and veterinary care of the animals kept in a zoo (b) evaluate and assess the functioning of zoos with respect to the standards or the norms as may be prescribed (c) recognize or derecognize zoos (d) identify endangered species of wild animals for purposes of captive breeding and assigning responsibility in this regard to a zoo (e) coordinate the acquisition, exchange and loaning of animals for breeding purposes (f) ensure maintenance of studbooks of endangered species of wild animals bred in captivity (g) identify priorities and themes with regard to display of captive animals in a zoo (h) coordinate training of zoo personnel in India and outside India (i) coordinate research in captive breeding and educational programmes for the purposes of zoos and (j) provide technical and other assistance to zoos for their proper management and development on scientific lines.

Views expressed in the Zoo Education Master Plan may not necessarily reflect those of the Central Zoo Authority.



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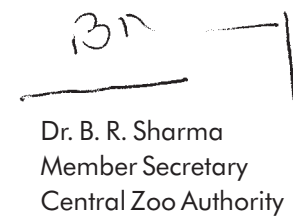
Foreword

Today when wildlife habitats are under severe pressure and a large number of species of wild fauna have become endangered, the zoos have not only to sustain their own populations but also augment the depleting populations of endangered species in the wild. As zoos are visited by a large number of visitors, zoos could be used as a platform for educating people about the protection of habitat, ecosystems and forests, and maintaining the life supporting processes of nature. Well planned and appropriately designed zoos can sensitize visitors to the dangers of a hostile or indifferent attitude towards nature. The first and foremost purpose for developing zoo education plan for zoos is to inspire zoo visitors' empathy and awareness, for the need of conservation of wildlife and maintaining the ecological balance. The need for preparing zoo education plan has been realized since its inception of the Central Zoo Authority.

Zoos are a valuable educational and cultural resource. Everyone should have the opportunity to experience and learn about wildlife at first hand while entering into zoo. Recognition of Zoo Rules, 1992, and National Zoo policy, 1998 emphasize the requirement of zoo education plan for the visitors. Each zoo should have a well drawn up plan for educating the visitors as well as others. The Central Zoo Authority aims to promote knowledge and understanding of the wild world through the medium of zoos. Attractive and effective signage to explain activities of various species, printed educational material and audio-visual devices are proven methods for conveying conservation message to the visitors.

It was felt that zoos in India do not have guidelines to develop plan on zoo education for the visitors or are not equipped to develop programmes for visitors on zoo education, hence most of the zoos could not implement zoo education activities despite of willingness. As the Centre for Environment Education Ahmedabad has vast experience on issues of environment education, the Central Zoo Authority entrusted Centre for Environment Education to develop Master Plan on Zoo Education for the visitors. I am confident that the document shall be helpful to zoos in formulating education policy, identifying educational components and setting out the methods by which these components are directed towards the different sections of the zoo's visitor audience.

1311



Dr. B. R. Sharma
Member Secretary
Central Zoo Authority
New Delhi



Preface

The Centre for Environment Education (CEE) is honoured to have been entrusted by the Central Zoo Authority (CZA) to collaborate on the development of Master Education Plan for Zoos of India.

The challenge of developing an Education Plan for zoos of India is indeed unique. Firstly the numbers who visit are very large. Visitors come from extremely varied backgrounds and are of all ages. Developing a programme which caters to such diversity is not easy. Secondly while we want to help people understand the animal in the totality of their environmental context, in zoos they are usually constrained by single specie enclosures. Today people are exposed to wildlife on TV, Rapid action, Close ups, Action shots, Music and Commentary which create an almost “real” experience. The perception of the animal in the film is at total variance to what the visitor sees in the zoo. How do we deal with this disconnect? So we need to understand the strength of the zoo. What the zoo offers that the film does not. It is at the zoo that the visitor usually has their first experience of the 'real thing'. This requires creating a mindset which is 'respectful' of the dignity of the animal. The 'caged' experience demeans the image and we need to play down the enclosure and captivity. Animals need to be given respect. Thirdly the zoo has more to offer than can be observed on any one visit. It is the problem of plenty. Unless we are careful this leads to dilution, fleetingly seeing a lot but only superficially. Finally there is the constraint of resources. Both financial and in terms of people who carry out educational and interpretational activities. Rightfully the resources have to be first used for the proper maintenance of the animals. But looking to the challenge of education, the huge opportunity and the large numbers involved, resources do need to be generated and made available to the zoos and the zoos themselves need to take a lead in this direction.

This report deals with all these issues and more. It is a report that is a result of extensive discussions and research. Directors of zoos from all over India participated over several meetings. Almost all zoos in the country were visited and extensive secondary research was also done. The report therefore reflects not only innovative ideas but also the rich experience of educational programmes carried out in zoos across India. The plan faces these challenges, shares experiences and gives a direction for the future.

Having recognized that education is as important a mandate as conservation, zoos often do not have a framework within which to plan active educational programmes, that are responsive to the needs of users. This starts with having clarity about the what, why and how of zoo education, as well as concrete guidelines and ideas on how to make this happen effectively.

This is where a Master Plan can play a useful role. A Master Plan creates a vision that is supported by policies, guidelines and priorities; it supports the coordinated growth of the separate facilities and functions to achieve the specific objectives. The process of development of a Master Education Plan for Zoos has provided a tremendous opportunity to understand the needs, opportunities and possibilities the educational opportunities zoos can offer.

We do not want to reinvent the wheel as the best exchange happens when there is sharing of experiences and ideas. With the opportunity of making the Master Zoo Education Plan a reality, we look forward to working closely with the CZA and with all zoos and all the individuals in the zoo towards this common goal.

Kartikeya V. Sarabhai

Director

Centre for Environment Education(CEE)

1

Zoo Education Why, What, Whom, How?

It is of vital importance to make people recognize the responsibility of every human being for the preservation of nature, and for the maintenance and restoration of natural relations between man and the living world. For that reason the social function of a zoological garden or a related institution is to a high degree defined by its educational work.

Why Zoos for Education?

Over 620 million people visit zoos across the world every year. That is more than one tenth of the human race. More than 50 per cent of world zoo visitation takes place in Asia. In India alone over 500,00,000 (5 crore) people visit zoos annually. People go to zoos during their free time and of their free will. They go to the zoo to see living animals, which they would not, in normal circumstances, get a chance to see.

Such a wide, diverse, varied and regular audience provides an excellent opportunity for education, and an enormous potential to heighten public perception and awareness of animals and nature conservation.

Zoos are living institutions, living classrooms, living landscapes.

What is Zoo Education?

Zoo education is a holistic discipline targeted at zoo visitors, staff and the wider community aiming to promote an understanding of, and concern and respect for biodiversity, animals and the natural world, and encourage action for a sustainable future.

If conservation is to succeed, people need to be inspired to care about and understand animals and the threats they face in the wild. Everyone should have the opportunity to experience and learn about wildlife at first hand.

The World Zoo Conservation Strategy published in 1993 concludes that, given a professional approach, a knowledge of the zoo public and a clear cut education plan, zoo education programmes can be successful in increasing the public's awareness of the irreplaceable value of nature. Education is therefore an essential conservation task of zoos.

Vision

Zoos and aquariums with their unique resource of live animals, their expertise, and their links to field conservation will be recognized as leaders and mentors in formal and informal education for conservation. The educational role of zoos and aquariums will be socially, environmentally and culturally relevant, and by influencing people's behaviours and values, education will be seen as an important conservation activity.

Zoo Education for Whom?

Zoos reach hundreds of millions of people all over the world. They come to the zoo because, in one way or another, they have an interest in animals. The total zoo public, (not only children, or school groups) forms the target group for informal education in or by zoos. In addition, target groups outside the zoo can also be reached through zoo outreach programmes, and through the media.

Education is one of the core objectives of zoological collections. Thus all zoos need to have an education strategy that facilitates the translation of educational aims and objectives into policy and practice. zoo education is a holistic enterprise that should cater for a wide audience.

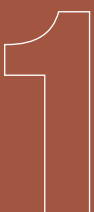
How to do Zoo Education?

Zoos should recognize the importance of education by including it in mission statements, by ensuring that it is integral to the activities of the senior management team and making sure that educational goals are fully considered when planning collections, designing exhibits, developing conservation programmes and planning visitor services. World Zoo and Aquarium Conservation Strategy (WZACS), 2005.

The Council of the European Association of Zoos and Aquaria (EAZA) developed a list of education standards in 2001. It was expected that the achievement of these standards will enable increased professionalism and networking to improve the educational role and effectiveness of zoo programmes. Other regional associations have also developed similar standards. A summary of these standards is given here.

Summary of the EAZA Education Standards

1. The education role of the zoo is to be clearly stated in its written mission statement.
2. The zoo must have a written education policy identifying components and setting out the methods by which these components are directed towards the different sections of the zoo's visitor audience. zoo education should target all visitors, not just schools.
3. The zoo must demonstrate that it is carrying out its education policy, by reference to specific projects, attendance figures, evaluation procedures and research.
4. At least one member of staff within the institution should be responsible for professional implementation of the education policy.
5. Enclosures must clearly and correctly identify the animals in them. Signs should highlight threatened species and species in regional, national and international coordinated breeding programmes.



6. When animal demonstrations form part of the programme, they must contain an education or conservation message.
7. For education programmes to be successful, zoos must exhibit animals in the best conditions possible, in enclosures that enable them to live as naturally as possible and to exhibit natural behaviour as far as possible.
8. Interpretation and education should be an integral part of zoo exhibits; the educator should be involved in the exhibit planning and collection planning process.
9. A reference library appropriate to the size and complexity of the zoo should be maintained and made available to all staff members, and possibly to the public where practicable.
10. Resource material and education information should be made available to the general public and zoo audience. This might include leaflets, guidebooks, teachers' notes, resource packs and worksheets, which should be displayed and available.

The Recognition of Zoo Rules 1992, India, emphasizes Education and Research

- 1 Every enclosure in a zoo shall bear a sign board displaying scientific information regarding the animals exhibited in it.
- 2 Every zoo shall publish leaflets, brochures and guidebooks and make the same available to the visitors, either free of cost or at a reasonable price.
- 3 Every large and medium zoo shall make arrangements for recording, in writing, the detailed observations about the biological behaviour, population dynamics and veterinary care of the animals exhibited as per directions of the Central Zoo Authority so that a detailed database could be developed. The database shall be exchanged with other zoos as well as the Central Zoo Authority.

Refer to appendix IX for The Recognition of Zoo Rules 1992

The National Zoo Policy, 1998 in India has also clearly listed the role and components of zoo education, to be followed by individual zoos across the country.

Education and Outreach Activity

- 3.8.1 Each zoo should have a well drawn-up plan for educating the visitors as well as others in the community. Zoos shall keep a close liaison with other ex-situ facilities in this regard.
- 3.8.2 The central theme of the zoo education programme being the linkage between the survival of various species and protection of their natural habitat, enclosures which allow the animals to display natural behaviour are crucial to zoo education. Zoo shall, therefore, display animals in such enclosures only where the animals do not suffer physiological and psychological restraint.
- 3.8.3 Attractive and effective signage methods and interactive displays to explain activities of various species to visitors, published education material and audio-visual devices are proven methods for driving home the conservation's message. A formal education programme should also be persuaded for strengthening the education message.
- 3.8.4 Beside signage, the zoos shall also use guided tours, talks by knowledgeable persons and audio-visual shows for effectively communicating the message for conservation to the visitors.
- 3.8.5 The help of universities, colleges and non-governmental organisation shall be taken to educate the students about the benefits of supporting nature conservation programmes.

Extension Activities

- 3.9.1 To provide the urban population with a window to nature and to serve as green lungs for the polluting environment, zoos shall extend their expertise and help to State Governments and local authorities to create nature parks extending over extensive areas near big cities.

No matter how successful a zoo's efforts are in traditional conservation strategies such as captive breeding or research, these strategies do little to influence human behaviour, but education can. This, I believe, is where zoos will have the most impact, on conservation in the decades to come.

President, International Association of Zoo Educators

A Blueprint for Zoo Education

The need and imperative for zoos to include education as an integral part of their overall plans and functioning is today recognized and finds place in policy documents at international and national levels.

It is at the implementation level that there seems to be some gaps. Many zoos have developed some forms of educational programmes, but there is no uniformity in implementation. Some zoos have sporadic or ad hoc events which have a specific educational objective, while in others education happens by default as in some messages that visitors pick up from what they see, hear and experience during their visit to the zoo.

It begins with the differences in perception about what constitutes zoo education. For some it is restricted to the organized visits of groups of school students on their annual 'picnic' at the zoo, for others it is the 'painting competition' or 'quiz' or film show held as part of events on occasions like wildlife week. Signages for enclosures are often developed with help of locally available resources, mainly to provide the name and some basic information about the animal displayed. Most zoos do not have a dedicated staff nor budget under the head "education", and most often, the rest of the zoo staff, especially animal keepers, are seen as not having either the mandate nor the capability to play a role in education within the zoo.

Having recognized that for all zoos education is as important a role as conservation, zoos often do not have a framework within which to plan an active education programme that is responsive to the needs of users and is available for the majority of the time. This starts with having clarity about the what, why and how of zoo education, as well as concrete guidelines and ideas on how to make this happen effectively.

This is where a Master Plan can play a useful role. A Master Plan can be seen as a comprehensive plan to guide the long-term development of a particular activity or area.

A Master Plan creates a vision that is supported by policies, guidelines and priorities; it supports the coordinated growth of the separate facilities and functions to achieve the specific objectives.

Centre for Environment Education (CEE) was entrusted by the Central Zoo Authority (CZA) to develop the 'Master Education Plan for Indian Zoos'.

Developing the Master Plan : Methodology and Process

A baseline study was conducted with an objective to review the existing, ongoing as well as future zoo education programmes, activities and facilities offered by zoos, to assess the training needs of the zoo staff in the area of zoo education, as well as to understand the visitors to the zoos of the country.

To do this the CEE project team planned surveys, zoo appraisal visits and workshops in various parts of the country. The methodology for the same is discussed below.

Mail Surveys

A questionnaire was developed to compile secondary data from various zoos of the country on the existing situation with reference to zoo education. The questionnaire was designed to get basic information on the existing interpretive, educational, and other facilities offered by different zoos of the country. Questionnaire included both closed and open ended questions. Questionnaires were sent to 135 zoos, but responses were received from 45 zoos.

Sample of the questionnaire for the mail survey on page 283

The field surveys followed after this process gave a clear and better picture of the actual existing condition. For example in inventory forms many zoos said that they have signage for plants, but during the survey it was realized that signage for plants are very limited, containing brief information (mainly only the name of the tree). Also interpretation centres were more like an exhibition hall than interpretation centres. It was also realized that in few zoos which had mentioned the presence of facilities like interpretation centres, this was actually not there when the field survey was done.

Zoo Appraisal Visits

To get a more clear and accurate picture of the existing system of zoo education in India, 40 zoos of various categories (Large, Medium, Small and Mini) were identified across different parts of the country, for conducting a field survey.

To carry out the field survey various types of questionnaires were developed for different target groups.

Research tools including a checklist of facilities offered by zoos and questionnaires for different levels of zoo staff (including zoo directors, curator, education officers, veterinarians and keepers) were developed.

Sample of checklist and questionnaires on page 279

With prior appointments with the zoo managers, each zoo visit was planned for 1-2 days. During each visit the team used to make a note of the existing facilities of zoo education offered by the zoo which was followed by one-to-one in-depth interviews of the zoo staff.

Interpretation, Education & Outreach, Training & Capacity building and Networking are the four main areas of Zoo Education which were looked into during the zoo appraisal visits.

37 zoo directors/managers, nearly 50-60 other zoo staff (including curators, education officers, veterinarians), and about 100 keepers were interviewed in thirty seven zoos across the country.

Thirty seven out of forty zoos were surveyed in six different regions (North/South/ East/North-East/West & Central) across the country.

List of zoos surveyed in different regions and their category on page 296

Visitor surveys

Before developing the Master Plan it was critical to understand the visitors to the zoos of the country. In order to do this visitor surveys were carried out in different zoos of the country.

Please refer Chapter II for the survey methodology and questionnaire format.

Regional Workshops

After doing field visits, four regional workshops were arranged at Delhi, Chennai, Darjeeling and Ahmedabad to cover North, South, East and Western regions respectively.

Apart from sharing the team's experiences from surveys and field visits, one of the main objectives for conducting the four regional workshops was to get inputs on key areas of concern towards zoo Education from zoo directors, zoo managers and other stakeholders in the area of Zoo Education, as these are the people who are actually going to implement the Master Education Plan in the field.

Apart from giving inputs on constraints/limitations, strengths/opportunities and possible collaborations in the four areas, participants also shared their individual experiences in zoo education through different presentations.

The workshop provided a good forum for networking and played a key role in facilitating interaction amongst Zoo Directors from various zoos who came to know about the varied programmes and activities happening in other zoos of their region.

Glimpses of regional workshops



Photo: CEE

Noting the contributions in Delhi



Photo: CEE

Making a point in Chennai



Photo: CEE

Sharing in Darjeeling



Photo: CEE

Compiling inputs in Ahmedabad

1

Outcome

From the methodology discussed here, findings were summarized under some key themes:

It was felt that these would be the key areas which a Master Plan would need to address towards developing, executing and sustaining zoo education in India.

This document is organized on the basis of these key areas with respect to zoo education.

These are:

- Understanding the visitors to the zoo
- Zoo interpretation
- Education and outreach activities of zoos
- Training and capacity building
- Networking
- Sustaining zoo education

The first part of each section presents an overview of the existing situation based on findings from the surveys, and site visits, as well as experiences shared during regional workshops. It includes a listing of some main constraints/limitations, as well as strengths/opportunities and possible collaborations in the four areas, as well as recommendations from zoo staff across the country and the project team.

The second part of the section presents recommendations, guidelines, examples, and relevant reference material which can provide inputs for initiating, strengthening, reviewing and enhancing the educational mandate of every zoo. That is, a Master Plan for Zoo Education.

Zoo Education Programme & Activities An Inventory

S.No :

Region :

CEE
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Name of the Zoo _____

Name of the Director _____

Address _____

Phone _____

Fax _____

E-mail _____

Website _____



General information about the Zoo

(please tick in the appropriate box)

Controlling authority State Government Central Government Private

CZA Certification Recognised Non recognised Closed

Category of the Zoo Large Medium Small Mini

Year of establishment _____

Area (ha) of the Zoo less than 20 20-50 50-75 more than 75

Visitation

(please tick in the appropriate box)

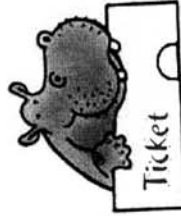
Total no. of visitors annually _____

Visitors annually in % Child Adult student

Peak season for visitor inflow _____

Visiting hours am to _____ pm _____

Entry Tickets in Rs. Child Adult Students school/college Senior citizen Physically challenged Foreigners



A sample page of the Questionnaire for the Mail Survey.

2

Understanding Visitors to Zoos in India

Introduction

The Need

There are about 180 recognized zoos in India. The main objective of the zoo is to complement and strengthen the national efforts, in conservation of the rich biodiversity of the country, particularly the fauna. As per the National Zoo Policy 1998, one of the protocols to achieve this objective is: To inspire amongst zoo visitors empathy for wild animals, an understanding and awareness about the need for conservation of natural resources and for maintaining the ecological balance.

The contemporary zoo, in order to achieve its main objective needs to Entertain, Engage, Educate and Empower audiences coming to the zoo. Before developing any zoo education programme and activity one needs to understand who is at the receiving end. This would lead to proper planning and execution of programmes and activities of the zoo.

This need forms the basis of such studies that give an idea of your target audience. In order to plan various kinds of meaningful educational programmes for visitors to the zoos of India, CEE team, for the project carried out sample zoo visitor surveys across a cross section of zoos of the country.

Objective of the study

The survey was done to:

- Get a first hand feel of the visitor trends in a few selected zoos and to provide a general idea of visitor composition, their educational status, the frequency, duration and time of visit etc.
- Know the purpose of visit to the zoo
- Understand visitor preferences with regard to exhibits, programmes and activities offered by zoos.

The learnings from the study will help in guiding the zoo managers, to plan and develop effective educational programmes and activities for the diverse target groups and varied audiences to the zoo.

Study Area

Seventeen zoos from six different regions across India were selected based on size, socio- cultural and geographical locations. The selected zoos, include different categories, (large, medium and small) and were located across different regions of the country (North, South, East, North-East, West, Central).

List of zoos where visitor survey was carried out on page 298

Methodology

Questionnaire based on one-to- one interviews

A pre-tested questionnaire with both closed and open ended questions was developed. The questionnaire was developed in two languages (Hindi and English). The final questionnaire, survey methodology, the sample size and zoos to be covered was finalized in consultation with experts from the Indian Institute of Mass Communication (IIMC), New Delhi.

Sample of questionnaire for visitor survey on page 299

With the help of CEE offices (in different regions) and volunteers who were mainly college students, survey was carried out across a cross section of zoos. It was done in different parts of the country at different times. In some zoos, this survey was done in December 2006, and in some other zoos it was done in different months of the year 2007. It may be noted that the survey finding reflects the result of one time survey in various zoos, and was not done over a period of time.

A total number of 529 visitors were interviewed. Visitors were interviewed at the exit gate as well as at different resting points in the zoo (canteen, lawn). For the icebreaking, questions like, with whom have you come to the zoo?, what is your purpose of visit, etc., were asked. Other details (age, education, etc.) were asked in the end. The data from various regions was compiled and collated for results.



Photo: CEE

Few experiences gained during the pre-testing

*It is practical that one should interview the zoo visitors at points where they sit together to rest after taking a round of the zoo.
Interesting questions should be asked first to set the mood of the visitor.*

Qualitative Survey

Apart from one-to-one in depth interviews with the visitors, CEE team also carried out site visits to 37 zoos of various categories (large, medium, small, mini), across the country. Apart from the objective of knowing the existing status of zoo education in various zoos of the country, the survey also included observation of the kind of visitor facilities offered by zoos, visitor behaviour in the zoo and interaction of zoo visitors with the staff of the zoo.

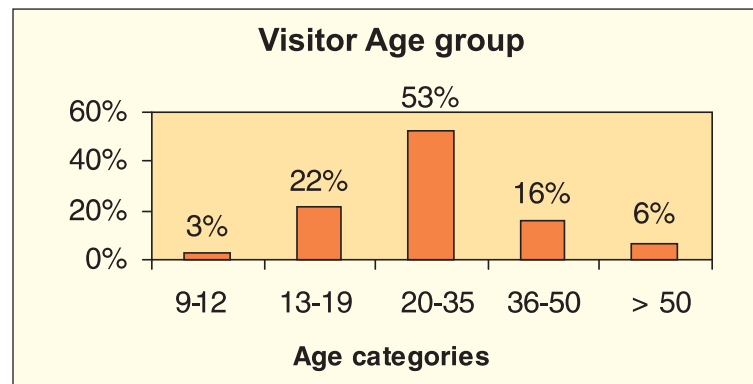
Mail Surveys

Before starting the site visits, inventory forms were sent to 135 zoos across the country. The purpose of the forms was to collect information on the educational facilities offered by the zoos in the country. This was useful for secondary data collection. The inventory forms also helped to get an idea of the visitor profile of the zoos. The findings from data received from 45 zoos, would be discussed in the coming sections.

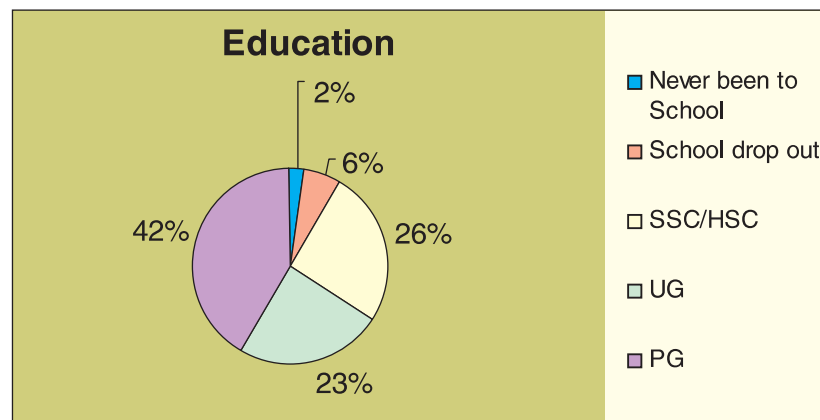
Findings

Major findings from the visitor survey:

Who visits the zoo?



Out of 529 respondents in which 64% were males and 36% were females, maximum people who responded (53%) fall in the age group of 20-35. 3% were in the age group of 9-12 where as 6% of the respondents were above 50.



Respondents were of varied educational background and occupation. Large number of respondents were graduate (23%) and post graduate (42%). Only 2% of the respondents were in the category who had never been to the school.

Findings from mail surveys received from 45 zoos

Annual Visitation: A review of annual visitation data in the year 2005-2006, showed that the number of visitors to the zoos ranged from 20 lakhs (Kamala Nehru Zoo, Ahmedabad) to 100 visitors (Himayat Sagar Mini Zoo, Andhra Pradesh) annually. 52% zoos showed an annual visitation of more than a lakh.

Visitor Profile: Data for the year 2005-2006 shows that 69% of zoos had more number of adults visiting the zoo as compared to child visitation.

Season of Peak Visitation: Data collated showed that vacations are the peak season of visitation for maximum zoos, and rainy season is the lowest visitation season.

Entry ticket: Inventory data showed a variation in the zoo ticket charges. It ranged from a maximum of Rs.30 (for adults, Indian nationals), Rs.100 (for adults, foreign nationals) to a minimum of Rs.2/- (for children, Indian nationals), Rs.4/- (for children, foreign nationals)

2

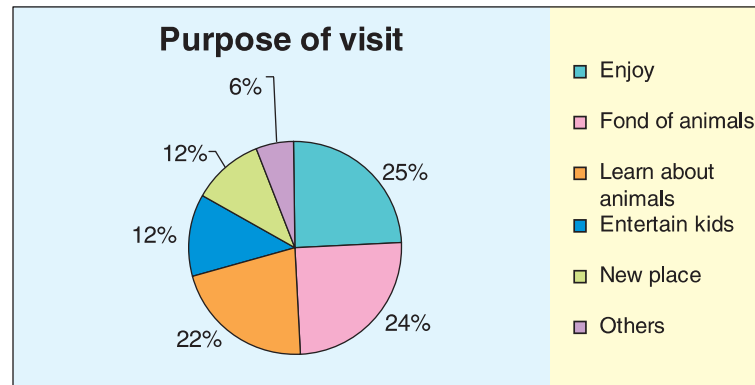
Why do they visit the zoo?

For 58% of people, zoo visit was a family outing, 38% respondents came along with friends and 4% accompanied guests to the zoo.

For 25% of people, recreation and enjoyment was the main purpose of their visit, 24% people came to the zoo because they were fond of animals and 22 % of people came to gain knowledge and learn about animals.

Equal number of respondents (12%) visited zoo due to insistence of children or to see a new place of the city.

Though there were various purposes of the visit but 94% respondents said that they enjoyed the zoo visit.



I work in a roadside tea stall. I have to do a lot of physical work. I live away from my family. Whenever I get upset I come to the zoo to relax myself.
A Visitor

Motivation factor: In a multi response question, “what motivated you to visit the zoo?”, maximum number of respondents (24%) said that watching wildlife films/channels is the motivation factor behind their visit to the zoo. 19% people said that their visit is motivated by a friend's suggestion. 15% people came to the zoo, since it is one of the important sites of the city. Insistence of children was the reason behind the zoo visit for 13% of people. Inspiration by reading wildlife books, listening to wildlife lectures, entertaining the guests, were among some other factors which motivated them for the zoo visit.



Photo: CEE

Where do you get such green environment to sit, in a place like Delhi. I have come to take the fresh air in the zoo.

A Visitor

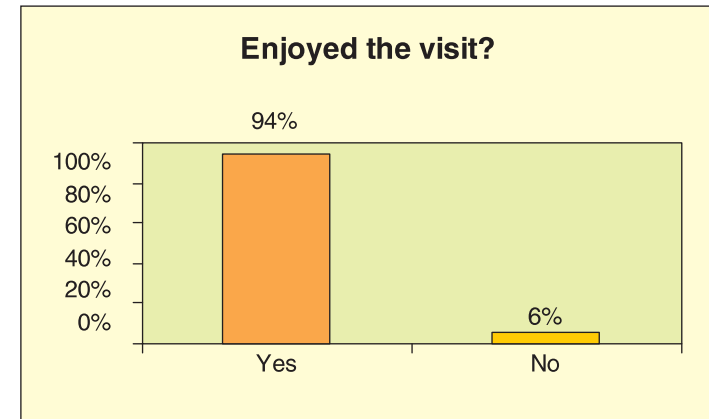
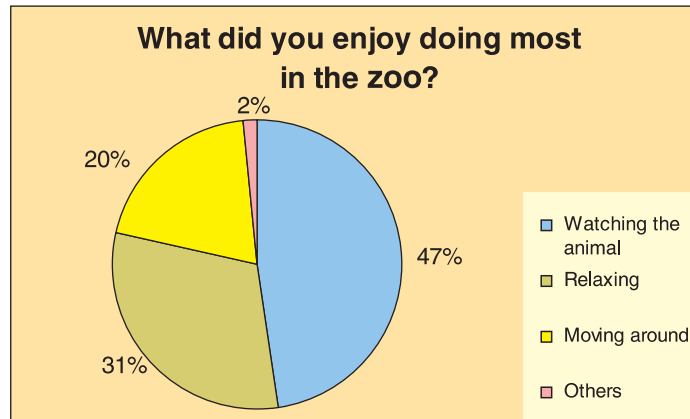
When do they come to the zoo?

61% of people said that they were revisiting the zoo, while for 39% it was for the first time that they were visiting the zoo. For 46% of respondents visit to the zoo is a rare activity, followed by 25% people who visit the zoo once every few months. 18% people said that they often visit the zoo and for 11% respondents there was no fixed duration but visit the zoo whenever they feel like.

What do they do in the zoo?

84% people went around the entire zoo while 17% people visited some areas of the zoo. 49% of people spent 2-3 hours in the zoo. 24% spent nearly an hour and 20% spent 4-5 hours in the zoo. 7% of respondents spent more than 5 hours in the zoo. It could also be said that 76% people spent more than an hour in the zoo.

47% people enjoyed watching the animals in the zoo. 31% liked to relax in the zoo, followed by 20% who enjoyed just moving around in the zoo. 2% of the respondents were not sure of what they enjoyed doing most in the zoo.



Who does not visit the zoo and why?

Annually 600 million visitors visit the zoos globally. This is only 10% of the total world population.

Today zoos are competing with highly sophisticated commercial leisure industries like amusement parks, shopping malls, cinemas, hotels etc.

From the visitor surveys done it was found that 81% people preferred other places to visit rather than visiting the zoo, only 19% people said that they would prefer to visit the zoo rather than going to any other place.

I came from outstation to give an exam here and after my exam before taking my train I thought of visiting the zoo, I am highly disappointed, the zoo is stinking badly and the animals are so dull.

A Tourist

We have a zoo school in our zoo but schools do not have enough time to visit to the zoo, since they are always in a hurry to go back.

A Zoo Director

School teachers in metros had their own reasons for not taking students to the zoo.

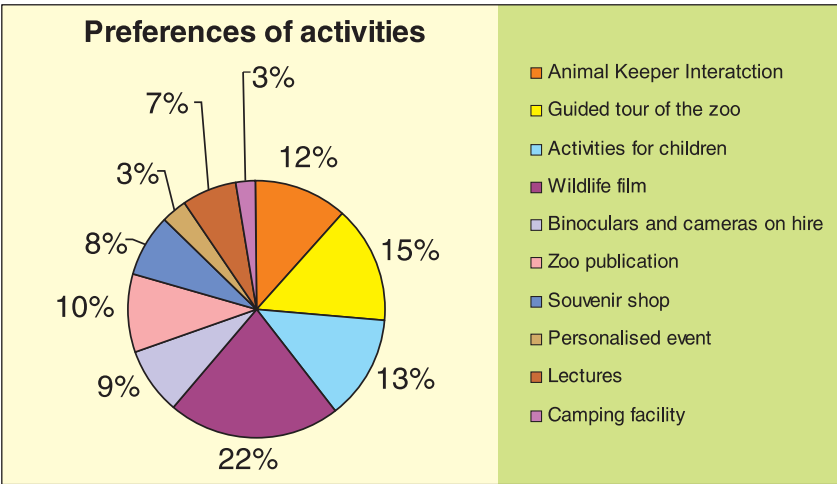
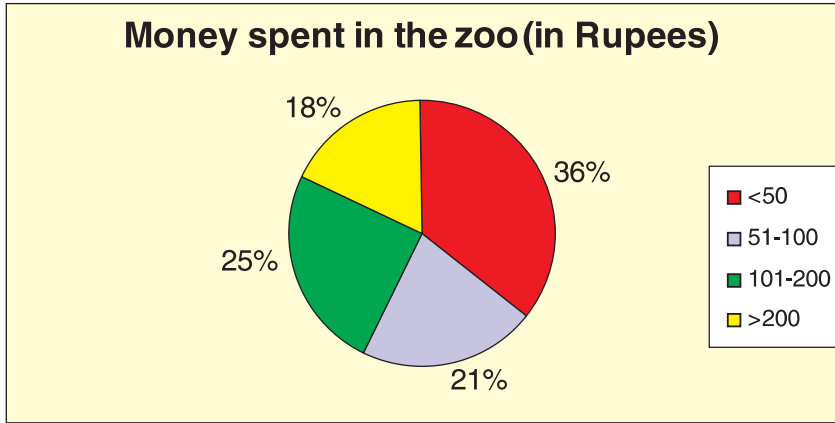
Senior students don't like to visit the zoo. They say they get bored and when given various options, zoo visit, is the last preference and so we do not bring them.

A Teacher's view

Schools have their own timings and most of the schools in Delhi finish the day by 1.30 pm. Zoos should be opened earlier so that students could enjoy a gamut of activities.
A Teacher's view

How expensive is the zoo visit for them?

36% visitors spent less than Rs.50 in the zoo, 21% spent between Rs.50-100, 25% spent Rs.100-200 and 18% visitors spent more than Rs.200/- in the zoo. Buying the zoo ticket, refreshments inside the zoo, commuting to the zoo, purchase of mementoes were some areas of expenses in the zoo.



Preferences of programmes and activities in the zoo

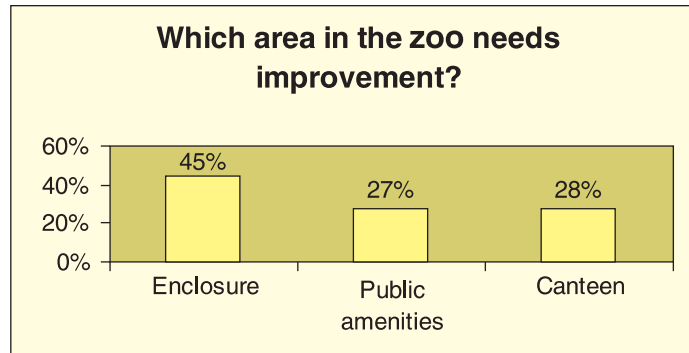
Among a range of programmes and activities offered, most (22%) of the visitors preferred to have wildlife movie show in the zoo. Animal keeper talks, guided tours and activities for children were some of the other preferred activities.

Views on maintenance of the zoo

45% people showed their concern for animal enclosures and said that these need to be improved and maintained well.

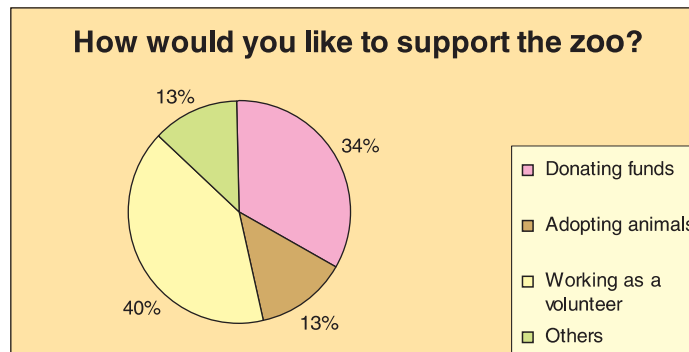
27% people said the same for public amenities followed by 28% people who said this for the zoo canteen.

50% respondents rated the zoo as average for its cleanliness and maintenance. 43% gave this a high rating and 7% rated the zoo low in its cleanliness and maintenance.



Are they interested in supporting the zoo?

40% people showed their interest to work as zoo volunteer followed by 34% people who wanted to help the zoo by donating funds. 13% people wanted to support the zoo by adopting animals and 13% had other ideas for supporting the zoo.



Some key observations from site visits

Visitor type: Mainly family groups were observed

Favourite enclosure: Mainly, visitors liked enclosures of big cats followed by primates and then followed by birds. Other than this there were some star specimens in zoos, for example, White Tiger in the Nandankanan Zoo, Red Panda in the Darejeeling Zoo, Giraffe in the Mysore Zoo, Hoolock Gibbon in the Lucknow Zoo. These were the enclosures where visitors spent their maximum time. Apart from a signage about the animal no additional interpretive facility was observed near these enclosures.

Visitor behaviour

Towards animals

At places where there was a heavy visitation period, visitors were seen teasing or feeding the animals, especially at the primate and bird sections, making noises at the carnivore sections and pelting stones and coins at the crocodile enclosures. Other indirect evidence of such behaviour (bottles inside enclosure, coins in crocodile enclosure) was common to see.



Photo: CEE

Damaging Plants



Photo: CEE

Throwing things into enclosures



Photo: CEE

Feeding Animals

People want to see animal in action so they throw stones on them.

A Zoo Keeper

Towards information provided on signages in front of animal enclosures

Mainly visitors were seen reading the name of the displayed animal. In a family group, one member of the family used to read the name of the animal for rest of the family members, watch the animal for 2-3 minutes and move to the next enclosure. Visitor reading the entire information on the signage was almost negligible. Apart from few foreigners, school groups and some elderly people who were seen reading the signage text, other categories of visitors were found reading only the common name of the animal.

Please refer Chapter III of the Master Plan to know how to develop visitor friendly signage.

Vandalism

Due to increased attentiveness of zoo staff, vandalism was not much observed during the period of the site visit. However in many places indirect evidences of vandalism were evident.

Some example of signages marred by visitors and lack of upkeep



Photo: CEE



Photo: CEE

Other behaviours

Mainly visitors come in family groups to the zoo. In most of the zoos it was observed that after taking a round of the zoo, they sit in zoo lawns and after they leave the place the whole place is full of plastic plates, bottles, polythene and left over food.



Photo: CEE

Family groups picnic in the zoo



Photo: CEE

Animals are also fed by visitors



Photo: CEE

Visitor facilities

The operators shall provide adequate civic facilities like toilets, visitor shades and drinking water points at convenient places in the zoo for visitors. (Rule 10 (48), Recognition of Zoo Rules, 1992)

Public amenities

Existing condition: Though facilities like green spaces, canteens, drinking water and wash rooms are present in most zoos, the condition of public amenities like drinking water and toilets was not found satisfactory in many zoos.



Photo: CEE



Photo: CEE



Photo: CEE

Such facilities not only spoil the recreational element, but also create a bad impression of the zoo and nullify all the educational efforts of the zoo.

Adequate public facilities in itself is an indirect interpretation method, to make people aware on health and hygiene as well as provide them a hartle free and enjoyable visit to the zoo. A good experiance increases the chance of revisit.



Photo: CEE



Photo: CEE



Photo: CEE

Some examples of useful public facilities

Other facilities



Dinosaur Park

Photo: CEE



Sign of Safari

Photo: Arignar Anna Zoological Park (AAZP), Chennai



Touch screens to get information on the zoo

Photo: CEE

Free entry: Many zoos offer free entry to visitors on green days of the year.

Animal safari offered by many zoos is a special attraction and is enjoyed by tourists and local visitors. However the guides who accompany these safaris provide only necessary information. This misses out a very effective interpretation opportunity. Night safari is a new concept coming up.



Photo: CEE



Photo: CEE

Nocturnal house and reptile house are added attractions in many zoos



Photo: CEE

Zoos support environment friendly practices

Many zoos are practicing ban of polythene bags inside the zoo. Such efforts are indirect interpretation methods to make visitors aware about the natural feeding habits of the animal and how polluting zoo with plastic could harm zoo animals.

Lucknow Zoo distributes almost 20,000 paper bags free of cost to visitors every month.

Mumbai Zoo had banned the plastic bags and plastic bottles inside the zoo premises

Hyderabad Zoo has taken initiative steps to have tea, coffee and ice cream in paper cups, besides that they have opened a counter near entrance, where paper bags of different sizes are made available at reasonable cost.

Nehru Zoological Park in New Delhi has been declared as a 'No Poly Bag Zone'

Source: Anti plastic activities in Zoos of India, some facts and statistics of plastic, by Dr. Yuvraj R, Kaginkar, Zoos Print, volume XXII, Number 2, February 2007



Anti Plastic Campaign
in Nehru Zoological Park,
Hyderabad

Photo: Hyderabad Zoo

Anti Plastic Campaign

Why: Nehru Zoological Park, Hyderabad was facing a plastic menace which was causing harm to animals. The only solution was to start the anti plastic campaign and make the zoo a plastic free zone.

How: Senior officials had meetings and started collecting a deposit of Rs. 5/-. If somebody wants to take a plastic bottle of water, they have to deposit Rs.5/- and a sticker was put on the bottle. When the person returns and shows that bottle with the sticker then the deposit of Rs.5/- is returned to them. In this way plastic bottles started coming out of the zoo. The cost of the sticker comes to 5 paise. In case someone forgets to collect the deposit money of Rs.5/-, that becomes a bonus for the zoo. Some people still forget or throw bottles inside the zoo because of old habits, then the zoo staff who get hold of such bottles and brings it back, gets the deposit of Rs. 5/-. So in this way what happens is that now, 99% of bottles are coming back. But still that 1% is remaining.

Apart from this, the zoo has a counter for paper bags. People usually bring food and other items in polythene bags. At the zoo they get paper bags for popcorn and chips. A small brown coloured paper bag costing 25 paise is available, which people could buy and transfer their stuff into. If people bring still bigger items, then a little bigger sized bag costing 50 paise is available and if people are having banana and other big items then one rupee paper bag is also available. Apart from that cloth bags for Rs.20/- is also available, visitors could deposit Rs.20/- transfer their items and take it inside the zoo. When they come back, they return the cloth bag and get their deposit of Rs.20/- back. A charge of Rs.2/- is taken for washing the cloth bag. This cloth bag also contains a logo and it is in khaki colour. This facility is also being run by a group of women. Bags are available in market. They buy cloth bags from the open market. In fact jute bags are also available for sale that costs about Rs.30/-. But for rental purposes only cloth bags are used.

Plastic bottles which visitors return back are sold in for Rs. 10/-per kg and polythene bags are sold for Rs.5/-per kg.

Challenges

Huge visitation: In huge visitation season it is tough to manage and collect plastics as there is only one counter.

Visitors coming in vehicles: Visitors, who come in their car, even after all the instructions they still bring plastic bottles and plastic covers. There are guards to search the cars but somehow they manage to hide bottles and take it inside the zoo.

(Courtesy: Zoo Director, Nehru Zoological Park, Hyderabad.)

2

I want to make my zoo, polythene free and I have installed a heavy security to check if anyone is taking polythene inside, but visitors who come in vans hide and take it inside, how do I change this attitude.

A Zoo Director

'Welcome to polythene free zone' I put this message at the entrance so people come to know that polythene is not allowed in the zoo.

A participant of the regional workshop

Zoo staff and visitor interaction

Mainly visitors were seen interacting with the zoo staff, for asking directions or while they were stopped when teasing or feeding animals.

Zoo keepers, guards, people handling the ticketing system, etc., are the zoo staff who directly interact with visitors. This interaction is mainly for buying tickets, directing visitors and to stop any kind of vandalism. Other staff like education officer, curator, veterinarians, director etc. interact with visitors only during structured and planned visits, which is usually planned for students, VIPs, forest officers etc.

Overall the behaviour of zoo staff towards visitors was found friendly and helpful. Staff in many zoos said that sometimes they have to be rude with visitors to prevent vandalism in heavy rush season.

Keepers interviewed in different zoos said that they would like to interact with visitors but at a fixed time and place as they do not want to be disturbed during their working hours.

Key Findings

While the information gathered from these three methodologies is not comprehensive, nor complete, it does indicate the trends in visitor composition, expectations and visitation patterns, which would be useful inputs to develop and plan any zoo education programme.

Listed below are some key findings related to strengths/opportunities, constraints/ limitation based on the exercise described above.

Strengths/Opportunities

- Large and varied visitor groups to the zoo is an opportunity to reach to a wide target audience.
- A large number of young and educated people come to the zoo.
- Zoos are still an inexpensive source of entertainment. The average rate for zoo tickets ranges between Rs.10-15/- for adults and a minimum of Rs.2/- for a child. Many zoos also offer concession and even free tickets to students, senior citizens and physically challenged people.
- Many zoos are offering a range of animals displayed in naturalistic enclosures, which in itself is a good source of information. Though the visitors do not read signage but they stand for a longer time near each enclosure. A well planned and carefully designed enclosure in itself could be a good source of education.
- In addition to animal enclosures, most zoos have a good biodiversity in and around the campus. This could also be used as an opportunity to engage and educate visitors.
- Surveys indicated that though most of the visitors visited the zoo for recreation but there were equal number of visitors who came because they were fond of animals and they wanted to learn about animals. Also 81% of people said that they watch wildlife channels like National Geographic, Discovery, Animal Planet etc. This openness to learn is a very good starting point for zoo education.
- People like visiting zoos. Though visitors have to walk long distances on foot in most zoos, yet 94% visitors enjoyed visiting the zoo. People like to spend long hours in the zoo. They get quality time to spend with their family and friends. 76% people spent more than two hours in the zoo.
- People are concerned for zoos. People are open to help the zoo as 87% people showed their interest in supporting the zoo, either by donating funds, becoming a volunteer or by adopting animals.



Photo: CEE

Challenges

- Zoos cater to a large and diverse target audience. Zoos receive a large variety of visitors with varied socio cultural, educational, occupational and financial backgrounds. They belong to different age groups. They speak different languages. Though all the above points are strengths also since at one time you reach out to a wide target audience, this helps in spreading the message of conservation but at the same time, addressing to the educational needs of all these target groups is a major challenge.
- To remove the childcentric psychology of zoos. Most of us still think that only children should be targeted for educational purposes. The data from mail surveys as well as different studies have also shown that zoos receive a good number of adult visitors who are often neglected while planning any educational programme or activity.

It is a misconception that education must primarily be meant for children. Certainly children form an important part of the zoo public, and children indeed form a vital target group for education, but other groups deserve just as much attention in the total zoo education plan. Education particularly conservation education should reach every category of zoo visitors.

World Zoo Conservation Strategy

- To develop programmes for the visitors which infuse education with recreation. Recreation is the main purpose behind the zoo visit. Most of the visitors come to have a good time in the zoo. Zoos need to develop exciting programmes which could give a good recreational as well as educational experience to the visitors. More on this aspect is dealt in the next section, and coming chapters.
- To make zoo visit first in the preferences of places to visit. Today zoos are competing with mainly sophisticated commercial leisure industries like amusement parks, shopping malls, cinemas, hotels etc. People have of choices to entertain themselves. As the survey result also says, 81% of people preferred other places to visit rather than coming to the zoo.

Zoos need a 'paradigm shift'. zoos should know their own unique selling propositions (USP's) so that it gets an edge over competitors (e.g. malls, theme parks, amusement parks etc), and know what makes their zoo different from other competitors.

Bernard Harrison, Ex-director, Singapore Zoo.

- To design such signages, so as to immediately attract visitors to see and read the information provided on it.
- Holistic planning which considers and addresses the needs of the visitors, the well being of animals, the effective functioning of zoo staff in educational programmes.
- Training and capacity building of zoo staff in playing an effective educational role and interacting with visitors.
- Reaching to non visitors to the zoo
- Develop vandal resistant as well as weather resistant materials in limited budget.

Recommendations from Zoo Managers

- A visitor profile is essential to cater to the audiences to the zoo.
- Zoos should exchange ideas on visitor management and vandalism.
- Zoos should provide adequate public amenities.
- Zoos should develop proper waste management system.
- Zoos should be highlighted as an important tourist destination. There could be dialogue with hotel owners, local guides and taxi owners for increasing tourist inflow to the zoo.
- Films about the zoo, its animals and facilities can be screened at the entrance at short intervals.
- Zoo staff should be trained in human relations for better interactions with the zoo visitors.

2

Master Planning for the Zoo Visitor

Zoos reach hundreds of millions of people all over the world. They come to the zoo because in one way or another they have an interest in animals. Thus the total zoo public, not only children, forms the audience for any educational efforts both formal and informal. Because zoos appeal to a wide cross section of society, their educational mission should be to provide educational experiences for all visitors. The challenge is exactly how to do this.

Recognizing the Diversity

Who visits the zoo?

The fact is that zoos are visited by diverse groups of visitors. The survey result also shows that visitors to zoos belong to varied age group with different educational and occupational background. They have their own interest and preferences.

To cater to this varied target audience to zoos, an important factor is to have a visitor profile of your zoo. Field visits to many zoos revealed that most zoos in India are having data only on annual visitation and age groups as a part of the visitor profile.

A visitor profile should be a part of every zoo's documentation. Such information helps to make visitor specific programmes and activities in your zoo, to provide visitor specific amenities as well as to develop target oriented effective interpretive facilities. Though annual visitation and age group could be compiled from the entry ticket registers, and a zoo staff (volunteers, keepers, security guards etc.) could be given the charge of administering the visitor behaviour in the zoo, data on all other points could be collected by developing questionnaires and doing a visitor survey and data collection both during peak and lean visitation seasons of the zoo.

A Zoo Visitor Profile should reveal data on:

- Annual visitation of different categories of visitors (Adult, child, students, foreigners, differently abled, others)
- Demographic profile (age, sex, income etc.)
- Educational background
- Occupational background
- Purpose of visit

- Time spent in the zoo
- Favourite animal
- Likes and dislikes
- View about the zoo (maintenance, staff, facilities, programmes etc.)
- Their suggestions on development of zoo
- Behaviour in the zoo (observed from a distance)

Below given are twelve steps which could be used to design and conduct a visitor survey.

Steps for designing visitor surveys

- Step 1. Deciding on feasibility of a survey
- Step 2. Setting objectives
- Step 3. Choosing a survey methodology
- Step 4. Writing questions
- Step 5. Formatting the questionnaire
- Step 6. Writing instructions for completing the questionnaire
- Step 7. Pretesting the questionnaire
- Step 8. Estimating your visitor population and selecting your sample
- Step 9. Administering the survey
- Step 10. Training interviewers
- Step 11. Inputting and analyzing visitor data
- Step 12. Reporting visitor information

*To get a detailed idea on designing and conducting a visitor survey please refer to the source - A Guide To Designing and Conducting Visitor Surveys, by Julie Leones, Extension Economist
<http://ag.arizona.edu/pubs/marketing/az1056/>*

Catering to Diverse Expectations

What is the purpose of visit to the zoo?

For most visitors, coming to the zoo is a family affair and people come to enjoy, relax and have a good time with the family. Seeing wildlife films/channels, insistence of kids, friend's company, zoo being an important site of the city, books on wildlife etc. were some other motivating factors behind a zoo visit. The challenge (which is also expressed by most zoo managers of the country) is to merge recreation with education. While structured “educational” programmes may be planned and offered to groups of students undertaking a zoo visit, it is a fact that most visitors to zoos come in family groups which include children, adults as well as senior citizens. The challenge is also how to provide some sort of educational experience to this mixed composition in terms of age, interest and levels of understanding and motivation within the same period of time. There are many such examples from zoos across the world where they have developed programmes which is full of excitement and recreation, with a hidden but effective educational element.

Also refer to Chapter IV for examples from Indian Zoos and some ready-to-use targeted activities.



Photo: CEE

A number of different factors influence the impact of such a visit starting from the basic amenities available (facilities like toilets and drinking water), resting spots, kind of signage, live interpretation, interaction with zoo staff, and recreation facilities (details of each of these provided in the coming chapters).

Thus a master zoo education plan would need to keep all these aspects in view as part of a consolidated effort to provide an “educational” experience for every zoo visitor.

It is important to ensure that for visitors zoo outing becomes an all-round educational experience.

A Zoo Director

Family Programmes

Several zoos across the world offer short structured programmes for parents and their young children, offering them a chance to interact with plants and animals. This is a very good opportunity for city dwellers where such interaction is almost lacking, the zoo is a popular place for parents to take young children. But after a while, toddlers get tired. However with little bit of facilitation even very young children can be guided to become observant, and spot similarities and differences in the animals they see.

The programmes could be planned for a duration of 1-3 hours, and innovatively combine interaction with real animals observation, touching, feeling etc. with art, craft, puppetry and story-telling. Such programmes are effective even with children as young as 2-3 years and upto 6-7 years.

Some themes that lend themselves well are:

- How different animals move: Youngsters get a chance to imitate different kinds of locomotion and movements.
- Animal covering: Patterns and textures which can be combined with art.
- Colours and sounds: The bird section is a good place to experience this.
- Shapes and sizes: From elephants to snakes, all kinds of ears, and tails, these are live examples to demonstrate these concepts.

For family groups with older children, guided tours, self-guided trails, animal keeper talks and attractive signage can add a lot of value to the zoo visit.

More examples of target oriented programmes is given in chapter IV.

2

Understanding visitor motivation

Visitors do not arrive at a zoo with a completely blank mind. Each visitor carries his/her prior knowledge, experience, interest, expectations and motivations for this visit. This 'personal context' has an impact on how much and how the visitor learns from the visit.

In order to predict what they might gain from the visit it is important to capture what motivates visitors. These motivations largely determine how visitors term learning and sense of satisfaction of a visit.

Visitation figures or trends by themselves do not tell enough about what knowledge and attitudes visitors bring with them, and how they may change afterwards. Being aware of the diversity of motivations helps in planning zoo education programmes which could to some extent, address each of these.

What motivates the visitor?

There have been several research studies on visitor motivation. One of these, by John Falk et al suggests that motivations may be identity-related. They clustered these identities into five distinct categories.

Every visitor enters with a set of expectations that can be categorized as falling within one or some combination of five major identity-based categories.

Explorers are curiosity-driven and seek to learn more about whatever they might encounter at the institution.

Facilitators are focused primarily on enabling the experience and learning of others in their accompanying social group.

Professional/Hobbyists feel a close tie between the institution's content and their professional or hobbyist passions.

Experience Seekers primarily derive satisfaction from the fact of visiting this important site.

Spiritual Pilgrims are primarily seeking a contemplative and/or restorative experience.

These identity-related motivations are multi-dimensional.

The implications of these varying motivations may be reflected in planning what zoos could offer.

Generally most visitors come for multiple reasons, but the majority of visitors have a single dominant identity-related motivation.

Implications: Zoos should offer multiple layers of experiences to appeal to the broad array of visitor motivations, goals and learning outcomes. They should design experiences for each dominant group in order to better match their desired outcomes.

Facilitators: Focus on enabling learning of others.

Implications: Zoos should offer opportunities for social interaction at exhibits and during programmes offer to talk with staff, provide places for regrouping and processing of their visit. Need to ensure that parents in part have the tools to support their children's learning.

Explorers: Visit for personal interests

Implications: Satisfaction is tied to the quality of the learning experience, including the ability to see animals and the interpretation. New or surprising offerings, e.g. temporary exhibits, in-depth programmes, create challenging experiences.

Experience Seekers: Visit as tourists, value the zoo as part of the community. Least knowledges and lower expectation.

Implications: A unique programme or offering that surpasses other local attractions.

Professional/Hobbyist: Tune into institutional goals and activities.

Implications: Interest in premium programmes - photo tours, how-to workshops, theme nights.

These are a great source for volunteers, members and donors.

Spiritual Pilgrims : Very different needs and Small group.

Implications: Create areas for reflection. Offer programmes for quieter time of day or year. Also great source for volunteers, members, donors.

Source: John Falk, Eric Reinhard, Cynthia Version: *Why Zoos and Aquariums Matter: Assessing the Impact of a Visit to a Zoo or Aquarium*

(www.aza.org/ConEd/Documents/Why_Zoos_Matter.pdf)

Scheduling the Programmes

When do they come to the zoo?

Data collected from inventory forms reveals that, in most zoos, vacation and festival time is the peak visitation season and rainy season is the lean visitation period.

This finding could be taken as an opportunity to develop general (which is for all age groups, e.g, guided tours.) programmes in peak season, for a large crowd, and structured and specific programmes in lean seasons for student groups, teachers groups, officers etc.

Examples of such programmes are given in the coming chapters of the Master Plan as well in the case study document.

The survey results showed that many people revisit the zoo.

To make such visitors feel more special, zoos should make them privileged visitors and give discounts on various activities. Visitors should be told about this facility at the entrance so that they retain their tickets to be shown on their revisits to the zoo. This is also a part of evaluating your zoo, which would show that the zoo is liked and revisited by people.

Structured Visits

What do they do in the zoo?

Most visitors of the zoo go around the entire zoo, and spend nearly 2-3 hours, watching animals, relaxing and having a good time with the family in the zoo. There are also visitors who have limited time and cannot cover the entire zoo.

The zoo could provide visit options to match the time available to the visitor. It is suggested that at the ticket counter of every zoo, there should be 3-4 options for visitors so that they could plan their visit accordingly.

An example is given:

Can we help to plan your visit?

Option I: Plan your visit for 1 hour in the zoo

- Follow the path marked 1, in the zoo. This would take you to our prized and most famous attractions of the zoo.
- After this half an hour (time could vary for small and mini zoos) walk, you follow the path towards interactivity section. Here you explore more about wildlife through interactive games
- Take a quick bite at our Chital outlet (for fast service) which would refresh you for your other activities of the day. Also have refreshing organic drinks from a diversity of plant products.

Option II: Plan your visit for 2-3 hours in the zoo

- Follow the path marked 2, in the zoo. This would take you to all displays in the zoo.
- After one hour of this tour, have a refreshing lunch at our Tiger canteen. The meal here would fill you with a lot of energy for the day.
- Visit the Interactivity section next.
- Do green shopping at the zoo shop which gives you a range of products to choose and pick a special gift for your near and dear ones. The money will be a contribution to save our prized exhibits and endangered species.
- If you still have some time, then join us for some special “behind the scenes activity” (please book this activity before you start your tour of the zoo).

Attracting More Visitors

Who does not visit the zoo and why?

81% people preferred to visit other places than visiting the zoo. To reach to non visitors to the zoo and to make people revisit the zoo, zoos could develop outreach programmes.

It is also a fact that in cities people are getting other entertainment and recreation options like malls. These places are now preferred to any other place of entertainment since they provide various options under one roof. Accepting this fact, and to publicize the zoo, zoos could also hire small space in such malls and open a Zoo Shop. This shop could also be established with sponsorships from various

2

corporates. Such shops could put up posters advertising the zoo and provide information about the zoo through hand outs, zoo maps, brochures etc., and also they could sell various types of attractive merchandise (with zoo logo or messages) like, T-shirts, caps, key chains, hand made diaries, folders, organic products, CD's for kids on wildlife, games etc. As an added attraction these shops could also have interactive and on the spot games on a paid basis.

Audio-visual attractions

Preferences of programmes and activities in the zoo

As per the survey, most visitors preferred to watch wildlife movies in the zoo. Facility of showing wildlife movies is not a very costly affair. In a one time investment the zoo could screen wildlife films in the zoo.

It is recommended that every zoo as per its capacity should have a small audio visual room (in case of small and mini zoos and zoos with less funds) or an auditorium (in case of enough space and funds). This room could have a LCD, Projector, Computer and a collection of movies and books related to wildlife and environment.

Most zoos have a good diversity of trees in and around. This could be taken as an opportunity to develop nature trails in zoos. Refer Chapter III of the Master Plan to know more on this (See Zoo Trails).

My zoo is a part of a large Important Bird Area (IBA). It also has a good biodiversity of wild flora and fauna.

A Zoo Director

Please refer to Chapter IV for more ideas on programmes and activities to be offered to visitors.

Adding Value to Star Attractions

Favourite animal in the zoo

It was found that big cats and primates are the most favourite of visitors. In many zoos apart from an animal signage there is no other interactive facility offered right in front of the enclosure.

Added facilities of interactivity at "star exhibits" could leave a greater impact on the visitor.

Survey results show that most visitors like either charismatic animals like lion, tiger etc. or animals which are active or who 'perform' like chimpanzees or monkeys. The challenge is to make all zoo animals as visitor attractions.

The famous Gir Sanctuary would have been a great bird sanctuary, if lions would not have been there. Our challenge is to break this single species approach.
An Environmental educator and Naturalist

Zoos should develop interpretive programmes on small and non charismatic creatures and make visitors aware of its importance in the ecosystem.

Creatures like, butterflies, bats and frogs etc. are also a part of day to day life of visitors and they could easily relate to these.

Developing a Cadre of Volunteers

Are they interested in supporting the zoo?

Most people showed their interest in supporting the zoo as a volunteer. During field survey it was found that few zoos have a good team of volunteers, but there are many zoos where this facility did not work due to volunteers taking undue advantage and ensuing management problems.

More on how to develop a good team of volunteers would be discussed in Chapters IV and V.

Orienting Visitors

During field visits and visitor surveys it was observed that many visitors in the zoo keep asking for directions, and are disoriented as to where to go for specific things. For a smooth and hassle free recreational experience, visitors need to be oriented properly. This not only creates a good impression of the zoo, but also encourages and guides visitors to avail of interpretive educational facilities offered by the zoo, and learn more about animals, as they would be in a receptive frame of mind.

It is accepted that visitors come to the zoo with different motivations and expectations ranging from recreation (passing time) to serious research. Whatever brings them to the zoo, every visitor needs to be oriented to what the zoo has to offer and how to access what he/she needs; also visitors need to know what to expect during their time at the zoo, and what is expected from them in terms of behaviour.

There are many ways to do all this.

Entrance Signage

This needs to clearly indicate zoo timings and close days, ticket rates and any other information that the visitor needs to have before entering the zoo premises. (For example if any special facilities are available for differently abled persons, special rates for groups etc.)

Documentary at zoo entrance: Tree Foundation, a Chennai-based organization has developed a seven minutes documentary on the Arignar Anna Zoological Park (AAZP), Chennai, This documentary talks about the zoo, special attractions, facilities, do's and dont's etc.



Entrance signage

Photo: CEE

People suggest that right at the entrance one should orient visitors about the zoo, by showing wildlife documentaries, but when I receive lakhs of visitors in a day how do I handle it, it's a stampede situation.

A Zoo Director

Zoo Map

As soon as they enter, it is useful for visitors to get an overall picture of what is on offer, the scale and plan of entire zoo, and the location of the specific sections (e.g. large cats, birds, reptiles etc.). This is useful for visitors to get an idea of the distances involved, and to plan what to see based on their interests and time available.

Zoo map must be easy for an average visitor to understand. Colour coding for different areas and use of visuals or identifiable icons means that the map can be referred even by those who would not read the text.

Zoo map should be located not only near the entrance but at several strategic locations within the zoo site, to help visitors understand where they are at that point, and to plan what to do next.

Directional Signage

Clear directional signages whether to direct towards animal enclosures or towards facilities is very important. It saves time of the visitor, helps streamline visitor movement, and avoids confusion of asking zoo staff or others. In case of such signage also minimum text and effective icons or visuals means that the communication can reach many more people.

Please see more on Directional signage in Chapter III.

Zoo Ethics Signs

It is necessary that visitors know clearly what is the behaviour expected of them while they are at the zoo. However, most visitors either ignore or are put off by straight “do’s and dont’s”. The same messages can be communicated in more innovative ways. These signs also need to be placed in more than a single location on the zoo campus.

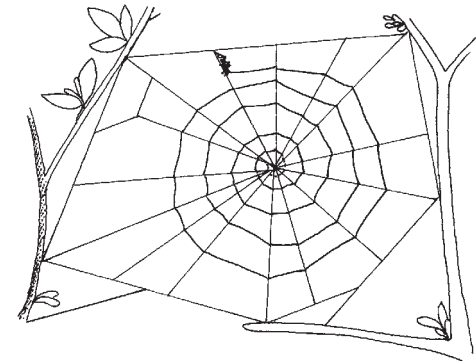
Please see more on different types of zoo ethics signage in chapter III.



Photo: Assam Zoo

Websites

Visitors could get detailed information on the zoo from the website. A zoo website is also a good source of providing information on health and safety of visitors during the zoo visit. Find a list of zoo websites from page 320 to 322.



Visitor Centre

Visitor feedback has indicated that people feel that it is a good idea to have a room/space for slide shows and film shows which is an added attraction. Such a space can also be used for carrying out orientation and indoor activities for school groups.

In case there is a building available, this can be used as the orientation point for visitors. The zoo map, do's and don'ts and other necessary information could be available here. This facility is especially useful in case of organized groups like school students at designated times. In case of huge onslaught of visitors at a time, especially on holidays and during festival season, such a centre may not be able to cope. It is also possible that a short film about the zoo can be shown at such a venue. Again here the effectiveness is for smaller groups, and not so much for a large mass.

For large crowds during peak season, ticket souvenirs would be a good way to orient visitors. A ticket could include a zoo map, important attractions and do's and don't's.

Price range per ticket would be nominal if more than 10,000 such tickets are printed at one time.

In case of limited funds all this information could be printed in two colours, or black and white and distributed along with the ticket, with a small hike in the ticket price by Re. 1/- or 50 paise.

Here again zoos have a chance to collaborate with corporates and get sponsored printing of such tickets. Ticket could include a small logo of the sponsor.



Photo: CEE

Public amenities

Public conveniences: To make the zoo visit more exciting and comfortable for visitors it is important that zoo offers basic facilities like toilet, drinking water, green spaces to rest etc. The condition of such basic facilities was not found satisfactory in most zoos.

Visitors to zoos come in large numbers and most of them stay for more than two- three hours in the zoo. They are scattered at different points in the zoo. Looking at this, zoos should provide toilets and drinking water facilities at different intervals in the zoo.

Since visitors come in large numbers and due to limited funds free toilets are not easy to maintain so zoos should develop pay and use toilets and the revenue generated could be used for the maintenance.

Green spaces: Most zoos are spread in large areas and visited by huge crowds. People spend long hours in the zoo. Providing benches for all is not feasible for zoos, but zoos could develop green spaces which not only provides enough space for visitors to sit and enjoy the nature but also improves the aesthetic value of the zoo and attracts more visitors.

It is also recommended that such areas should have enough dustbins so as to keep the area clean and hygienic. Since families come for picnic, lot of garbage in zoos lawn is a common feature to see. To avoid this, zoos should also initiate systems through which visitors could be fined if caught spreading garbage in these areas. Signage like- "Keep your zoo clean and green", "Use dustbins and help us maintain the zoo" etc. could be put in these lawns.



Toy train

Photo: CEE

Other facilities



Children's Park

Photo: CEE



Elephant joy ride

Photo: CEE



Photo: Delhi Zoo

Benches to rest



Photo: CEE

Green spaces



Photo: CEE

Animal-shaped dustbins

Given below are some facilities found in different zoos of India which could be replicated in other zoos as well.



In many zoos such shops are run with the help of the World Wide Fund for Nature and Natural Resources (WWF), India.

Photo: CEE

Soft toys developed by local villagers, to be sold in the zoo shop



Photo: CEE



Photo: CEE

Zoo shop: Found to be present in eight, out of total zoos surveyed.

Merchandize

Common merchandize which is available in all the zoo shops includes T-shirts, brochures, badges, folders, caps, greeting cards, soft toys, stickers, key chains etc. Other items include wildlife related books, handicrafts, book marks, pen stands etc.

We have merchandise like, stickers, posters, badges, pen stand with animal pictures on it but we do not have a zoo shop as we do not want to sell these items, we are more interested to give them as souvenirs to special guests and participants of different zoo programmes, as it is a rare collection of the zoo, which would loose its value once we start selling it.

A Zoo Director

Some interesting facilities being offered by zoos across the world

London Zoo, United Kingdom

Gift Shops, ATM inside the larger gift shop.

Shanghai Zoo, China

- Walking sticks available
- On presentation of entrance ticket-free disposable raincoats on rainy days.

Ueno Zoo, Japan

- Groups of 20 or more paying individuals are entitled to a 20% discount provided the group enters together through one entry at one time.
- Free admission for the disabled, and one assistant per disabled person.

Singapore Zoo, Singapore

- Strollers save the hassle of lugging your stroller all the way from your home to our park! Simply rent one from us right here!

Rental Fee: \$8 (available on a first-come-first-served basis)

- Wheelchairs are available for loan. This service is not chargeable (available on a first-come-first-served basis)

The Alaska Zoo, United States of America

"We are located 20 minutes from downtown Anchorage. We offer a free shuttle which operates on Memorial Day - September 15. Shuttle is open seating, no reservations taken. Summer schedule posted soon!"

Birmingham Zoo, United Kingdom

Organizes Birth Day Parties. Outdoor Party or a Zoo Safari Party in the Children's Zoo for 1½ hours with a party assistant. Parties include: Awesome zoo theme cake, soft drinks, ice cream, train ride and fish food for the children.

Arrangements shall be made to provide access to the zoo to disabled visitors including those in the wheelchair.

Recognition of Zoo Rules 1992.

Visitors with Special Needs

Some of the zoos have made provisions for people with special needs.

The Mysore Zoo offers a special programme for differently-abled persons. Tuesday the zoo is closed for the public but opened to special guests. The relevant institutions are contacted by the zoo as well as the programme is advertised in local news papers. The zoos battery vehicle brings them and also drops them back. While at the zoo, they are given a guided tour in the same battery operated vehicle.

A Philanthropist sponsors lunch for the special visitors.



Mysore Zoo, Tuesday Programme

Photo: Mysore Zoo

Disabled-friendly facilities in Singapore Zoo

Admission: Disabled visitors to the Singapore Zoo enjoy FREE admission. Visitors have to be affiliated to the National Council of Social Services' registered Voluntary Welfare Organisations (VWOs).

Parking: Visitors displaying a disability sticker on their vehicles, may park in the designated parking area.

Wheelchair: Wheelchair services are available at the entrance. Visitors may loan the non-motorised wheelchair for free (available on a first-come-first-served basis).

Zoo paths: About 90% of the park is accessible by wheelchair. There are ramps and allocated areas for disabled visitors to view various exhibits and animal shows.

Rest rooms: Toilet blocks have facilities for users with disabilities.

Show areas: Show areas are marked out to cater to disabled visitors. At the Animal Friends Show, Shaw Foundation Amphitheatre, Elephants of Asia exhibit as well as the Sea lion and Polar Bear viewing galleries, the wheelchair seating capacity ranges from 6 to 15 persons.



Visitor behaviour

Vandalism

During field visits and interactions with zoo directors it was found that vandalism is a major concern for zoo directors.

It is recommended that rules and regulations towards conduct of visitors in the zoo should be properly displayed at various places and strict monitoring should be done. Also these rules should be printed and be a part of the zoo ticket.

Staff and visitor interaction

As recommended by zoo directors and which is a very important point zoos should have hospitable staff to give a good experience to visitors. Training of zoo staff in visitor interaction could be a possible solution. (Please refer to Chapter V)

Fixed timings for visitor interaction with the animal keepers can help to meet the interest of visitors in knowing more about specific animals, without disturbing the zoo staff in their routine work with questions.

The timings for such interactions can be put up at the entrance. These may coincide with the animal feeding time if suitable.

The above findings would aid the zoo managers to understand the issues related to zoo visitation, visitor trends, visitor interaction, visitor facilities etc. and develop guidelines and a framework for better visitor management in the zoo.

An example on visitor rules of conduct, from Salisbury Zoo indicates staff and visitor interaction

Visitor Rules of Conduct while at the Salisbury Zoo, Maryland, U.S.A

Welcome to the Salisbury Zoo!

The Salisbury Zoo is for all members of the community. We are committed to providing an excellent experience to our visitors and ensuring that everyone who uses the zoo has a safe, comfortable, and enjoyable experience. Use of zoo facilities and resources implies acceptance of our Visitor Rules of Conduct, which are based on these principles:

- Respect other visitors and their right to have a positive experience at the zoo.
- Respect zoo staff and volunteers, whose responsibility it is to help you get the most from your zoo experience and to maintain a safe and comfortable atmosphere for all visitors.
- Visitors should follow rules related to all zoo animals, facilities, equipment, and resources.



- Children under the age of 9 should be attended at all times by a parent, caregiver, or someone over the age of 13 who has the authority to look after them. Zoo staff are not responsible for children left unattended or without supervision in the zoo.
- Protect your personal property while in the zoo or on zoo property. The zoo cannot take responsibility for lost or stolen property.

When questionable or inappropriate behaviours occur:

- Zoo staff members have the authority to enforce the Visitor Rules of Conduct.
- Depending on the nature and frequency of the Visitor behaviour, consequences may include loss of zoo privileges for a specified period of time.
- Staff may call upon law enforcement to assist in managing some situations, including removing and/or arresting trespassing visitors who have been banned from zoo property.

Unacceptable behaviours include but are not limited to:

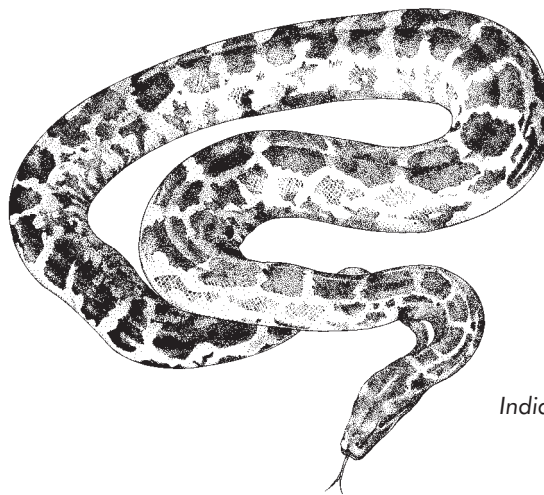
- Bathing in or misusing zoo restrooms.
- Behaving in a violent or threatening manner.
- Bringing animals, other than guide dogs, into the zoo.
- Feeding of zoo animals.
- Crossing the barriers that protect zoo visitors and animals.
- Creating a public disturbance, e.g. talking loudly in conversation or on cell.
- Failing to attend to a child less than 9 years of age.
- Interfering with free passage.
- Not wearing shoes or removing shoes.
- Sleeping in the zoo or on zoo property. Stealing, mutilating, or defacing zoo and/or property.

- Using alcohol or illegal drugs or behaviour.
- Using obscene or abusive language.
- Harassing and/or verbally abusing zoo staff.
- Harassing and/or verbally abusing zoo volunteer.
- Feeding of wild animals, including waterfowl.

Source: <http://www.ci.salisbury.md.us/Portals/0/CityGovernment/Resolutions/Res1385.pdf>

I installed the zoo map, made of very sturdy material in the zoo, so as to stop vandalism, then also somebody broke it. How do I deal with such things?

A Zoo Director



Indian Rock Python

Interpretation

Attractive and effective signage methods and interactive displays to explain activities of various species to visitors, published education material and audio-visual devices are proven methods for driving home the conservation message. Besides signage, the zoo shall also use guided tours, talks by knowledgeable persons and audio-visual shows for effectively communicating the message for conservation to the visitors (National Zoo Policy 1998).

For most visitors to zoos, the educational component is generally limited to looking at the animals and reading some information about them. This is generally a passive activity and it is likely that 'learning' from this would be temporary and superficial. In the last few decades it is accepted that a more active involvement of visitors in the zoo experience enhances the educational element and also the effectiveness of the experience. Interpretation is an approach and technique to help achieve this.

Interpretation is an educational activity that reveals meanings and relationships through the use of original objects and first hand experiences. It is more than simply to communicate facts.

Freeman Tilden, 1957

This chapter reviews the overall status of interpretation in the context of zoos in India. It includes observations on presence/absence of interpretive facilities, effectiveness, constraints in the area and recommendations from zoo managers of different zoos across the country.

Signage

In most of the zoos surveyed following were the main types of signage observed: signage for animal enclosures, directions, zoo ethics and zoo map.

Signage includes:

Common name, Latin name, information on animals, status, distribution, reproductive biology etc.



Photo: CEE

Animal enclosure signage

Pattern of Information: A common pattern in which the information on animal displays is provided for the signage in most zoos.

Font size: A huge variation was observed in font size of text on signage. There was no standard font size even in the same zoo, and even for same category of signage.

Signage with overcrowding of content



Photo: CEE

Signage with small font size of text



Photo: Hyderabad Zoo



Photo: CEE

Small font size and too much of text discourages visitors from reading it

Language

Monolingual



Photo: CEE



Photo: CEE

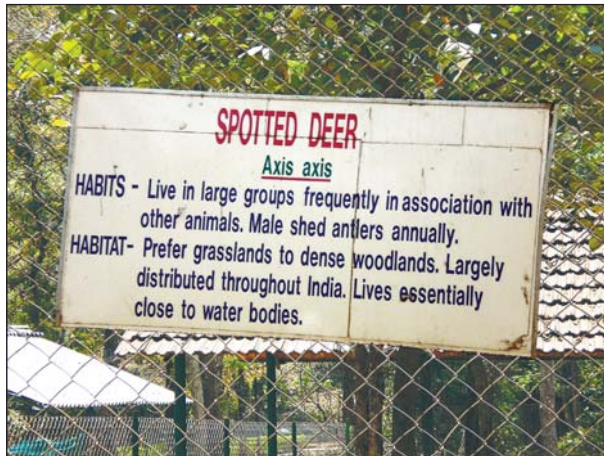


Photo: CEE

Some zoos are using monolingual signage, since majority of visitors coming to these zoos are familiar with the local language

Examples of signages in a single language

Bilingual signage



Photo: CEE



Photo: CEE

Most zoos use bilingual signage with text in local and english language



Photo: CEE

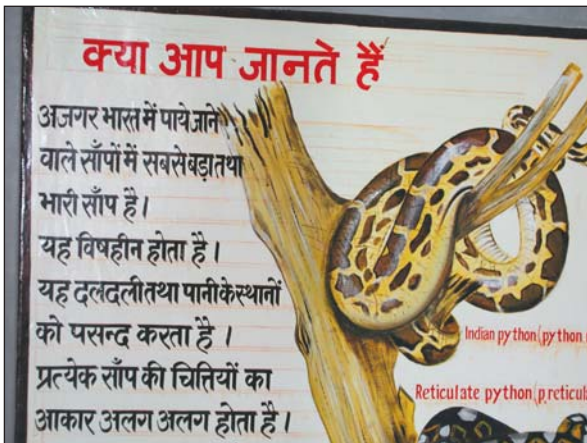


Photo: CEE

Signage with name of the animal in english rest of the information is monolingual

On the basis of visitor surveys, some zoos are planning to develop trilingual signage, which would include English and two common local languages of the area (e.g. English, Telugu and Urdu).

Presentation of Information: Different formats of presentation of information were observed.



Photo: CEE



Photo: CEE

Information presented in point format

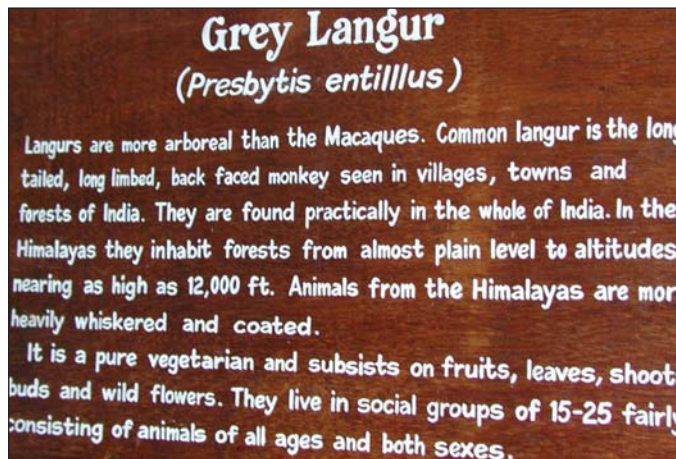


Photo: CEE

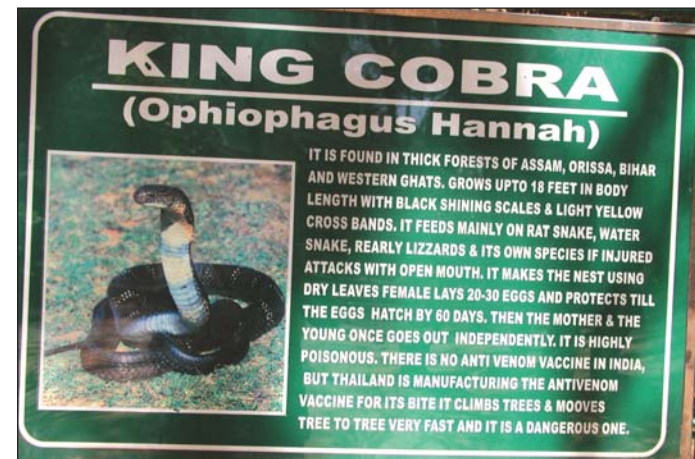


Photo: CEE

Information presented in paragraph format

It was found through visitor observation and interaction that the information provided in paragraphs sets the flow of reading and makes it interesting to read, as compared to information in bullet points which is more scientific and boring.



Such presentation may discourage visitors from reading information

Photo: CEE

Type of Information: The information provided on the signage for animal enclosures could be categorized into four types.

Only scientific information



Photo: CEE

Only name



Photo: CEE

Content: Name of the animal, its physical characteristics, life cycle and distribution are some areas of information found to be common on many signages in most zoos. Information on animal behaviour was also included in some signages but very few signages had information on the conservation status of the animal in the wild.

Factual inaccuracies on signage



Photo: CEE

Wrong name given in local language



Photo: CEE

Location of signage: Strategic location for the placement of signage is as important as providing interesting information on the signage. In many zoos it was found that due to improper location visitors missed the signage. Most zoos are coming up with naturalistic enclosures. These enclosures are big in size and signage placed at only one point of the enclosure is often missed by visitors coming from other side.

Signage is not meant only for display but it is meant to be read by visitors, but such placement of signage hinders reading the information on it.



Signage hidden in hedges

Photo: CEE

Signage inside enclosure



Photo: CEE

Many signages clustered at one place



Photo: CEE



Photo: CEE

Examples of strategically planned signage location, which could not be missed by visitors crossing the enclosure



Photo: CEE



Photo: Hyderabad Zoo

Design: The best of information and best location of the signage is only helpful if the visitors come to it. Signage design is an important factor in attracting visitors.

Except for a few zoos, signage designs (presentation of information, appearance, colour pattern etc.) of most zoos were found unattractive. Lack of expertise and funds are the main constraints in this area (as expressed by several zoo directors).

Creatively and aesthetically designed signages



Photo: CEE



Photo: CEE



Photo: CEE



Photo: CEE

Such signages attract visitors

Some signages attract visitors for the wrong reasons or are ignored by visitors

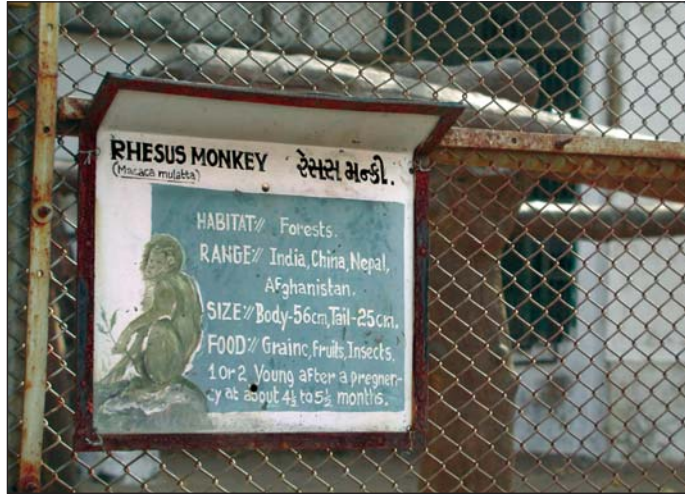


Photo: CEE



Photo: CEE

Glare on the signage and colour pattern hinders easy reading



Photo: CEE



Photo: CEE

Uniformity: Variation in design, content given on the signage, placement of signage, mixture of old and new signs, placement, colour patterns, shape and size are some common reasons behind the non uniformity of signage in many zoos.

Some examples:



Photo: CEE



Photo: CEE



Photo: CEE

Different types of presentation in the same zoo

Some uniformity of designs could help visitors identify the nature of signage from a distance. Different designs for the same category of information confuse the visitor.



Photo: CEE

Differences in basic design of directional signs in the same zoo



Photo: CEE



Photo: CEE

Limitations: As expressed by zoo managers, given below are some of main reasons behind the non uniformity of similar type (animal/plan/directions) of signage in the same zoo.

Local expertise: Due to lack of professional expertise, often local graphic designers/fine arts college students/local painters are involved in the designing process in consultation with the zoo staff, and every time a new person or new design may be introduced. A mixture of experimental signages and old signages brings non uniformity.

Funds: Due to lack of funds signages are developed at intervals, as and when funds come. This is one of the reasons of having different types of experimental signages. This also leads to having mixture of old and new signage because there is not enough funding to replace all the signage in one go.

Guidelines: So far there are no standard guidelines on developing and designing a signage. So every zoo, based on their own understanding and resources available is experimenting with signage designs. This also leads to non uniformity of signage within and between zoos.

Nonuniformity of signage within the same zoo

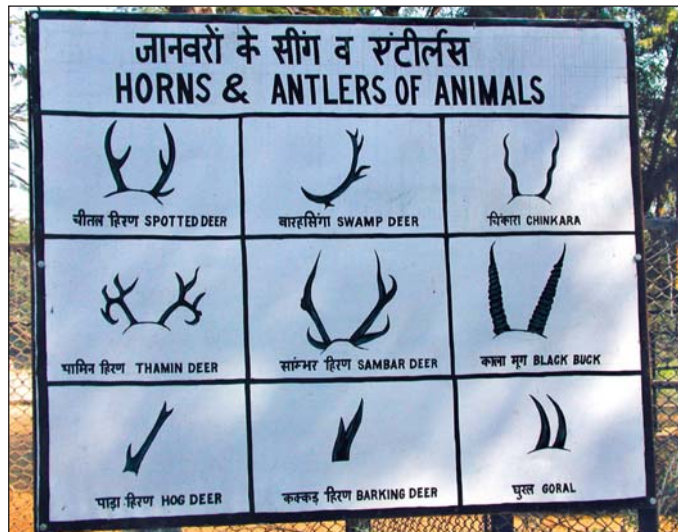


Photo: CEE



Photo: CEE

Interesting signage: Some zoos have taken extra effort and have gone beyond providing signage just for animal displays. Below given are some examples of signage which creates interest in visitors to read the information provided, and which makes the zoo visit more effective as they take back some learning combined with a pleasant recreational experience.

Signages with interesting information for visitors



Photo: CEE



Photo: CEE



Photo: CEE



Photo: CEE



Photo: CEE



Photo: CEE

Using themes to develop signage (Here animals are related to mythology)



Photo: CEE



Photo: CEE

Signage highlighting unique features of the zoo



Photo: CEE

Water ನೀರು

The following table gives the percentage distribution of water on earth.

Ocean	97.20	ಸುರರ	97.20
Ice-caps	02.00	ಹಿಮಪವನ	02.00
Ground water	00.62	ಅಂತರ್ಜಲ	00.62
Fresh water lakes	00.009	ಸಿಹಿ ನೀರಿನ ಸರೋವರಗಳು	00.009
Inland seas and salt lakes	00.008	ಅಂತರ್ಜಲೀಯ ಸಮುದ್ರಗಳು ಹಾಗೂ ಉಷ್ಣ ಸರೋವರಗಳು	00.008
Atmosphere	00.001	ವಾತಾವರಣ	00.001
River	00.0001	ನದಿಗಳು	00.0001
Total	99.8381	ಮೊತ್ತ	99.8381

Photo: CEE

Some good examples of how zoos can use different techniques for spreading awareness about the environment, taking a holistic view and showing the inter-linkages in nature.



Photo: CEE

Solar panels inside a zoo.

Even facilities like this are useful to convey messages on environmental conservation.

Directional Signage

Presence/absence and existing condition: Signage directing visitors towards various facilities offered by the zoo was found present in almost all zoos. However the present condition of directional signage in several zoos is not satisfactory. It was observed that there are many zoos which do not give priority to regular maintenance and upkeep of directional signage.

In many cases the placement of signage seems to have been decided without a proper field survey of strategic points in the zoo where directional signage is required.

It was also found that signage directing towards exit points was not common in most zoos. Visitors were observed asking for public amenities and exit points.

Several factors may affect the effectiveness of directional signage.

Colour patterns



Photo: CEE

Poor maintenance



Photo: CEE



Photo: CEE

Which way to go? Unclear communication



Photo: CEE

Zoos are large areas, but it was found that there are long gaps between the directional signs, which make it difficult for visitors to go around and find various facilities.

Visitor friendly directional signage can communicate clear messages.



Photo: CEE

Visuals help illiterate visitors



Photo: CEE



Photo: AAZP

Two languages and visuals appeal to a wider audience



Photo: CEE

The message is clear



Photo: Delhi Zoo



Photo: Assam Zoo



Photo: CEE



Photo: Delhi Zoo

Such signage is visible from the road to attract the passer by/tourists/newcomers to the city and direct them to the zoo

Zoo ethics signage

While signage indicating do's and don'ts for visitors was found to be present in most zoos, the existing condition of such signs was not satisfactory.

Ineffective signages

A lost sign



Photo: CEE

Unclear communication of message



Photo: CEE



Photo: CEE

Hardly likely to be effective



Photo: CEE

Attractive design but is the message coming across?

Effective signage

Simple and direct messages



Photo: CEE



Photo: Assam Zoo

Innovative approaches



Photo: CEE



Photo: Delhi Zoo



Photo: Madras Crocodile Bank Trust (MCBT), Chennai

Zoo maps

While some kind of zoo map was found to be present in most zoos, it was not clear how useful visitors found these maps.



Photo: CEE

Only pictorial map without additional information is not useful



Photo: CEE

Not easy to follow



Photo: CEE

Simple but monolingual



Photo: CEE

Monolingual but confusing



Photo: CEE

Visitor friendly maps



Animal icons help visitors to understand and follow maps

Photo: CEE



Effective use of colours

Photo: CEE



Map showing zoo segments so that visitors could choose the segment as per their time and convenience

Photo: CEE



A well designed zoo map but at an unsuitable location. Visitors tend to take a look at the zoo map while coming out of the zoo, rather than while getting in, as it is placed on right side of the entrance

Photo: CEE

Signage for Trees

Though most zoos are rich in their floral diversity, but signage on trees was seen only in few zoos.



Photo: CEE



Photo: CEE



Photo: CEE

Content of such signs includes only the name of the tree (both Latin and common) but any additional information is lacking

In fact there is great scope for interpreting the vegetation on the zoo campus. As visitors walk around they can get interesting information not only about the animals on display but also other aspects of the environment.



Photo: CEE

Well designed and displayed tree signage in a zoo

Maintenance of signage

Signages need to be maintained and upgraded as far as information and material are concerned

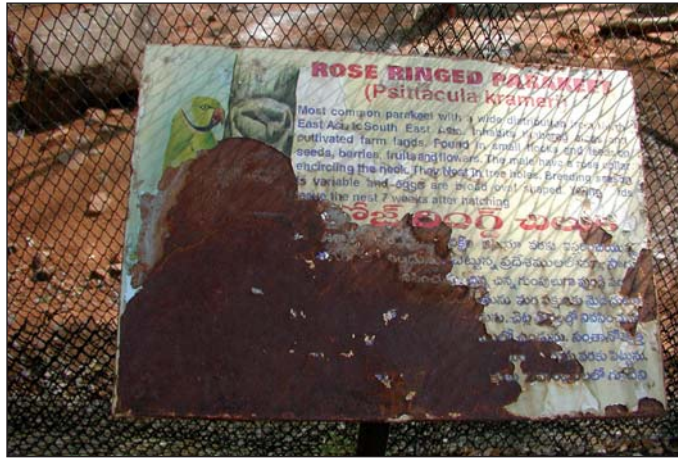


Photo: CEE



Photo: CEE

Signage affected by weathering is common in many zoos



Photo: CEE

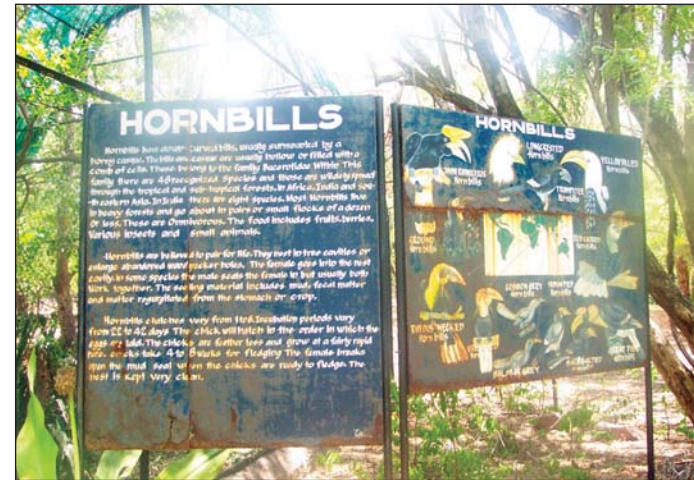


Photo: Hyderabad Zoo



Photo: CEE



Photo: CEE

Well-maintained signage is an effective means of communication

Management concerns: Most zoo directors were not satisfied with the existing signage. They said that signage for animal displays is the first priority. Content development for the signage is done mostly in-house but designing is outsourced. But due to lack of professional designers, local graphic designers and artists and art college students are often involved in signage designing. Funds and expertise were identified as the main constraints in signage designing.

Animal Enclosures

Design

Most zoos are coming up with naturalistic enclosures. Few zoos have a mix of closed cage and naturalistic enclosures. Mainly, enclosures for birds are of closed caged types.



Photo: CEE

Conventional enclosures



Photo: CEE



Photo: CEE



Photo: CEE



Photo: CEE

Examples of naturalistic enclosures using open moats



Photo: CEE



Photo: CEE

Enclosures are means of indirect interpretation

A walk-through aviary gives a good experience to the visitors where they can walk along with the birds and get a chance to see them very closely. Such efforts bring visitors very close to nature and it becomes easy to bring attitudinal changes in them towards nature. This is an example of live and indirect interpretation.



Photo: CEE

Walk-through Aviary



Photo: CEE

Maintenance of enclosures



Photo: CEE



Photo: CEE



Photo: CEE



Photo: CEE

Such enclosures are not only unhealthy for animals but also communicate wrong messages to visitors



Photo: CEE



Photo: CEE

Well-maintained enclosures communicate positive messages



Photo: CEE

Indoor Interpretation Interpretation Centres

Existing condition: Out of the zoos surveyed, interpretation centres were present in ten zoos. Most of these centres are just like an exhibition hall with pictures/posters of animals, eggs, pug marks, plaster casts etc. displayed.



Photo: CEE



Photo: CEE



Photo: CEE



Photo: CEE

More of an exhibition rather than an interpretation centre

Lack of guidelines, budget, staff, space and expertise in designing an interpretation centre are some common constraints of most zoos, not having an interpretation centre.

However there are some interesting efforts in this area.

Glimpses of interpretation centre dedicated to butterflies



Photo: CEE



Photo: CEE



Photo: CEE



Photo: CEE



Photo: CEE



Photo: CEE



Photo: CEE

Glimpses of interpretation centre on Wildlife of Himalayas



Photo: CEE

Orientation centres are coming up as an alternative for Interpretation centres. Better ticketing system, pictures and posters highlighting unique features of the zoo and ongoing short documentaries on wildlife would be some of the focus areas of such centres



Photo: CEE

An innovative way of orienting visitors is to broadcast continuously recordings highlighting unique features of the zoo. (In this picture broadcasting is done by speakers placed in the room on the top)



Photo: CEE

This concept of 'touch and feel' is evolving in several zoos. Here visitors get a chance to touch different animal collections like skin, horns, antlers etc. This is usually a facilitated experience.



Photo: CEE

Key Findings

Listed below are some key findings related to strengths/opportunities, constraints/limitation in the area of zoo interpretation. These have been compiled on the basis of data and information collected through the mail surveys, site visits and regional workshops.

Strengths/Opportunities

Zoo visitors

- Zoos in India are visited by diverse groups of visitors. This diversity is an opportunity to reach to a wide target audience.
- Some zoos provide good “package outing” for visitors as they have facilities like museum, art gallery, zoo, gardens, souvenirs shop etc all at one place
- There are many zoos with lush green area and planned landscaping and are located in the heart of the city. Such a location of the zoo is a favorite place to visit, especially for family groups.

Zoo staff

- Different categories of staff available in every zoo (Director, curator, veterinarians, keepers, sweepers, guards etc.) is a big strength of the zoo to manage facilities available in the zoo.
- Technical knowledge of senior zoo staff is always helpful to develop new interpretive facilities in zoos.
- Financial support by the Government is helpful in sustaining and developing zoo interpretation facilities.

Existing facilities offered by zoos

- Simulation of wild habitat. Many zoos are coming up with naturalistic enclosures which gives a wilderness experience to visitors as well as providing means of indirect interpretation, through which visitors get an idea about the habitat of the displayed animal in the wild.
- Existing Interpretation centres. Interpretation centres where present in a few zoos, are an added attraction to emphasize the need of wildlife conservation.

Limitations/Constraints/Challenges

Training and capacity building

- Lack of experts and trained zoo staff for content development, writing, design, and innovative thinking is a big limitation in developing planned interpretive facilities.

Zoo staff

- Inadequate number of zoo staff.
- Attitude and mindsets of zoo staff towards taking up new challenges.
- Even small number of zoo staff could do a great job, but lack of dedication makes it impossible.

Infrastructure

- Space constraint of small zoos.
- Lack of facilities like library, computers, internet etc. makes it difficult to do a proper research for developing interpretive facilities.
- Lack of publication, research papers etc. in many zoos makes validation and cross referencing of facts and figures difficult.

Zoo visitors

- Zoo interpretation facilities are meant for zoo visitors, but most zoos are developing these facilities in absence of a visitors' profile and without doing visitor study.
- Developing signages to cater to varied zoo audiences is a challenge. For example many visitors do not read. If they do read sometimes they do not follow.
- Large numbers and heterogeneous groups of visitors coming at one time is difficult to manage.
- Non motivated crowd. Visitors mainly come for recreation and knowing about animals is a second priority. Making them understand and learn about animals in a fun way is a challenge.
- Vandalism. Zoos in India face various types of vandalism. Developing and designing vandal resistant signage is a challenge.

Facilities offered by zoos

- Insufficient visitor amenities. To give zoo visitors a good experience, adequate visitors facilities is a must. Lack of such facilities in many zoos is a limitation.
- Lack of interpretation centres, orientation centres and lack of guided tours for the visitors by trained guides.

Others

- In developing interpretive facilities in zoos, lack of funds is a major constraint.
- Lack of guidelines/standards to develop interpretive facilities. In the absence of standard guidelines each zoo is experimenting on their own in developing interpretive facilities.
- Explaining numerous and varied concepts of wildlife conservation in limited space and time, to a wide target audience is a challenge.
- In India each zoo varies in its geographical location and climatic conditions. This leads to weathering of signages. Regular updating and maintenance of signages in limited funds is a challenge.
- While zoos have started paying attention towards developing and strengthening their zoo education facilities but still interpretive facilities are low on the priority list.

Some suggestions for improving Zoo Interpretation

Facilities to be offered by zoos

- Interpretation centres should be developed in all zoos based on a standard manual. Common interpretation plan should be developed for similar category of zoos.
- Short documentary on 'role of zoos', highlighting 'unique features offered by the zoo' and other wildlife documentaries could be displayed near ticket counters or at orientation centres.
- Zoo should also develop interpretive facilities for people with special needs.
- Signage should have basic information and important data on animals and should be least technical in terms of language.
- Zoos should display indigenous animals also so that local residents of that place know the dangers faced by these animals and conserve the local fauna first.
- Enclosures in themselves are very good source of interpretation. A well-planned enclosure could give visitors knowledge on habit, habitat and behaviour of the displayed animal. These enclosures should be equipped with proper enrichment materials.
- Animal enrichment facilities should be developed in enclosures, which is not only good for animals but also enthuse visitors.

- Every zoo must have an interpretation plan and a facilitation centre.
- Good and sufficient visitor facilities would keep visitors fresh and happy so that they enjoy and learn from interpretive facilities offered.

Training and Capacity building

- Zoo should provide training to zoo staff in developing and designing interpretive facilities.
- Exposure visits for all levels of zoo staff to national and International zoos to get an idea of the emerging trends in interpretive facilities.

Zoo staff

- There should be a dedicated team to develop zoo interpretation programmes and this team should essentially develop a visitor profile before suggesting or developing any interpretive facility.
- Hospitable staff makes a lot of difference and would make the zoo visit a memorable experience.

Zoo visitors

- Visitors to the zoo are exposed to wildlife channels like National Geographic and Discovery and so information provided should be updated regularly.
- Use of local language is essential to reach to a wider audience.
- Zoos should develop fun ways to communicate with visitors.
- Zoos should do proper research to develop vandal resistant signages.
- Visitors could be oriented about the zoo ethics in orientation centres.

Linkages

To meet the challenge of inadequate funds and staff:

- Public-private partnership is recommended to overcome limitation of staff, funds and expertise.
- There should be a business plan in all zoos, which could direct zoos as, how to develop means and ways to generate revenue. One of the strategies could be to build corporate partnerships, by marketing concepts like adoption scheme.
- To increase visitation and thus generate revenue, zoo should have linkages with local tourist guides.

Others

- There should be proper management plan/guidelines to develop interpretive facilities
- There should be a standard manual on interpretation facilities specially signages. This could be developed by professionals in this area.
- To develop anything new in the zoo, it requires going through several official procedures which is a time consuming process. Thus the need is for a system which could easily function. Blanket permission for certain tasks and procedures could be one option.
- Regular evaluation of effectiveness of interpretive facilities offered is very necessary.

“Zoos should focus on changing visitor's attitudes towards environment rather than teach them seemingly useless facts about animals.”

A Zoo Director

Possible Partners to meet the challenges

- Expert agencies/Non Governmental Organizations for research, writing, designing etc.
- Other Zoos: Regional/ National/ International.
- Educational institutions (University's, schools, colleges).
- Other Government Departments:
 - Animal Husbandry
 - Education
 - Ministry of Environment and Forest
 - Health
 - Urban Development
 - Tourism
 - Pollution Control Board
- Corporates: Many corporates today are interested to do something for wildlife as per their Corporate Social Responsibility. Zoos could make use of this opportunity.
- Enthused individuals/freelancers in the field of nature interpretation.
- Media.
- Local people & local administration.
- Management and communication institutes.

3

Master Planning for Zoo Interpretation

Putting Interpretation on Priority List

Why Interpretation?

Most visitors come to a zoo to relax and enjoy themselves. They are generally not in a mood to be “taught” anything. They wander around, looking at things, sometimes wondering about some things, but then losing interest as they do not see any ways to satisfy their curiosity.

Most people use the zoo as a picnic site a place to spend a few hours, seeing some strange animals, walking around a bit, and going home. By this very routine, the zoo loses out on a prime opportunity to make people sensitive and aware about the animal kingdom and to teach about conservation.

It is here that interpretation can play a role. Interpretation can be the link between the zoo and those who visit it. It adds value to the visitor experience. It helps teachers and self guided groups to use the zoo more effectively, it assists with visitor management by communicating basic information and zoo ethics. By using interpretation zoos can encourage people to explore, to learn, to get excited about flora and fauna, and to get concerned about conservation.

What is Interpretation?

Interpretation is an approach to communication. It helps visitors get new insights and understanding. It capitalizes on people's curiosity and helps them see more than just an exhibit as a stand-alone item. Interpretation uses a variety of methods to communicate with visitors—signage, visitor centres, guided tours, nature trails and literature (brochures, hand outs, etc.).

Interpretation has to stimulate interest and capture the imagination in such a way that the visitors are excited and want to know more.

Good interpretation is entertaining, informative and provides visitors with a meaningful and enjoyable experience. Essentially quality interpretation enhances people's understanding and enjoyment of the places they visit.

What Can Interpretation do?

- Interpretation helps to meet the increasing demand for educational visitor experience.
- Interpretation provides interesting and memorable experiences that ensure visitor attraction, repeat visitation and positive publicity.

- Interpretation helps people understand more about the zoo and its conservation mission.

Interpretation is all about engaging the audience at the time and places they want information.

How can one capture the visitors' attention?

- Involve people with all their senses by using a variety of displays and activities.
- Provoke people. Encourage questioning and enquiry.
- Promote discussion and action.
- Be responsive to the audience.
- Be relevant to the audience.
- Understand and respect the audience.

What are some ways of doing this?

Signages and Wayside Exhibits: These can be used for different purposes from providing orientation and information, enriching the visitors understanding and guiding visitor behaviour.

Interpreting the zoo campus means more than signage for the animals in the enclosures. There are numerous non-captive species which can be used to communicate diverse messages-squirrels, bats, butterflies, birds, insects. There is great opportunity to interpret them. Zoos have a rich flora which is equally important and often goes unnoticed. Signages for trees, seasonal displays of flowering etc, can be attractive and add value.

Interpretation or Visitor Centres: These centres can provide information on a variety of topics regarding wildlife, animal behaviour and characteristics and role of the zoo. Alternately activity stations at different points in the zoo can also play a part of this role.

Live Interpretation: Can be through animal shows and animal keeper talks. Animal keepers can become an effective source of education for zoo visitors as they have a wealth of information about the animal they care for day after day. Animal feeding time is also a good time and space for live interpretation.

Tours and Trails: Guided tours can make the zoo come alive through sharing with visitors' aspects of the zoo that may not be communicated through animal exhibits and signages alone.

Specific routes within the zoo campus can be designed as "trails". These can be interpreted live by a guide or facilitator or be used as 'self guided' experiences with help of signage and supporting material such as brochure or trail guide.

This section provides some guidelines and ideas for initiating a variety of interpretive devices and programmes in a zoo.

Signages and Wayside Exhibits

What can signs do?

As with all forms of interpretation, signs should communicate a clear message:

- To inform the visitors (zoo timings, tickets etc.)
- To communicate the rules and ethics of the zoo
- To highlight something of special interest (animal enclosure sign)
- To tell people about the importance of animal collections (why zoos?)

What should the sign include?

One way to decide on this would be to view the site (zoo itself) or an exhibit (animal enclosure) from the viewpoint of the visitor and ask:

- What would we want to know about the place we were visiting?
- What questions would our visitors ask us if they could?
- What will our visitors already know, and how can we build on this?

One good resource to share these questions with are, the animal keepers and other zoo support staff, as they are the ones to whom such visitor questions are most often directed.

It is important to be clear about what purpose you want the signage to achieve, before planning the content, and design. Based on objective, signs can be of several types.

Entrance Signs welcome the visitor and helps to orient them to the zoo. These could include basic information about timings, tickets zoo layout, do's and dont's etc.

Directional Signs

A system of directional signs helps visitors to find their way around the zoo. These should include signs pointing to the main exit points, nearest toilet facilities as well as resting and refreshment facilities.

Directional signs usually consist of a signpost with individual signs (arrow) pointing in the intended direction

Some practical tips for directional signs:

- Wherever possible install directional signs at right angles to the main direction of visitor flow, in this position they are most visible and most likely to be noticed.
- Where vandalism is a problem, install the sign a few metres from the path in a position where it is less accessible, surrounded by bushes or banks.
- Use clear bold lettering which is easy to read from a distance of at least ten metres.

Facility Signs should be visible from a distance and clearly indicate the facility in question: e.g. toilet, drinking water, etc.

Zoo Map which clearly shows the overall layout of the entire site, the different sections and the routes through the site. A map with a layout of the zoo is a useful orientation tool. Such maps are helpful not only at the entrance where visitors can get an overview of what the zoo has to offer and how to plan their visit but also at some other spots on the zoo premises to enable visitors to know what to see and where to go.

Map reading is a skill that most people are not so familiar with, therefore maps should include not just lay out plans but pictures of key landmarks and features that people can recognize. The map can pictorially represent the exhibit areas e.g. reptile house, bird enclosures, big cats etc. These can be accompanied by legends.

The location of facilities should also be clearly indicated such as toilets, entrance and exit points, cafeteria, resting spots etc. It is important also to have an arrow in the map indicating "You Are Here" to make it easier for visitors to locate their position on the map.

Do's and Don'ts signs which inform the visitors about appropriate behaviour within the zoo premises.

Animal Enclosure signage which tell the visitor more about the animal than what is obviously seen (More on pages 117-121).

Making Behavioural Signage

- Use emotional as well as intellectual appeal
- Place boards at eye level wherever possible
- Keep wording to minimum and use illustrations
- Don't say "do not"
- Tell visitors why they should not do certain things
- Suggest some things to do instead.

Creating an Interpretive Sign

This involves a number of different steps:

- It starts with choosing the subject or theme
- Doing research, getting the facts checked
- Writing the text (see page 121)
- Testing the concept
- Design and layout
- Fabrication and installation (see pages 111-116)

Testing the Concept

Before the sign is designed and fabricated, it is useful to know whether it is effectively communicating the intended message to the visitors. For this a draft copy of the sign (handwritten or on computer) can be prepared using the different levels and clear text.

Install the sign at its intended spot. Observe how visitors respond.

- Do they stop to look at the sign?
- Do they read it? For how long?
- Do they respond to the sign in any way nodding, pointing, discussing?
- If possible ask some of them to tell in their own words what they read about.

Use these observations to identify any problem areas and improve or correct these. Test revised sign again if possible.

Design and Layout

The overall appearance of signs can have a significant impact on their appearance and readability. The more legible a sign, the greater the chances of its being read.

Some design features to be kept in mind for effective signs include:

- The sign should be of sufficient size to be read from a comfortable viewing distance.
- Avoid cramming too much onto a sign. Space between the various design elements (titles, text, illustration) will make it easier to read and have greater visual impact.

- There should be approximately 10 words on each line, and between 40-65 characters (including spaces).
- The text should be broken into paragraphs using headings and subheadings.
- Information is presented in layers.
- AVOID USING CAPITAL LETTERS EXCEPT FOR SHORT TITLES. IT IS DIFFICULT TO READ LONG TEXTS IN CAPITALS.
- Have a uniform style (font size, typeface) throughout the text. Avoid underlining words and use **bold** or *italics* only for special emphasis.
- Use a simple clear font such as Helvetica, Arial, Optima or Times. Do not use more than two or three different fonts per sign.
- Letters spaced too closely together or too far apart are difficult to read.
- Text should be big enough to read at a distance of one or two metres. The smallest readable font size is 18 points. A font size of 22 points is easier on the eye even from a 2 metre distance.
- The type should contrast clearly with the background e.g. dark type on light background or white text on dark backgrounds.

Note: Red on green and green on red should be avoided as colour blind people will not be able to distinguish.

An example of possible layering with text

Level	Content	Text type	Font size
1	Title	Very big and bold	48 points
2	Subheadings	Big and bold	36 points
3	Body text	Medium	22 points
4	Picture captions	small	18 points

The most effective signs communicate to their audience through clear, concise and legible messages.

Pictures

Use of symbols is effective to communicate basic facilities as well as warning or danger. These are especially useful where the audience may either be illiterate, or not know a particular language.

Signs are more attractive if they include visual elements (diagrams, maps, icons etc.) that relate to the content of the messages.



Photo: CEE



Photo: CEE

Positioning the Signs

The first rule of attracting visitor attention is to ensure that signs are placed where they will be seen. To do this, one needs to have some idea about the visitor movement in the zoo. Visitors are most likely to stop at sign displays that are close to the centre of their line of vision.

Signs should be placed within easy viewing distance not across the moat, or at one end of a very large enclosure so that the information can be related to the exhibit being viewed.

It is important also to consider whether the space around the sign is open or large enough to accommodate the volume of visitors at a given time, or will it lead to crowding?

The height of the signs is also an aspect to be considered. Several researchers have suggested that the best option is to have the centre of the sign at adult eye height. But others feel that this does not consider the large numbers of children that visit zoos. About 80 cm above the ground is a good height. One attractive option that considers both is to place signs at a lower height but to angle them upwards.

As a general rule, signs should be mounted at right angles to one's line of vision. Some other issues that may be considered:

- Available lighting (sunlight and artificial lighting)
- Glare and reflection on the sign
- Position of sunlight-it is difficult to read signs with bright sunlight behind them.
- Appropriate colours to be used for the available light conditions

Types of Signage

The important consideration in choosing the type of signage to go in for is the purpose of the signage, and the resources available (budget, technology, materials and expertise). Interpretive signs can be made of a range of different materials and designs. Simple inexpensive signs can be made of paper or cardboard which has been laminated with plastic to make it waterproof. Signs made of more durable materials such as wood, metal or enamel are generally more costly and complex to fabricate.

Temporary signage is useful for announcements such as a new arrival in the zoo, an animal's birthday, an event (a painting competition or film show). It can also be used for seasonal displays (flowering of a tree, butterflies around certain plants, arrival of some migratory birds etc.) For this a laminated paper/cardboard sign is useful. One option is to have a set of frame stands with a removable sign face made and kept ready for use as and when required.

Alternately the laminated signs can be pasted/hung up or pinned at the required place as well as near the entrance to inform visitors about the events.

Permanent signs are made to last several years and can be used for directional and facility signs, as well as animal enclosures.



Photo: CEE

Child-friendly display

Many displays are too high or too complex for children. Some design elements that help:

- Displaying some items or texts at 'child-friendly' heights, or on the lower half of a large board with more visuals and simple text.
- Providing a viewing platform for children to stand on, with suitable safety precautions.
- Cutting 'peep holes' in front of some exhibits at various levels to allow viewing by children of different heights.
- Incorporating display boxes on the floor (especially to display simple maps, models of ground dwelling creatures etc.)

Temporary Signs	Permanent Signs
Used for: seasonal displays, new developments (work in progress), visitor management, testing new sign ideas.	Used for: features of general/historic interest, year-round displays, permanent collections.
<p>Materials</p> <p>A sign frame made of metal or wood. A sign face made of paper or cardboard which has been laminated with plastic. The text and images may be done by hand or on a computer.</p>	<p>Materials</p> <p>A sign frame or plinth made of metal, wood or stone. A sign face made of baked enamel, vinyl, plastic or aluminium. The text and images may be hand-painted, silk-screened or computer-generated, depending on the technique used.</p>
<p>Installation</p> <p>Easy to move the sign frame has one or two pointed legs which can simply be pushed into the ground (if it's not too hard or rocky).</p>	<p>Installation</p> <p>Depends on the design. Sign posts are typically concreted into the ground.</p>
<p>Advantages</p> <ul style="list-style-type: none"> ● flexible (easy to change) ● inexpensive to produce ● allows you to be responsive (e.g. to events, current environmental issues or commonly asked questions) 	<p>Advantages</p> <ul style="list-style-type: none"> ● long-lasting (low maintenance)
<p>Disadvantages</p> <ul style="list-style-type: none"> ● need regular replacement (high maintenance) 	<p>Disadvantages</p> <ul style="list-style-type: none"> ● plant displays may die or change (so the signs become obsolete) ● inflexible (not easy to change) ● more costly to produce

Materials and Techniques

The range of materials and techniques for fabricating signs is constantly expanding. Choice of material is often based on the kind of 'look' that needs to be achieved. There are several other factors which need also to be considered. Some of these are:

The content: How detailed, how much text, graphics and type of graphic, colours

The location: Outdoor (blending with surroundings and weather considerations).

Indoor: Lighting conditions

Susceptibility to vandalism and amount of handling (e.g. an interactive sign)

Maintenance: Is regular upkeep and maintenance possible? (Are there financial and human resources for this 'cleaning & repairing?')

Projected lifespan? How long are the signs expected to last? (Sometimes the displays may change, or the visitors may like to see something new).

Availability of resources: The budget available (both for fabrication as well as maintenance), the designing facilities, the technology available.

It is worthwhile to explore local resources in terms of painters, illustrators etc. who can contribute in this respect.

Along with the sign, it is equally important to plan the base of the sign the material to be used, the cost, and setting them up. Regardless of the material chosen, on-going maintenance and upkeep (cleaning etc.) is vital if signs are to remain effective.

Maintenance

Signage can be affected by time and weathering, accidental damage, or vandalism.

Poorly maintained signs are not only difficult to read, but also send a negative message to visitors. Regular preventive maintenance is essential to ensure the quality of the zoo communication.

The zoo management needs to have a system in place for regular inspection of signs, upkeep and repair. This is cheaper than replacement of badly damaged signs. Funding for this needs to be built into the budget for signage development and fabrication as well as in the annual budget.

Some materials and techniques

Type	Characteristics
AX	Hard anodized aluminum plate. Only black and white printing possible. Long-lasting, weather-proof and excellent for outdoor use. Minimum life span 10 years.
VES	Screen printing on vitreous enamel plate. Only two or three flat colour printing possible. Resistant to extreme temperature changes, high humidity, oil and most chemicals. Minimum life span 5 years.
VEH	Hand painted illustrations on vitreous enamel plate. Multi-colour painting possible. Resistant to extreme temperature changes, high humidity, oil and most chemicals. Minimum life span 5 years.
CRS	Screen printing on ceramic tile. Only two or three flat colour printing possible. Resistant to extreme temperature changes, high humidity, oil and most chemicals. Minimum life span 5 years.
ALCOR	Retro-reflective graphic pasted on aluminum composite sheet. Corrosion-resistant, light weight and durable. Minimum life 5 years.
ALVIN	Vinyl sheet pasted on aluminum composite plate. Suitable for shaded areas. Multi-colour printing possible. Minimum life 1 year.
Sizes	Extra Large : 36" x 48" Large : 18" x 24"
	Medium : 9" x 12" Small : 4" x 6"

Source : CEE

Sample of signages developed by CEE using variety of materials and techniques.



Photo: CEE

AX mounted on cement rock



Photo: CEE

AX embedded in rock structure



Photo: CEE

AX with galvanized pipe structure



Photo: CEE

CRS on cement structure



Photo: CEE

VEH embedded on cement structure



Photo: CEE

ALCOR with galvanized pipe structure

Checklist for developing Interpretive Signage

1. Knowing your visitors

- Have the main visitor group/s been identified?
- Have visitors' likely interests and needs been documented?
- Have visitors' previous experiences and knowledge been considered?

2. Deciding what is to be interpreted

- Does interpretation focus on the special/rare/different characteristics of the site or attraction?
- Have activities or events in the area been included in the visitor experience?
- Will other aspects of the site also be interpreted?

3. Developing topics and themes/messages

- Has the major topic/s been identified?
- Have core themes/messages based on the topic/s been developed?
- Are the themes/messages clearly stated?
- Are the themes/messages supported by verifiable stories and facts?

4. Designing interpretive content

- Have catchy titles been used to attract visitors' attention?
- Is the content clearly organised into an introduction, body and conclusion?
- Does the introduction include clear definitions of central terms and concepts?
- Does the conclusion clearly reinforce the messages and concepts discussed?
- Have metaphors, analogies and personal stories been used to present information?
- Is the information presented accurate and up-to-date?
- Is the content interesting and thought provoking?
- Does the interpretation encourage visitors to solve problems and/or make decisions?
- Does the content engage visitors' emotions?

- Has humour been used where appropriate?
- Do signs and displays ask visitors stimulating and appropriate questions?
- Does the interpretation include a range of presentation techniques (e.g. flaps, models, quizzes, audio visual components)?
- Does the interpretation require visitors to use different senses (e.g. touch, smell, hearing)?
- Does the interpretation suggest ways in which new information can be integrated into visitors' daily lives?

5. Matching interpretation to visitors

- Is the information relevant for the target audience? In particular, does it 'connect to' their previous knowledge and experiences?
- Does interpretation build on experiences, visitors may have had at other sites/attractions in the area?
- Is the interpretation sensitive to the different social and cultural backgrounds of visitors?
- Does interpretation take into account the needs and limitations of 'special' groups (e.g. families and visitors with disabilities)?

6. Assessing readability and formatting

- Are sentences short and easy to understand?
- Does the level of language match the reading ability of the target audience?
- Are there any sentences that could have double meanings or be interpreted in a manner not intended?
- Are signs written in 'layers'?
- Is the font and size of text easy to read?
- Is the text well spaced?
- Do the colours chosen for text, illustrations and background match the sign's content and tone?
- Do illustrations match and enhance the sign content?
- Are illustrations clear and easy to see?
- Does the placement of text and illustrations look balanced?

7. Constructing signs and displays

- Do the construction materials reflect the 'feel' of the sign/display content?
- Are the materials durable enough for the intended purpose?
- Have issues of maintenance, vandalism and longevity been considered?

8. Positioning signs and displays

- Are signs placed where visitors will see them (e.g. in direct line of vision, at natural stopping points)?
- If signs are not directly in front of the attraction, are they within easy viewing distance and clearly matched to the feature/s being described?
- Could some visitors (e.g. children and those in wheelchairs) have difficulty accessing signage and/or interactive displays?
- Is there enough space for people to view signage in comfort?
- Have seats been provided where appropriate?
- Has reflection from natural and artificial light been minimised?
- Are the colours used appropriate for the available lighting conditions?

(Source: www.talm.uq.edu.au/signage/)

Signage for Animal Enclosures

Every enclosure in the Zoo shall bear a signboard displaying the scientific information regarding the animal exhibited in it.

Education and Research (45), Recognition of Zoo Rules 1992.

According to the Secretary of States' Standards of Modern Zoo Practice, a zoo must provide accurate information about the species exhibited. This should include as a minimum the species name (both scientific and common), its natural habitat, some of its biological characteristics and details about its conservation status.

Red Panda (*Ailurus fulgens*)

The red panda is a chestnut-coloured panda with alternating light and dark rings on the tail. It is mainly nocturnal and solitary, and spends most of its time in trees, where it uses its long bushy tail for balance. The red panda lives in the dense, cool temperate forests of Myanmar and the Himalayan Mountains in South Asia. It is threatened throughout its range by poaching and habitat loss.

IUCN Status: Endangered

Major Threats: Poaching and habitat loss

Habitat: Dense, cool temperate forests

Location: Myanmar and Himalayan Mountains

Diet: Blossoms, berries, eggs, leaves and bamboo

This sign fulfils these requirements

Animal signages in most zoos do include this kind of information. But sometimes, a sign with all this may end up looking like pages from a textbook or encyclopaedia. In some cases, even the information on the sign may not be accurate or factually correct. It is important to ensure the scientific accuracy of the text and visuals.

One way is to use reliable and recognized references whether books, websites or experts.

Some basic references for Indian species

Ali, Salim. *The Book of Indian Birds*. Bombay Natural History Society (BNHS) Oxford University Press, Mumbai, 1996.

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Prater, S.H. *The Book of Indian Animals*. 1971. Bombay Natural History Society, Bombay.

Common Butterflies of India, Thomas Gay, Isaac Kehimkar & J.C. Punetha, WWF/Oxford University Press, 1992.

Butterflies of the Indian Region, M.A. Wynter-Blyth, Bombay Natural History Society, 1957.

Romulus Whitaker and Ashok Captain *Snakes of India: The Field Guide, 2004*. Draco Books

Whistler, Hugh. *The Popular Handbook of Indian Birds*. London. 1949 (4th edition), reprinted Dehra Dun: Natraj. 1989.

A good interpretive sign acts as an eye opener, making visitors excited about something they hadn't noticed or thought about before. It relates directly to the display and encourages visitors to look more closely. The key idea is to choose those aspects of the animal that would interest, excite and engage the visitor.

What can an animal enclosure sign do?

- It should first and foremost tell the visitor more than what is evident e.g. the form (colour, physical characteristics, etc.) of the animal.
- It could draw attention to the functions of the specific parts: e.g. the ears of the elephant, the whiskers of the tiger, a specific shape of a bird's beak or feet.

An example:

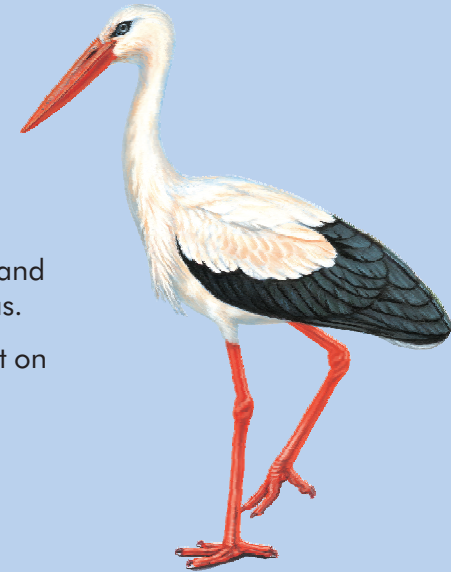
Whitenecked stork (*Ciconia episcopus*)

Majestic Bird

A characteristic white neck and skull cap, long red legs and blackish bill distinguishes this stork.

These storks can be seen in pairs or large groups near marshlands, rivers, and ponds. They can be found at altitudes of about 1000 metres in the Himalayas.

They feed on fish, frogs, reptiles, crabs, and large insects. These birds nest on tall trees, usually near water and close to villages.



- It could talk about the food and habitats and habits of the animal in the wild and compare it with that in captivity, e.g. food in the wild and food in captivity.

An example:

Macaw

Distribution: Tropical South and Central America. These birds are brilliantly coloured parrots. Macaws move about the forest in flocks. They feed on fruits, seeds and Brazil nuts, which they crack with their strong beaks. These birds nest in holes high in the trees and are extremely aggressive during breeding season. Macaws are good mimics and can also mimic human voice. These birds are hunted and are endangered.

Food in Zoo: Bread, banana, orange, mango, guava, tomato, groundnut and chillies.

Nesting: Probably nests in holes high in the trees. Extremely aggressive during breeding season.

Clutch size: 3-4 eggs. Incubation: 26-28 days.

- It could talk about the breeding patterns, e.g. how many young ones born at a time, what they look like, what is the mother-young relationship.

An example:

Common Otter (*Lutra lutra*)

Sleek, streamlined and energetic the otter rarely remains still. An otter's flexible body and webbed feet makes it an underwater acrobat.

Otters live in groups but they usually search for food on their own, in water or land. They feed on fish, frogs, land birds and small mammals.

Most of them hunt during the day. Otters come ashore to give birth to their young ones. The newborn are blind and are carefully guarded by their mother.

- It could arouse the visitors' curiosity by a question.

Some examples:

How do Pythons swallow large animals?

Human beings can open their mouths to about 40 degrees, whereas the Python can open its mouth to about 180 degrees. No wonder pythons can swallow animals much larger than themselves!

Pythons are one of the largest non-venomous snakes. Unlike many other snakes, they do not kill their prey by their venomous bite, but by coiling around them and suffocating them. Pythons feed on a variety of animals, from frogs to ducks to young ones of deer. These are swallowed whole by the python.

How did the Nilgiri langur get its name?

The Nilgiri langur gets its name from the Nilgiri Hills which it inhabits. These langurs are generally found in the Western Ghats, Anamalai, Brahmagiri and Palni hills.

Nilgiri langurs feed on leaves, flowers and fruits of the vegetation of the Shola dense evergreen forests which are their natural home. The population of the Nilgiri langur is decreasing due to destruction of these natural areas.

- It could use analogies and metaphors that help visitors relate the information to their own experiences or familiar contexts.

Tiger's Eye

Tigers have good vision, both during the day and at night. During the day, a tiger's sight is about the same as a human's, though its ability to see detail is not as good. At night, when a tiger usually hunts, its sight is six times better than a human's.

- It could point out similarities and differences.

What is the difference between Turtles and Tortoises?

Turtles and tortoises are both reptiles. They are easily distinguishable from other animals by their characteristic bony shells. But they are very different from each other.

Tortoises live on land, while turtles are aquatic in nature. Some turtles live in fresh water and others in sea water.

Tortoises can pull their heads and limbs into their shells. All fresh water turtles can pull back their heads and limbs into their shells, whereas no marine turtle can.

Tortoises are hard shelled. Some turtles are soft shelled, while others have hard shells.

Organizing the Information

Once the focus of the sign has been chosen, it will be clear what kinds of information should be included.

If there is a lot of information, then it is useful to arrange it into different levels. This is called a **text hierarchy**.

Level 1: a title that summarizes the theme

Level 2: the main ideas (subtitles)

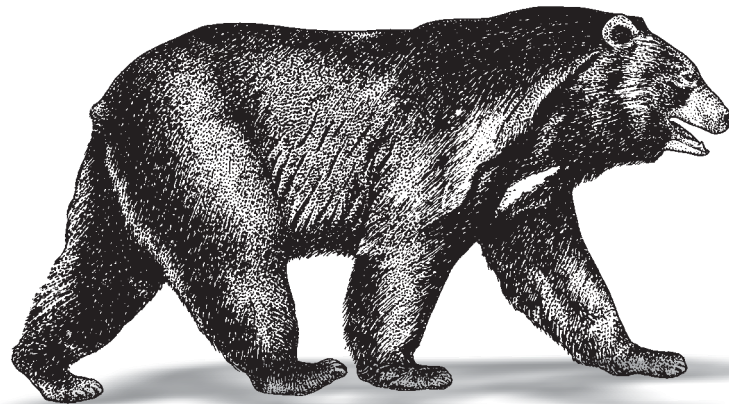
Level 3: short text to explain each idea

Level 4: picture captions/reference to more information

Writing the Text

- Write for your average target audience. Use expressions and language you would use when talking to visitors. Become a story teller, not a transmitter of information.
- Think of a catchy title.
- Keep text simple and easy to understand. Keep the content at the level of an average 5th class student or 10-12 year old as the standard for reading ability.

- The average visitors are not interested, nor do they understand the technical and scientific details.
- Keep it short. Maximum 60-100 words per sign. Average 10 words per sentence.
- Limit the text to one or few key messages per sign with short familiar words.
- The average adult's attention span is 30 seconds. Most people come to relax, to enjoy and for entertainment, they are not in the mood for lengthy reading.
- Make the writing personal. Engage the reader by inviting him or her to do something e.g. "Look for ...", "Compare..."
- Use active verbs rather than passive e.g. Orang-utans build nest in trees (active) Nests in trees are built by orang-utans (passive).
- After writing, get the text checked by an expert. There is danger of inaccuracies creeping in due to the factor of keeping it short and simple.



Black Bear

An engaging example that reflects many of these principles is given below:

How can you tell the difference between a leopard and a jaguar?

Jaguars are more heavily built than leopards. Also, look closely at the spot pattern jaguars have dots in the middle of their rosettes of spots.

Where are the leopards?

Try looking up! They are excellent climbers and spend much of their time in the trees.

Why are the leopards kept apart?

In the wild leopards are solitary except during the mating season. If we kept the male and female together all the time, they would probably kill each other.

How do keepers feed the big cats?

Using a system of sliding doors operated by cords the keepers can shut the cats outside whilst they place the food in the den.

What do they eat?

A variety of meat (but mostly beef). Meat is sprinkled with a vitamin and mineral supplement in the wild, cats would get these by eating entrails, etc.

When?

The cats are usually fed early afternoon. Once a week they have a starve day to simulate the situation in the wild.

Look out for black jaguars

At Marwell Zoo we have both normal and dark colour forms. Look closely even the dark ones have spots.

Endangered

Leopards were once widespread over almost all of Africa and Southern Asia different subspecies evolved over this range. Leopards have been extensively hunted for the fur trade and today several of the subspecies are threatened with extinction. The Persian Leopard may well be extinct in the wild. Marwell is part of an international species survival programme for the Persian Leopard.

Source: Marwell Zoo, UK

Pictures and Illustrations

Pictures and illustrations help make a sign more attractive, easier to read, more memorable and therefore more effective.

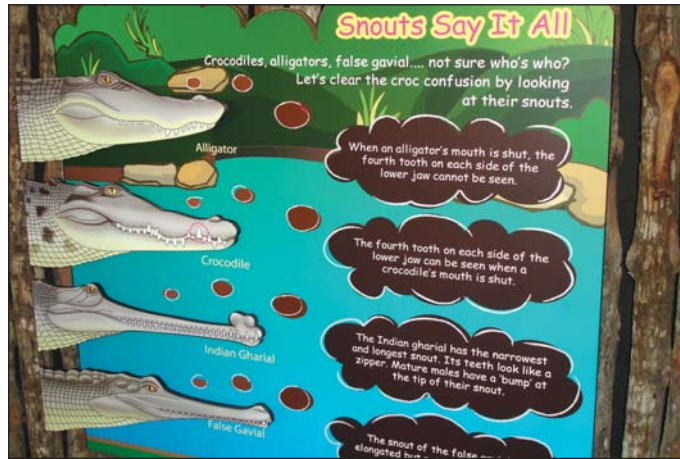


Photo: CEE

Emphasizing key points: e.g. Differences and similarities



Photo: Chester Zoo, UK

Adding extra information



Photo: CEE

Describing family life and young ones

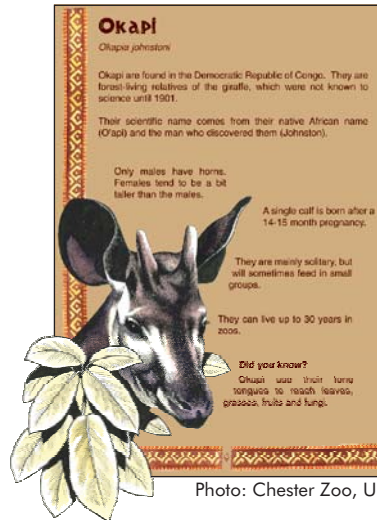


Photo: Chester Zoo, UK

Adding an attractive visual element to complement the text

Some studies show that adding a border to focus attention helps viewers read it 26 per cent faster. Presenting special information in a second colour increases reader's retention by 78 per cent.

It is important to achieve the right balance between the text and the visual so that each enhances the other, rather than overpowering it.

Some ready to use terminologies for zoo signages

Exotic and Indigenous Species

Exotic: Animals and plant species introduced from other countries and which are not otherwise found locally are termed exotic. In India, large variety of exotic animal and plant species have been introduced from other parts of the world through the ages. Some exotic plants have turned into weeds, multiplying fast and causing harm to the ecosystem, e.g. water hyacinth and lantana.

Indigenous: A species that is native or naturally occurring in a specific area. Indigenous plants and animals are the original flora and fauna that occur naturally, in a given location. Indigenous species have adapted over thousands of years to the conditions of the locality.

Some indigenous species of India: Lion-tailed macaque, Nilgiri leaf monkey, Nilgiri langur, Brown palm civet and Nilgiri tahr.

Scientific names

Scientific names are also known as Latin names. These names are important because they allow people throughout the world to communicate about animal species.

Scientific names consist of *two parts*:

- the **genus name** (the name's first part)
- the **species name** (the second part)

The generic name always begins with a capital letter, and generic and species names are always printed in italic (or underlined when writing or typing, when italic is not available).

Genus: The generic name refers to the **genus**, which is a group of species that are fairly closely related - such as the genus *Equus* which includes several species, such as the *Equus caballus*, *Equus asinus* and *Equus zebra* (domestic horse, wild ass and zebra respectively).

Species: This is a group of very similar individuals that have the potential to interbreed freely, to produce fertile offspring - but cannot interbreed successfully with individuals from other species. E.g. cats, dogs, butterflies, birds etc.

Resident and Migratory Birds

A **resident bird** is a bird that does not make seasonal migrations. Resident species include Cormorants, the Darter, the Grey Heron, Egrets, the Cattle Egret, the White-necked and Black-necked Storks, the Spotbill, the Large Pied Wagtail and White-capped Redstart.

Many species of birds undertake seasonal journeys of various lengths, a phenomenon known as **bird migration**. Birds that do migrate are referred to as **migratory birds**.

Migrant species of water-birds include the Great Crested Grebe, Graylag Geese, White Storks, Black Storks, Sandpipers, Snipe, the Great Black-headed Gull, about 15 kinds of ducks, and a variety of Wagtails.

Nocturnal and Diurnal Animals

A **nocturnal animal** is one that sleeps during the day and is active at night. Nocturnal animals generally have highly developed senses of hearing and smell, and specially adapted eyesight.

The most notable feature of nocturnal animals is the size of their eyes. Large eyes, with a wider pupil, larger lens and increased retinal surface can collect more ambient light. Many nocturnal animals, like owls, lemurs and cats, have special eyes that see well in the dark.

Nocturnal animals are more active at night than during the day. These animals sleep during the day, often in a burrow or den. Many animals, like desert animals, are nocturnal in order to escape extreme daytime heat.

A **diurnal animal** is an animal that is active during the daytime and sleeps during the night. Many animals can be diurnal, including many mammals and birds.

Ungulates are animals with hooves the horny parts on the feet.

The ungulates are divided into two classes: Artiodactyls the even-toed ungulates such as the deer, giraffes and antelopes. These animals walk on two enlarged toes.

Perissodactyls are odd-toed ungulates (a much smaller group) which include horses, zebras, rhinoceroses and tapirs.

Grazers and browsers have different living and feeding strategies. Grazers eat only 3 times per day, then hide since grass is plentiful but offers no cover from predators. They eat lots of low nutrition grass; specialize in low digestibility fibers. They don't digest sugars, are good at digesting starches, which are found in grains (grass seeds). Examples of grazers are: cattle, buffalo, sheep.

Goats are natural **browsers**, preferring to eat leaves, twigs, vines, and shrubs. They are very agile and will stand on their hind legs to eat vegetation. Sheep are **grazers**, preferring to eat short, tender grass and clover. They like weeds and can graze very close to the soil surface. Examples of browsers are: deer, giraffe, moose.

Arboreal, Terrestrial, Aquatic, Crepuscular, Fossorial

Arboreal animals: Those which inhabit or spend large amounts of time in trees or bushes rather than on the ground. These animals are adapted to life in the trees. These animals include monkeys, leopards etc.

Terrestrial animals: Those animals that live predominantly or entirely on land. Terrestrial animals evolved from marine animals (aquatic animals living in the ocean) somewhere between 600 and 400 million years ago.

Domestic and wild animals, such as deer, antelope, bison, cats, cows, horses, pigs, etc. are all terrestrial animals. There are also other terrestrial animals, including some birds, reptiles, and arachnids (spiders).

Aquatic animals: Those that require a watery habitat, but do not necessarily have to live entirely in water. This term can be applied to aquatic or sea mammals such as whales, which cannot survive on land, as well as four-footed mammals like the river otter. It also includes aquatic birds that either swim, wade or dive on the water itself and live outside the water. These include the seabirds, such as gulls, pelicans, ducks, swans, and geese.

Crepuscular animals: Crepuscular is a term used to describe animals that are primarily active during the twilight (the time of day immediately following sunset). Crepuscular animals may also be active on a bright moonlit night. Crepuscular animals include the bat, cat, deer, guinea pig, common mouse, rat. Many moths, beetles, flies, and other insects are crepuscular as well and come out in early morning hours or late evening hours.

Fossorial animals: Fossorial means relating to burrowing or living underground. Fossorial animals are animals that are adapted to living underground. Living underground has many advantages, including protection from some predators, from extreme temperatures (both hot and cold), and from overly dry climates. Many animals also hunt for food underground, like tubers, roots, other plant material, worms, grubs, insects, insect eggs and larvae. Aardvarks, armadillos, and moles are fossorial animals.

Threat Categories for Species at Risk

IUCN, the World Conservation Union, is the world's largest conservation network. Its members include many governments and non-governmental organisations. IUCN has developed The Red Data Book aimed at categorizing species at risk according to the severity of the threats facing them, and estimating the imminence of their extinction. The IUCN threat categories used in the Red Lists, with their definitions, are given below.

In order to understand these, it is necessary to understand what a taxon is. *Taxon* (plural *taxa*) is any group of organisms or population considered to be sufficiently distinct from other such groups to be treated as a separate unit.

Extinct (EX): A taxon is Extinct when there is no reasonable doubt that the last individual has died. For example, the Cheetah, Pink-headed Duck, Himalayan Quail are extinct in India.

Extinct in the wild (EW): A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range.

Critically Endangered (CR): A taxon is Critically Endangered when it is facing an extremely high risk of extinction in the wild in the immediate future.

Endangered (EN): A taxon is Endangered when it is not Critically Endangered, but is facing a very high risk of extinction in the wild in the near future. For example, Nicobar Tree Shrew, Liontailed Macaque, Tiger, Snow Leopard, Lesser Panda, Asian Elephant, Great Indian Rhinoceros, Nilgiri Tahr, Siberian Crane, Jerdon's Courser.

Source : www.iucn.org

Beyond Signage

In addition to signage, zoos can create several other interpretation facilities and opportunities. Through interpretive exhibits, interactive tours and educational programmes that bring people face to face with living animals, zoos inspire people to care about and care for the natural world, and take meaningful conservation action.

Animal Enclosures and Exhibits

It is well accepted that all zoos should change from being animal display centres to centres imparting conservation education. For this, it is not enough to repair or renovate, but to reinvent, keeping in view the physical, ecological, psychological requirements of the animals, as well as the expectations of the visitors.

Animals exhibited in the context of their natural habitats and in situations that allow them to exhibit their natural behaviour create an appropriate atmosphere for visitors to related to and empathise with the displayed animals. The enclosures are in themselves effective opportunities for interpretation.

This objective must be built into the overall development plan of all zoos.

When designing a new facility or adding to an existing facility it is important that consideration is given to the overall layout of the zoo.

The enclosures and displays should be arranged so that the visitor is naturally led from one display to another.

To enhance the education and conservation objectives, consideration may be given to grouping animals in relation to their biology or on their ecology. Relevant information must be provided on the biology, habitat distribution and habits in the wild, and conservation status of the animals on display.

Where compatible animals are displayed together in a single enclosure, diagrams and illustrations of each species should be provided to enable visitors to identify the species on display.

Enclosures should be designed, constructed, serviced and maintained in such a way that it ensures good health and well being of the animals, while preventing escape of animals or injury to visitors.

The entire design of the enclosure should enable the animals not only to move freely, but also to engage in a range of their natural behaviours such as foraging, climbing, digging, resting and sleeping. This is known as enrichment. The natural rather than 'stereotyped captive animal' behaviour gives the visitors an opportunity to get at least a glimpse of such behaviour and helps to understand the animal in a larger environmental context. This is very important to create an awareness and appreciation of the interrelations in nature and animal behaviour in the context of habitat and ecology.

Enclosure environmental enrichment must become an important component of planning and maintaining zoo enclosures.

Enrichment can be defined as “a process for improving or enhancing animal environments and care within the context of their inhabitants behavioural biology and natural history. It is a dynamic process in which changes to structures and animal husbandry practices are made with the goal of increasing behavioural choices available to animals and drawing out their species appropriate behaviour and abilities, thus enhancing animal welfare”. (Association of Zoos and Aquarium(AZA)/BAG 1999)

Enrichment thus includes the design of stimulating and naturalistic enclosures, the housing of appropriate social groups in zoos, and the introduction of objects, sounds, smells or other stimuli in the animal's environment.

Enclosure Design: a grassy hillside, a tangle of tree roots, trees, climbing structures and bushes, and sunny and shady spots gives monkeys a variety of choices of where to sit, play, sleep or hide. A sandy stony area, dark corners, tree branches give snakes the choice of

exploring, curling up hidden or winding up to a higher position. A large pool gives hippos a chance to spend the day in the water, as they would in the wild, swimming, submerging, walking on the bottom, mock fighting each other or napping with only ears and nostrils above water.

Chance for Interactions: Housing social species like primates, elephants, ungulates, together allows them to create a social structure and learn and practice behaviours which they would in the wild. Housing different species that might be found in the same habitat (e.g. rain forest, grassland) gives a visitor the chance to relate to the interrelations and ecological concepts (food chains, herd behaviour, care and protection of young etc). a child may never realize that a tiger and deer actually live in the same space in a jungle, and not in two sections called 'carnivores and herbivores'!

Food: Different types of suitable food items and ways of presenting them (hiding it in different parts of the enclosure, scattered in hay, smeared in cracks or holes) gives animals the opportunity to hunt or forage for their food and work at eating it (peeling, cracking, biting etc.). These are activities that most animals in the wild spend a lot of time doing. Suitable items placed in an animal's enclosure allow the animal to mimic behaviours exhibited in the wild, and provide mental as well as physical stimulation. It also gives animals some activity other than sleeping or pacing. Balls, gunny sacks, boxes, pipes, mazes, scents, and other enrichment items are now planned as part of the enclosure design.

Some zoos include 'making of enrichment items' as one of the activities for volunteers or even visiting school groups.

The goal of enrichment programme is to keep each animal's environment dynamic, consistently changing objects, sounds, food, odours, and other items to mimic the mental and physical situation the animals would experience in the natural habitat.

An enrichment programme should involve all relevant staff members including the directors, curators, veterinarians, nutritionists, horticulturists and maintenance personnel, as all of them would have specialized inputs and responsibilities for the enrichment. Volunteers, docents and interns can also be a part of this, will well defined tasks and responsibilities.

The animal keepers have a key role to play in communicating about enrichment to visitors. Visitors' curiosity is bound to be aroused when seeing the animal's behaviour in the context of the enrichment (digging for hidden food, swinging and playing etc.), and they may have many questions. The keeper must provide not only the correct information, but also use the opportunity to talk about the animal and its behaviour in the wild. Keepers would need to be suitably oriented/trained for this role.

Zoo Education/Information/Interpretation Centres

Live animals are the main attraction in zoos. In addition, if such a facility can be created, a Centre (building or large room) located near the entrance can be useful and perform several roles.

- It can serve to orient visitors to the zoo. Here there can be an overall map of the zoo, and maybe also detailed maps of specific sections of the zoos, like large mammals or reptiles. It can also be the place from where visitors can obtain zoo brochures, pamphlets, handbook and other handouts or take away material.
- May also include information about current events at the zoo and any other useful information for the visitor.
- It can help to sensitize visitors to the value and role of zoo. Through attractive displays it can communicate about the zoo's conservation programmes, the importance of keeping captive animals in fit condition and the role of the different zoo staff in this effort.

This is important in creating in the visitors an awareness that zoos are not just sites for people's recreation, and also appreciate the role of zoo staff.

- It can respond to people's needs by providing the information they need, as well as facilities like toilets, telephones etc.
- It can serve as a sales outlet for souvenirs and zoo-related merchandize.
- It can serve as a resource centre for students, researchers, naturalists and tourists.
- It can interpret aspects of zoo animals that may not be commonly seen by the visitors. This can be done through a variety of media from information panels to interactive touch screens, from 3D & 2D models and dioramas to touch tables, translites to sound exhibits.

A zoo education centre is especially useful for school groups and visitors who want to know more. If possible, arrangements can also be made for regular slide shows or film shows in one part of the centre. A resource library is an added attraction for researchers.



Photo: CEE

Some interesting themes that can be effectively interpreted:

Form and Function: Demonstrating how animals' forms are closely related to what they eat, where they live and other aspects of their life. For example the beaks of birds and their food, bird's feet and their habitat (terrestrial, arboreal, aquatic)

Camouflage: Forms, patterns and colours of different animals which enable them to blend with their surrounds to escape detection (e.g. stick insect, moths, some birds, tiger's stripes, etc.)

Predator-Prey: Which are the hunters and the hunted in nature? Why is the presence of both important to maintain balance in nature with examples. This is especially important as in a zoo people tend to see these as isolated from one another, and sometimes cannot make the links that in the wild a tiger and cheetah would live in the same area.

Food Chain and Food Web: The linear as well as complex linkages between who eats whom is an important ecological concept which can be illustrated through a number of examples using animals that visitors are likely to see in the zoo.

Habitats: The different natural habitats, their key components and features can be attractively described to help the visitor visualize the animals that they are in their natural setting although most zoos have naturalistic enclosures, it may not include all the different components. For example deserts, grasslands, high altitude plateaus, mountains describing the characteristic biotic as well as abiotic features.

Web of Life: One of the environmental principles states that "everything is connected to everything else" and it is this principle which forms the essence of ecology. It is very important that people realize the interconnections and interdependence of plants, animals and their environment. For example while visiting a zoo a person may get only an impression that the tiger eats meat, but may not realise that there are many plants in the wild links in the chain from tiger to its mean including grass, water, soil and other living things, and disturb any one of these could affect the very survival of the tiger.

Conservation Issues: What are some key factors threatening the different species in the wild? Hunting, poaching, loss of habitat. What kinds of threats are species facing? Some are endangered, some threatened and some already extinct. What are some measures being taken to tackle these issues? Here the role of the zoo can be given as an important example.

Touch tables are excellent educational techniques and can be set up using items that most zoos have available such as horns, antlers, animal skins, skulls, eggs, features etc. These can be real or replicas. Visitors are encouraged to touch and handle the items while interacting with the interpreter and discuss related topics.

Educational displays need to have an effective message, be cost effective, and applicable for a few years. They need to follow the particular educational message of the zoo and convey the four recognized objectives of any zoo: conservation, research, education, recreation. The challenge is to find the correct information, portray it as attractively as possible, saying just enough to educate the public.

Interpretation Centres



Photo: CEE



Photo: CEE

Zoo Trails

Trails are an exciting way to visit a zoo. They can lead visitors to explore, discover and learn more about different aspects of the zoo. They are especially effective for guided student groups.

However, zoos can design certain trails for other visitors also. As it is well known that a large number of visitors come as family groups, zoos can design a few trails which could be enjoyed by the entire family.

Zoo trails can thus include more than just a walk from one animal enclosure to another. It can integrate all aspects of the site the flora, fauna outside enclosures, facilities etc.

Trails can be guided, that is they can be led by a trained facilitator who points out certain highlights as the group walks along a particular plant or tree, an insect, a termite hill, a bird etc. and also stops for sharing furthering information and interaction with the visitors, as specific spots (animal enclosures, resting places etc.)

Trails can also be self-guided. This would require that visitors get some printed material with the necessary guidelines for proceeding as well as relevant information, and also that there is information available at the different points along the trail in the form of signages, waysides etc. Such a trail needs to be well planned and designed and can be a great attraction for family groups as well as school groups.

A good guided tour must be enjoyable, relevant, organized and themed.

Enjoyable: To make it enjoyable, a really good guided tour will have to be interactive, with questions asked, maybe some humour, some really interesting content that stimulates your interest and is delivered in an entertaining way.

Relevant: If the content is meaningful and personal, people are attracted to it more and find it more enjoyable and easier to remember.

Organised: The tour route must have a definite flow, like a story line or an article in a newspaper, so that people can make sense of it. If it is not in an organised format, audiences will not be able to make sense of it.

Themed: The information during the tour must be themed and organised to help people make sense of it. People need themes, if one isn't clear immediately they will make one up, and it may not be what you are actually trying to communicate.

The best kinds of interpretation is that which aims to move people, not necessarily teach them.

Some words that provide a good checklist to evaluate a trail:

- Fun
- Logical
- Inspiring
- Interactive
- Good stops
- Fits well together
- Interesting theme
- Relates to visitor in some or other way

Many zoos have created interactive trails including animal exhibits.

Some examples:

Zoo Olympic Trail

Visitors are given a booklet at the zoo entrance and they compare their own abilities/characteristics to those of animal “record breakers”, as they move around the zoo.

For example there would be statements like:

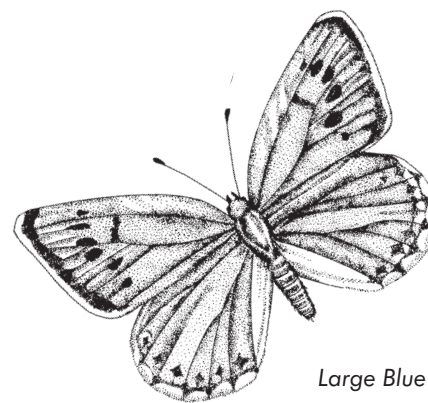
The Elephant weighs about 3000-6000kgs. What would be your weight?

The Giraffes tongue is about 46-50cms long. How long is your tongue?

The Cheetah runs at top speed of about 115km per hour. What's your speed limit?

The Kangaroo can jump a distance of 84 metres and a height of 18 metres. Can you outdo the kangaroo?

In some zoos there are certain equipments at the different exhibits e.g. a weighing scale, measuring tape and colourful signboards.



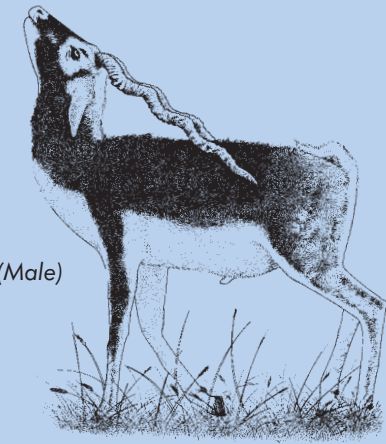
Large Blue Butterfly

Two in the Zoo Worksheet

As you walk through the zoo, try to find the following and note down their names.

Note: Animals refers to mammals, birds and reptiles.

- Two animals that have stripes/spots on their body
- Two animals that have horns
- Two animals that crawl
- Two animals that lay eggs
- Two animals that have webbed feet
- Two animals that are herbivores
- Two animals that are carnivores
- Two animals with long tails
- Two animals that have hair on their bodies
- Two birds that have colourful feathers
- Two animals that have been brought from other countries (read the signage)
- Two animals that move slowly
- Two animals that can run very fast
- Two animals that are very large
- Two animals that make lot of sounds
- Two animals that live in burrows
- Two animals that have spines or thorns all over their body
- Two animals that live fully or partly in water
- Two animals that are not active during day time
- Two animals that you liked the best at the zoo.
- Two animals that you did not like at the zoo.
- Two things (other than the animals) you liked the most in the zoo
- Two things (other than the animals) that you did not like in the zoo.



Blackbuck (Male)

Animal Keeper Talks

Visitors are open to receiving information about animals, and are often more receptive to an informal approach. Informal; education through talks, close encounters, hands-on experiences enhance the visitors' experience and thereby learning.

Animal keepers also have a wealth of information about the animals they care for day after day. They can become an effective resource for interpretation and education.

There are different ways in which visitor interaction with zoo keepers can be made possible:

- Zoo can plan a regular schedule for talks by keepers with specific timings for each of the animal sections.
- Some zoos have token feedings at fixed times for the animals. Visitors can see the animals being fed, accompanied by a commentary from the keeper, which could include what and how much the animal eats in one day, how the food is procured or prepared in the zoo, if the animal has any special food preferences, whether the animal is given some different/special food preferences, whether the animal is given some different/special diet when it is not well, and also what the animal would actually be feeding on in the wild.
- In some zoos, visitors are also allowed to feed some animals e.g. ducks, geese.



Photo: CEE

The experience of zoos, aquariums, botanic gardens, exhibitions and museums in the first part of the 21st century indicates that priority should be placed on live interpreters as they can be the most effective means of communication. Such interpreters may be staff (who have other roles within the organization, be it keeper, gardener or education officer), or they may be volunteers, but all should be trained in public presentation skills.

World Zoo and Aquarium Conservation Strategy

Evaluation

Designing, fabrication and installing signs and exhibits is not the main objective of interpretation. What is key, is to know whether these are able to achieve the planned educational objectives. Thus evaluation is an integral part of the process.

The importance of conducting evaluation cannot be overstated, as unless this is done rigorously and consistently, considerable time and resources may be wasted developing products that fail to make connections with your target audience. This can be done at three stages:

Front-end evaluation prior to design

Formative evaluation during the design phase

Summative evaluation once the design is complete.

Effective evaluation goes beyond simply asking whether visitors enjoyed their experience by addressing questions such as:

Do visitors understand the principle messages and themes?

What are visitors learning from this sign/exhibit (knowledge, skills, attitudes, behaviour)?

Are visitors interested in the content/format of this display?

What do visitors particularly like or dislike?

Are there any design improvements that would facilitate the learning, enjoyment and repeat visitation of target audiences?

Front-end evaluation

This type of evaluation is used in the planning phase to decide what content, messages and themes will be incorporated into the exhibit. It examines the knowledge, interests, needs and attitudes of potential visitors and uses this to shape the scope and content of the proposed exhibit. Conducting this form of evaluation is important as otherwise, considerable time and effort may be wasted designing exhibits that do not capture visitors' interest, do not answer visitor's questions, or interpret features that visitors already know about.

Sample front-end questions:

What do you know about x?

What would you like to learn about x?

Would you be interested in a display about x?

Rate the following topics in order of interest.

Formative evaluation

Formative evaluation is conducted during the developmental phase and involves using mock-ups and prototypes to test whether particular approaches and methods are likely to work. This enables designers to test, revise and re-test inexpensive versions of the exhibit with potential visitors. The biggest advantage of this procedure is that it reduces the chance of making costly mistakes and ensures that the prototype is as close to 'perfect' as possible prior to building and installing the final product.

Sample front-end questions:

What do you think will be the main messages/themes of this exhibit/sign/display?

Which way would you walk through the display/attraction?

Are objects displayed in a logical sequence? Does the 'mock' signage and interpretation make sense?

Are signs clearly worded, visible and accessible?

Does the display address questions and issues that are interesting/useful/relevant?

Do elements of the exhibit compete with each other, and if so, which elements attract your attention?

Are there any signs/exhibits that you ignored?

Summative

This type of evaluation is conducted on real exhibits and usually involves real visitors. If you are asking questions, it is important to ensure that these are specific and that they probe why and how particular aspects of the attraction 'work'. For example, visitors could be asked to immediately recall specific facts, ideas and concepts that were presented in the exhibit or to paraphrase the main messages and themes contained in the text.

If possible, questions should be open-ended (e.g. 'This exhibit made me realise that..'). This applies whether information is collected through questionnaires, face-to-face interviews or focus group interviews. Information can also be collected via visitors' books, though these should not be the sole form of evaluation as they have limited validity and are not statistically reliable.

Sample front-end questions:

What are the main messages/themes of this exhibit/sign/display?

What elements did you particularly like/dislike and why?

How long did it take you to go through the exhibit?

Is this too long/short? How does this exhibit compare to others you have seen?

Is it original, and if so, in what way?

Are there any changes/improvements that would increase your enjoyment and understanding of the topic/display?

Informally talking to and observing visitors is also useful in determining how well displays and signs are working. If visitors consistently ask the same questions, fail to use the display effectively, seem lost and confused, or voice similar misconceptions, staff can conclude that the display and/or explanatory signage should be revised.

More formal observation is also useful, as one of the best indicators of an exhibit's success is the length of time visitors spend in front of it. For example, people generally spend little time looking at exhibits that are confusing or uninteresting, whereas those that are appealing, attract and maintain their interest for much longer.

Issues that could be addressed through observation:

Is there sufficient space for visitors to circulate comfortably?

Are tactile and interactive displays robust enough to withstand daily use?

Do visitors access and use the display in the way intended?

Are there any bottlenecks?

Are there any signs/displays that are being ignored or missed? If so, what changes can be made to counteract this?

(<http://tourism.uq.edu.au/signage/sign-evaluation.html>)

Interpretation Matters

A Master Plan for Zoo Education needs to explore and integrate many forms and methodologies to help achieve these objectives.

The benefits of interpretation are manifold:

- Interpretation contributes directly to enrichment of visitor experiences, thereby attracting visitors.
- Interpretation informs the visitors and sensitized and informed public supports the zoo in achieving its key objective of conservation.
- Interpretation can become the starting point to stimulate visitors to become aware of the wonders of nature, relationships and the balance of the living world.
- Interpretation may help guide visitor behaviour, reduce vandalism, help visitor management, and thereby reduce maintenance and replacement costs.

4

Education and Outreach

The World Zoo and Aquarium Conservation Strategy urges all zoos and aquariums to ensure that education is a central part of their reason for being and to provide adequate support and resources to enable their role to be fulfilled.

Education is a central role for all zoos and should thus be part of every zoo's organisational strategy. This includes having a defined educational policy, making a strategic development plan for education, and demonstrating a 'green' ethos in the entire running of the facility. Education goals should be integral to every aspect of a zoo's activities-planning animal collections, designing and maintaining exhibits, developing programmes and visitor interface.

Below given are some key findings on various types of in-house and outreach educational programmes offered by various zoos across India. These findings are based on data received from inventory forms and interaction with zoo managers during field visits and regional workshops.

In-house Programmes

Celebrating Events

Celebrating 'green' days of the year and Wildlife Week are programmes which take place in almost all zoos as a part of their in-house activities. Different types of competitions (painting, debate, quiz etc.), talks by experts, rallies, film shows etc.



Photo: CEE



Photo: AAZP, Chennai

are some of the common activities organized on these days. These programmes mostly target school students, but can also be attractions for other age groups. Concession on entry tickets or free entry on these days is an added advantage.

"We have adults coming to the zoo and also children. We can't mix both in terms of education".

A Zoo Director

Programmes for School Groups

A day in the zoo

In most zoos of the country some structured educational programmes are offered for school groups. A request-based guided tour of the zoo, screening of movies on wildlife, slide shows, talks and lectures by experts are some programmes offered by zoos for such structured visits.



Photo: AAZP, Chennai



Photo: CEE

Summer/Nature camps

This programme is being offered as an organized and structured programme in several zoos. Some of the zoos are still in a planning stage to develop such programmes to engage students during vacations.



Photo: CEE



Photo: CEE

Given here is an example from the Chamarajendra Zoological Garden, Mysore, which organizes summer camps every year.

Chamarajendra Zoological Park, Mysore Summer Programme

- Theme** : Environment and concept of zoo
- Publicity** : Invitation is through local press
- Target group** : Students aged between 7-12 yrs and 12-18 yrs are enrolled.
About 85 students are enrolled for 3 batches; 1st batch for 7-12 yrs and 2nd and 3rd batches for 12-18 yrs.
- Charge** : Fee Rs.50/- per head (first come first basis)
- Study Material** : Includes, briefing book, bag, cap, ID card, educational materials from Zoo Outreach Organisation, Coimbatore, etc.

Activity for the week, includes students participation in activities like:

- feeding and bathing elephants
- scat/pellet collection: collect various scats and compare them
- zoo kitchen visit: get to know the quality and quantity each animal gets
- animal feeding: students accompany the keepers to learn how each animal is fed
- pug mark collection: students collect pug marks of various animals and study them
- gardening: learn names of the plants and trees.
- cleaning of cages and enclosures: experience the thrill of being in animal cages and enclosure. develop respect towards animal keepers.
- play environment games (web of life, resource management games etc), role play and enact dramas
- prepare projects on animals, birds and reptiles or on any living form of their choice.
- visit to Karanji Nature Park: here they do bird and butterfly watching. they also visit the country's largest aviary at the nature park.
- visit Regional Museum of Natural History.

Summer Camp does not have any theory classes. All teaching-learning is through participatory and activity-based approaches.

OUTCOME: Many people join the Youth Club after this.

Nature trails

Zoos with good biodiversity in and around the site are developing nature trails inside the zoo. This also includes activities like bird-watching. This is a good effort to give a holistic view on the environment and various linkages within nature.

Some zoos also offer trekking in nearby areas at fixed times of the year.

Specific animal weeks (Tiger week, bear week)

The entire week is dedicated to a single species and all the programmes and activities are thematically planned on the same. Free materials available from Zoo Outreach Organisation (ZOO) are used as educational resources.



Photo: Zoo Outreach Organisation (ZOO), Coimbatore



Photo: CEE



Photo: ZOO, Coimbatore

Programmes on non charismatic animals

Some of the zoos in India, organize species specific programmes, for example focussing on bats, bear, frogs etc. These are structured programmes mainly targeting student groups. Talks on the particular animal's habitat, ecology, conservation issues etc, games, distribution of materials (mask, rakhi's, hand outs etc.) are some activities designed for this type of programme.



Photo: ZOO, Coimbatore



Photo: ZOO, Coimbatore

Library

Apart from guided tours, free entry to the zoo, free distribution of educational materials, it was also found that some zoos have the facility of a library.

The Centre for Herpetology Library at the Madras Crocodile Bank Trust (MCBT) has the largest herpetological collection in India, started in a very modest way by Harry Andrews, (ex director, MCBT). Through acquisitions of books, journals, newsletters and reprints; through exchanges, correspondence and networking, the collection has resulted in 1000s of books, reprints and newsletters. This library is current and up to date with publications from India and abroad. It is used by students (schools and colleges), university staff, forest departments and researchers from within India and overseas. Information on new herpetological books and current literature is circulated via the MCBT newsletter *Herpinstance* and book reviews are regularly published in *Hamadryad*. The library also has a small section with books, reprints, reports and other publications on the Andaman and Nicobar Islands, besides a general section with other books, newsletters, directories, video tapes and photos.

Programmes for Youth

Though youth groups are part of all common programmes of the zoo such as wildlife week, request-based guided tours etc. but specific programmes structured for youth groups are not commonly offered by zoos.

Youth Club

Facility of zoo club was found in three zoos out of the total zoos surveyed. Some details on one such club are given below.

Youth Club of Mysore Zoo

Background: Youth club activities is one of the major educational programmes of Mysore Zoo. 60 students aged between 12-18 yrs of age get enrolled in the programme, running almost 6 months of the year.

Objective of youth club: Introduce and make youth appreciate the intricacy of Nature and Wildlife

Publicity: The programme is publicized using local press. A local press release is given inviting students to join youth club.

Timings: Classes are conducted only on Sundays between 10.00 am to 1.30 pm.
 10.00 am to 11.30 am - for Field Activities
 11.30 am to 12.00 pm - Noon Break
 12.00 pm to 1.30 pm - Theory by Resource persons

Fees: Fee for the entire programme is Rs. 250/- per member. This includes bag containing T-shirt, Cap, ID card, Briefing book, materials from Zoo Outreach Organization, Coimbatore.

Content: Classes include Practical, Field and Theory classes.

Theory classes include:

Talks and lectures by experts on reptiles, birds, mammals, insects, wildlife related issues, importance of environment education, personality development etc.

Field and Practical works includes:

Zoo Kitchen visit	Animal Feeding	Elephant Feeding and Bathing
Scat and Pellet collection	Pug mark collection	Cleaning cages and Enclosures
Gardening	Animal Behaviour studies	Visitor Surveys

Preparing Project on animals, birds or any organism of their choice

Visit to carnivore, herbivore, omnivore, birds, reptiles and primates houses to study cage designs and enrichment

Zoo Keepers' Interaction: Keepers share their experience and information with the students regarding each animal.

Chamundi Hill Trekking: Mysore has a historic hill in its vicinity. It is also a Reserve Forest. Children are taken to the hill and along with trekking they are taught how to behave in the wild. Tent pitching and trekking disciplines are also taught to the students.

National Park /Sanctuary visit: At the end of term of Youth Club students are taken to one of the Sanctuaries or National Parks.

Education about nature and environment is also taught through games, drama, mime and other activities facilitated by zoo education team which includes zoo staff and zoo volunteers.



Photo: Mysore Zoo



Photo: Mysore Zoo

Mysore Zoo - Youth club activities

Programmes for colleges/universities

Students from veterinary, agriculture institutes, students from botany and zoology courses come to the zoo to carry out project works on various topics related to wildlife. Fine arts students are getting involved in designing signages in various zoos.

Education to whom and in what way matters. Zoology and biology students can come to work as volunteers or do a one month programme with each animal.

A Zoo Director

Volunteer programmes

Many zoos have volunteer groups who provide their services during peak visitation seasons. Apart from few zoos where these volunteers are trained to carry out educational programmes, guided tours, enclosure cleaning etc, on a regular basis, in most zoos volunteers are involved only during peak visitation season in carrying out activities during 'green' days, managing huge crowds and keeping a check on security and vandalism.

Programmes for General Public

Zoo education programmes and activities can only be sustained and can inspire the target audience if it is interesting and exciting, for all the age groups.

A Zoo Director

Wildlife film shows

Few zoos have auditoriums or rooms where wildlife films are screened for general public.



Photo: CEE

Naming ceremony of animals

This concept is being taken up by many zoos. Naming ceremony for the animal is announced in the newspaper and people are invited to name the animal. Then one name is selected from various names given by the public and the animal is named.

Programmes on non-charismatic animals

The Green Club, a Mysore based Trust dedicated to nature conducted *Keeta Prapancha* an insect exhibition, the first of its kind from 18th to 24th April 2004 at the Sri Chamrajendra Zoological Gardens, Mysore Zoo. The displayed insects were classified as predators, scavengers, pollinators, aquatic insects, social insects, food insects, sound producing insects, productive insects, medicinal insects and fast running insects. Apart from the insect display, informative posters were also put up. The details on the posters contained information including peculiar behaviour exhibited by certain insects, information about insect 'homes', details about the longest and the smallest insect, Insects as pests and beneficial insects etc.

Source: M.K. Saptha Girish, Mysore Zoo Volunteer and Green Club Member (www.zooreach.org)

The above given example on insect exhibition is not only an example of a programme to popularize non famous animals but also the interesting part was the presentation of the information which was in an easy and exciting manner by giving names to species such as food insects, social insects etc. and thus not making it very scientific. Such presentation catches interest of different groups of visitors.

Zoos should not only focus on activities based on charismatic animals but also spread awareness on animals which are not charismatic and are disappearing at an alarming rate. For example: frogs, lizards, pangolins, civets etc.

A Zoo Educator

Animal birthdays: This concept of celebrating animal birthdays and thus popularizing the zoo is coming up in many zoos.

“Last year after delivering, the mother of a macaque species died. This was a rare species and people do not know much about it, so we want to give the message to people that this is an important species and we have to protect it. So we celebrated it's birthday and it was covered by all the media on national and regional level. We decided that on 3rd July every year we will celebrate the day. On that day we would be discussing about that particular species, their habitat, their behaviour, problem they are facing in their habitat and what we need to do about that”. An example from Assam State Zoological Gardens, Guwahati

Guided tours: Request-based guided tour is available in few zoos across the country. Zoo guides, volunteers, education officers (if present), curators, biological assistants, scientific officers are people who are involved in this activity.

Guided tour of Nandankanan Zoological Park, Bhubaneswar is favourite amongst the visitors to the zoo. This facility is advertised right at the Zoo entrance. The guided tour is of one hour and it is charged at the rate of Rs.40/- for a group of six people.

Nandankanan Zoo gets an inflow of visitors of more than 15 lakhs per annum. It is the only zoo in India with registered guide facility. Recently the Guide training programme at Nandankanan zoo was initiated by CEE and Nandankanan Zoo Authority with support from Orissa Tourism Department to build the capacity of about 100 guides at Nandankanan Zoo.

Please refer to Chapter V for guide training programmes organized by the zoo.

Adopt an Animal

This programme is not only a means to raise funds for the zoo but more and more people are positive about this idea and are showing their interests in adopting animals. This is a direct method to involve and sensitize visitors towards nature and wildlife. More on animal adoption scheme in Chapter VI.



Photo: CEE

Zoo week

Nandankanan Zoological Park, celebrates Zoo Week. Interactive activities, guided tours, slide shows etc. are some of the programmes carried out during this week.

"There should be a National Zoo week in the first week of December. Government of India should be moved to give official recognition to this week".

Notes from: Role of zoos in wildlife management and Indian Zoo Directors' meeting, Sakkarbaug Zoo 15-16 January 1990.

Source: ZOOS' PRINT April 1990 Vol. V, No. 4 p6

Animal feeding times

This kind of activity attracts lot of visitors and many Zoos are taking up this concept now.

When animals are fed in the zoo, visitors gather in large numbers to be a part of this activity



Elephant feeding activity in Mysore zoo

Photo: Mysore Zoo

"Everyday the feeding takes place for animals and birds. For small animals it takes place in the forenoon and for big animals and carnivorous it takes place in afternoon. This is an everyday process, it is just that you can have a small board and with a sketch pen you could announce such activities on the board".

A Zoo Director

Exhibitions: Photo Exhibitions in zoos are a good way to show 'behind-the-scene' activities to visitors.



Photo: CEE



Photo: CEE

“200 photos of different activities of the zoo were displayed and visitors came and saw it. Because the photos showed some activities that are not usually seen by the visitors such as animal feeding, doctors treating animals, how the animals live etc., these catch interest of visitors from all groups.

Assam State Zoological Gardens, Guwahati

Creating awareness about issues

The Nandankanan Zoological Park, Orissa, celebrated “Elephant day” on October 7th, 2007. The objective of celebration of elephant day was to draw the attention of the visitors and to generate awareness about the role of elephants in the forest ecosystem, and to generate awareness about their conservation need.

“All of us are concerned about the more and more human elephant conflicts due to habitat degradation resulting from various anthropogenic activities and various other factors” Nandankanan zoo director.

Elephants were decorated with the specially designed appliqué apparel. The prime attraction of the day was the naming ceremony of the elephant calf. Apart from this, free ride of the Zoo and distribution of education material on the same issue were added attractions.

Source: <http://www.odisha.in/news/129/ARTICLE/1581/2007-10-08.html>



Special Programmes/Activities

Zoo School Programmes

Arignar Anna Zoological Park (AAZP), Chennai has an innovative zoo education programme. A customized educational module has been prepared covering the school syllabus.

During the year 2004-05, 101 zoo school programmes were organized in which 7384 students benefited from the programme.

Background: The Zoo school programme is a structured one-day programme in the zoo for students, teachers and general public.

Schedule of the Zoo School: Half day: Classroom session, Half day: Field trip

Teaching Methodology includes talks and lectures, audio visuals on wildlife, distribution of resource materials and activities.

Activities of the Zoo School

Talks and Lectures: Participants are given talks and lectures on various themes related to wildlife and environment

Given below are some broad themes on which talks are given:

- Environment and Wildlife
- Biodiversity
- Wildlife Conservation
- Role of Zoos in Conservation Education
- Some aspects of Zoo Management
- Do's and Dont's in the Zoo

Guided field trip: Participants are taken on a guided tour of the Zoo and for live interpretation of the exhibits.

Resource materials: Free distribution of resource materials including educational kits from Zoo Outreach Organization (ZOO) and publications from AAZP. Resource materials from ZOO includes tiger tool kit, about bats, primates in peril etc., zoo folder, pamphlets, stickers, newsletters etc. are provided by AAZP.

Other attractions: Working lunch, free entry, free ride on zoo vehicle, participation certificate, prize distribution in the case of competition

Evaluation: The programme is evaluated with the help of questionnaires and informal interaction.



Photo: AAZP, Chennai

Puppet Shows

This activity which involves visitors of all age groups is present in very few zoos. The Madras Crocodile Bank Trust with the help of PAVAI centre for puppetry is organizing puppet shows. PAVAI centre for puppetry is mainly devoted to the art of puppetry. Puppet talk shows, workshops related to puppetry for children and teachers and using puppets for creating awareness on various environmental issues are the main activities of the centre. Shadow puppetry workshop for children and adults is another activity which the centre undertakes.



Photo: CEE



Photo: CEE

To connect people with wildlife and develop deeper understanding of ecological balance, zoos need to develop innovative approaches and programmes.
Katie Pahlow, Director, Experience and Learning, Victoria Zoo, Australia

4

Involving the Community: Some examples

Involving local communities in awareness and conservation efforts in zoos has a positive effect.



Photo: CEE

Participants in such programmes include general public, trained officers, zoo and nature club members.



Photo: CEE



Photo: CEE

Outreach Programmes

“The most important thing is the process of positively influencing people's knowledge, attitudes, emotions and behaviour about wild animals through their engagement and involvement.”

A Zoo Director

It was found that outreach programmes of zoos are by and large limited. Occasional talks and lectures in schools and colleges, and slide show presentations, are some common outreach programmes of zoos. Live animal shows, organizing exhibitions, celebrating green days, talent promotion, conducting competitions in institutions, drawing, debate and essay competition in schools are some other outreach programmes of zoos.

Some examples of zoos reaching out to the community are given:

Sepahijala Zoo, Tripura: During Sepahijala festival the zoo interacts with people living around the Sanctuary. An event is organized by involvement of people living near the Sanctuary; lectures on livelihood options and award ceremony is part of this function.

“In this area nearly 50 per cent of the people are below poverty line. They have their own disputes over Mithun, domesticated form of Gaur. We first try to solve their issues and build a rapport with villagers and then through rallies, exhibitions, talks etc. tell them about the wildlife conservation.”

Director, Biological Park Itanagar, Arunanchal Pradesh

Mysore Zoo: Zoo team goes to rural schools and also does slide presentation in schools/colleges and universities.

MCBT: Mobile puppet shows, nature camps, book release, exhibitions are some of the outreach activities of MCBT.

“Zoos need to have joint projects and outreach programmes with National Museums, Botanical Gardens, NGOs etc. to reinforce conservation messages”.

A Zoo Director

Publications

Brochures, annual reports, zoo guide maps, leaflets are some publications available in most zoos.

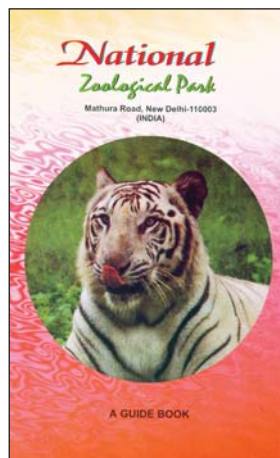




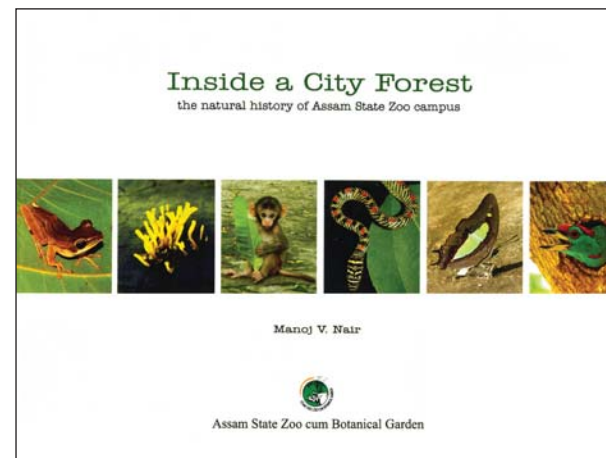
Annual Report



A Zoo Brochure



A Zoo Guide Book



A book on biodiversity of the zoo

Newsletters

Some zoos are coming out with regular newsletters, an example of which is the newsletter of AAZP, Chennai.

Panchtantra: This newsletter is a part of the Nandankanan Zoo school activities. This newsletter has short articles or quotes on “what is a zoo”, “why a zoo”, biodiversity of Nandankanan, special days and activities, etc.



“A THREAT TO ANY SPECIES OF PLANT AND ANIMAL IS A THREAT TO MAN HIMSELF” -NORRAGANING

4

Publication on disaster management

Nandankanan came up with a manual on disaster management titled as “Zoo Emergency”. This was the result of learnings from the cyclone which hit the zoo in 2000. The publication deals with two types of disasters, natural and man made.

Kanpur Zoo also has a publication on emergency preparedness.

A manual for zoo keepers

Zoo keeper's note: An initiative of Nandankanan Zoo, a manual to orient keepers about zoos, animal upkeep, animal behaviour, emergencies in zoos, enclosure safety, design, barriers, educational signage etc.

Some education packets of Zoo Outreach Organization (ZOO), Coimbatore.

- Admire all Amphibians. Frogs are Fabulous
- Amphibian ark - India Campaign
- Amphibians and Glorious Geckos Helping Reptiles at Home
- Bear - English, Hindi (poster)
- Bats
- Bats and Rats - Many species of Bats and Rats are good and useful wild animals
- Chiroptera Drama Kit
- Daily Life Wildlife Conservation and Welfare
- Frogs Rock ! On the Amphibian Ark! - Adore Amphibians in 2008 year of the Frog, South Asia
- Go Gharial ! Go back to survival - Helping Herps
- Good zoos practice... Zoo Animal Welfare
- Hoolock Gibbon (English, Hindi, Assamese)
- Helping Herps - Amphibians : Global Warning ! If they survive, we survive too!
- Helping Herps - Freshwater turtles, tortoises and terrapins
- Hoolock gibbon education Kits

- Just bats ! About bats !
- Monkey Manners Drama Kit
- Mind your Monkey Manners (Tamil, English, Hindi)
- Plants for Life
- Primate Primer
- Tiger Toolkit - Techniques for knowing and loving the World's Greatest Cat (English, Hindi, Assamese)
- Teacher Training Toolkit for Wildlife Welfare
- Vanishing vultures ... - How to keep the Earth clean when they are gone?
- Welfare of Daily Life Wildlife
- Your city zoo ... and even YOU ... are you Conservation - Conscious or Conservation - Careless?
- Zoo Patrol Kit - Teaching and Learning - Yes! Teasing and Feeding - No!

Documentation

Annual report, newsletters and press clippings are common means of documentation. Some zoos also maintain records of research papers and project reports of students.

Many zoos are coming up with their own websites, which apart from being a good means of documentation is also a good means of publicity and networking.

Evaluation

Evaluation is an important part to sustain educational programmes and activities in the zoo, but it was found that as a part of evaluation only informal talks and feedback forms are used and that too only for structured programmes (generally for school/college/teacher groups visiting zoos).

Human Resources

Keepers: Keeper talks can become an important and interesting educational tool for all age groups. This requires some basic knowledge levels as well as training for the keepers. It was found that most keepers have education of upto primary level, lack visitor

communication skills and also have a busy schedule in the zoo. Many Zoo Managers are however open to the idea of keeper talks and are planning to capacity build their keepers for better visitor interaction.

Education Officer: In most zoos there is no sanctioned post of education officers. The existing zoo staff (curator, vets, biological assistants, etc.) are conducting the educational activities.

Key Findings

Listed below are some key findings related to strengths/opportunities, constraints/limitations in the area of in-house and outreach programmes in Indian zoos. These have been compiled on the basis of data and information collected through the mail surveys, site visits and regional workshops.

Please note that the above given findings are neither comprehensive nor do they cover every zoo of the country. They do help to provide an idea on the overall existing condition of in-house and outreach educational programmes and activities in our zoos.

Every zoo should do a SWOT (strength, weakness, opportunities, threat) analysis of its own zoo, to develop, conduct and evaluate its educational programmes and activities on a regular basis.

Dr. Krishna Kumar, Conservator, Tamilnadu, Forest Department

Strengths/Opportunities

- Diversity of visitors to the zoo.
- Location, natural environment, naturalistic enclosures and animal collections in the zoo.
- The zoo provides conducive environment for learning about wildlife, nature, environment and its conservation.
- Opportunity to see simulated environment which is close to natural habitat. Positive media interaction.
- Environment education in curriculum.
- Support of volunteer, eco clubs.
- Zoo linkages with educational institutions (college, school, universities, veterinary, agricultural institutes etc.).
- Captive breeding programme. Such programmes could be used as an opportunity to educate people.

- Event celebration. Green days, animal birthdays, naming ceremony etc. can catch more attention of people.
- Zoo education could also be a means to reduce human animal conflict.
- A means of revenue generation- Paid activities in zoos could become means to raise funds for zoos and sustain educational activities in limited funds.

Limitations

Education

- Lack of guidelines on zoo education.
- Lack of educational materials.
- Lack of innovativeness. Many zoos are repeating several programmes and are spending money on the same issue.
- Education not seen from economic point of view.
- Lack of good, structured, targeted education programmes and material.
- Lack of good educational materials in local language.
- Lack of documenting the in-house knowledge. Zoos have many different kinds of activities on a daily basis as well as round the year.
- A good documentation in itself becomes a good resource material.
- Lack of adequate technology for education.

Visitors to Zoo

- Lack of visitor profile.
- Less/poor inclination towards learning about conservation.
- Lack of time and interest of visitors.
- Language problems as visitors come from different regions.

Human resource

- Lack of Staff.
- Lack of motivation and inspiration to work.

4

- Lack of trained guides and guided tours. In case of untrained guides chance of wrong information going to visitors is increased.
- Lack of expert wildlife veterinarians.
- No sanctioned post for Education Officer.
- Discontinuation of programmes due to transfer of officials.
- Quantum of work a keeper has, limits time available for arranging keeper talks.
- Lack of volunteers in the zoo. Zoo management may hesitate in keeping volunteers as later it's a problem in managing them as they start demanding free entries for their family members, and there are other management problems.
- Lack of dedicated team of educators.
- Lack of facilities like proper accommodation, medical care, insurance cover etc. for keepers.

Training

- Lack of training of zoo staff in the area of developing educational programmes.

Funds

- Lack of funds.
- Lack of sponsorship and limited budget for education.

Others

- Lack of proper outreach facility such as educational material, vehicle, generator, projector, etc..
- Lack of infrastructure for research and development and networking (Internet, computers etc.).
- Negative media reporting. Due to this a bad image is created for the zoo among the public.
- Less priority to education in zoos.

“Zoos in India are more 'director centric' which means that most of the responsibilities of various areas of zoo management are carried out by director as there are no separate units/department for education, management, public relations marketing etc. And therefore the directors have to manage all these areas single-handedly. Thus there is a need to define duties and chalk out responsibilities and create separate units for carrying out different activities of the zoo. A good zoo team with focus areas is important.”

A Zoo Director

Recommendations from Zoo Managers

Visitors

- Zoo should have a visitor profile of the zoo so that to develop target specific programmes and activities.
- Reach to non visitors to the zoo: develop outreach programmes.
- Zoos should develop zoo guide book which visitors could carry in absence of trained guides.

Education

In-house

- Introduce a zoo school with residential facilities for teachers.
- Zoos should provide information material for each enclosure.
- Information on different types of animals through signages.
- Zoo publications should not be limited to a brochure. Fact sheets, narration of natural history and remarkable features of each and every inmate of the zoo can be made available to the public.
- Activities like nature trails and bird watching should be developed in zoos with good biodiversity in and around the campus.
- Films/animated films on wild animals should be screened in zoos.
- Educational posters should be developed and distributed.
- Take away educational materials, brochure need to be developed.
- Good enclosures should be designed.
- Enclosure enrichment activities could be a part of education agenda.
- Standardized programmes for various target groups could be prepared for each year.

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- Contact programmes with nearby communities would be helpful in running the zoo.

Outreach

- Zoos should involve and create zoo ambassadors, involving school children.
- Zoos should have more outreach programmes so as to connect with the public.
- Zoos should have website to publicize educational programmes of the zoo.

Human resources

- Zoo directors should not be transferred at short intervals.
- Resource persons from different organizations should visit the zoo. The zoo should have a directory of resource persons/organizations with them and should involve them in carrying out different activities.
- Volunteer services in zoos should be developed to meet the limitation of staff.
- A separate and dedicated education unit need to be established in each zoo.
- To develop a team of volunteers and explore possibility and strength in retired Biology teachers.

“Zoos should move on from conservation education to environmental education. The 21st century zoo should have a holistic approach and zoos should spread awareness on various environmental challenges through innovative programmes and activities.”

Bernard Harrison, Ex-director, Singapore Zoo

Training

- Zoos should develop trained guides in collaboration with experts .
- National and international exposure visits of zoo staff to learn innovative ideas on zoo education.
- Training and capacity building of staff in the area of developing educational programmes and activities.

Funds

- Allocation of budget for education and outreach activities.

Others

- Wide and positive publicity to make people aware of zoo activities, using all types of media (Newspaper, signages, boards, etc.).

- Upgradation of existing educational units of respective zoos with manpower, equipments and other under prerequisite.
- Evaluation of educational programmes should be compulsory.
- Each zoo should have their own education plan.

If the zoos could develop a small manual (looking into the school curriculum) which would be a resource for school. A Zoo Director

Linkages

- Media, corporates, policy makers.
- NGOs, individuals, volunteers, donor agencies, government institutions.
- International zoos, government departments (like finance and other related departments).
- Tour operators, nature clubs, other zoos.
- Like - minded institutional collaborations with natural history museums, botanical gardens etc.
- Involvement of tourism department.
- Involvement of school/colleges and other educational institutions.
- Involvement of media and press for better communications.
- Linkages with organisations such as the Zoo Outreach Organisation (ZOO), Coimbatore, Centre for Environment Education (CEE), Ahmedabad, C. P. Ramaswamy Aiyer Environment Education Centre (CPREEC) Chennai, Wildlife Institute of India (WII) Dehradun, World Wide Fund for Nature and Natural Resources (WWF), India as well as local nature clubs, environment groups etc.

4

Master Planning for Zoo Education and Outreach Programmes

Each zoo should have a well drawn-up plan for educating the visitors as well as others in the community. Zoos shall keep a close liaison with other ex-situ facilities in this regard. (The National Zoo Policy, 1998)

Education is a central role for all zoos and should be a part of every zoo's organizational strategy. The strategy begins with having a defined educational policy and making a strategic development plan for education for all the target groups coming to the zoo.

Having accepted that education is a part of a zoo's mission, this component should be properly represented and integrated at all the levels from the management to the maintenance.

The concept of zoo education is broader than a programme for schools and should be targeted at the entire zoo visitation. The educational role of the zoo must be clearly stated in its written mission statement. The zoo must have a written Education Policy, identifying educational components and setting out the methods by which these components are directed towards the different sections of the zoo visitor audience.

Target Audience

Zoos appeal to a wide cross-section of society and their educational mission should be to provide educational experiences for all visitors. However, it is appropriate to distinguish between the needs of two major groups:

- Visitors other than school and college groups , referred to as the non-formal sector
- School/college visitors, usually referred to as the formal sector

However, zoo education for the formal sector can be more flexible, and activities designed for schools can be available to other groups of visitors, and vice versa.

Non-formal Education

The World Zoo Conservation Strategy emphasizes that the use of a variety of educational techniques, facilities and considerations, together with knowledge, creativity and inventiveness can make zoos highly interesting, attractive and effective places for environmental, conservation and holistic life system education.

School groups are also zoo visitors, therefore programmes and materials prepared for other visitors can help with school visits (and vice versa with some adaptations).

It is important that the person(s) running these activities is given adequate training and are monitored and evaluated regularly.

A few examples of visitor education (that can also benefit schools) are given below.

Animal encounters/demonstrations may take the form of a room/dedicated display area in which visitors are shown certain animals, given a talk and visitors can ask questions. Close contact with the animals may also be possible (in accordance with close-contact guidelines such that animal welfare is not compromised).

Talks given at feeding times by a animal keeper, other staff member or volunteer can provide information about the animals.

Interpretation/graphics: One way of fulfilling this is to provide a label for each species in the collection and this may include category of threat, threats faced in the wild and some interesting facts. (More on Interpretation in Chapter III)

Exhibit design: The design of an animal exhibit can have a significant effect upon the 'message' that visitors take away. An 'immersion' approach to exhibit design, where animals and visitors are in the appropriate context of habitat, allows other aspects, such as conservation, to be highlighted and absorbed/reflected upon. (More in Chapter III on Interpretation)

Printed resources: Relevant and suitable literature can be used for education by incorporating information, mission statements etc. There are many opportunities to provide literature within the zoo e.g. fact sheets on animals in the collection or leaflets with specific messages, handouts to accompany specific campaigns, etc. These can also be prepared at little cost.

Media and public relations: Zoos have an enormous opportunity to further their educational objectives through contact with the media e.g. a birth, arrival or departure of an animal provides an opportunity to talk about captive breeding programmes. Promoting conservation and the environment by building these issues into press releases ranging from special events, to birthdays and even negative stories, such as the death of an animal, can be important in raising the profile of zoos. It should become a commonplace for the media to ask zoos for comments about wider conservation issues.

Website: A well-designed and updated zoo website is an effective means to reach those who have access to internet. This popularity is improving in urban areas of particular relevance to non-visitors and the world community. It can go beyond barriers of time and space. Web sites can be developed as an educational resource, a marketing opportunity and, with links to other sites, an interactive encyclopaedia.

Special events: A focused day or week(s) allows certain issues to be highlighted, e.g. Tiger Week. This could illustrate the many ways of raising awareness and funds. This could also involve putting up a display, running a competition, having a collection box and talk, etc. Given are some ideas for celebrating a variety of special days.

Zoo Events Calendar

Every day should be zoo education day. There are also specially designated days which focus on specific areas or themes. These are generally declared by international agencies or Indian government. Such days are a good opportunity to plan and offer a special event at the zoo. Such events become a special attraction for the general public as well as school groups.

For the zoo management, an annual 'zoo day' calendar becomes a useful resource to keep up activity and interest levels, and provide a variety to the educational programmes routinely offered.

Given here are some days and ideas to enliven a Zoo Events Calendar

When	What	What can You do at the zoo?
January 14-30	Animal Welfare Fortnight	This is declared by the Animal Welfare Board of India. Zoos can conduct special programmes to inform public how the zoo animals are cared for. There can be talks by zoo managers, animal keepers and vets.
January 12	National Youth Day	This starts national youth week. A good time to announce or initiate youth zoo volunteer programmes.
February 2	World Wetlands Day	Marks the date of the signing of the Ramsar Convention on Wetlands. Special programmes can be planned around the zoo wetland (if it has one) and wetland birds. Film shows or slideshow on the theme can be organised.

March 21	World Forestry Day	A good day to educate visitors about the natural habitats of wildlife and how forests are home to countless species. Also a chance to focus on the zoo flora. Events can include film shows/slide shows related to different kinds of forest ecosystems placing animals that they may see in the enclosures in their natural habitat.
March 22	World Water Day	Water is one of the basic requirements for all life. A zoo campus is a good place to sensitize visitors to different aspects of water. For example a signage telling how much water an elephant requires in a day as compared with a camel, special characteristics and adaptations of aquatic animals etc. Also looking at the sites water systems drinking water facilities, water for enclosures, and other needs, and how to optimize water use, and minimise waste with signage, demonstrations etc.
March 23	World Meteorological Day	Climate is vital for sustaining life on earth. Draw attention of visitors to how zoos create suitable "micro climates" for animals from so many different climate zones. Arrange a talk and a demonstration with examples of different enclosures from penguins and polar bears to tigers and cobras. As the issue of climate change is close to become a reality, arrange a film/talk show about how this will affect different animal species in the wild.
April 7	World Health Day	This is a good day to have a health camp for the zoo staff, especially the animal keepers. It is also a chance to educate the public about 'zoo nozes'. Most people do not know that we can catch disease from domestic animals, or that animals can catch diseases from the left over food and other things that visitors throw into the enclosures. Get the zoo vet to give talks to the visitors.

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<p>May 22</p>	<p>International Biodiversity Day</p>	<p>The zoo is a wonderful showcase for biological diversity. This day can be used to highlight the diversity of life forms in the zoo, and the value of every organism. Links to the diversity of habitats and ecosystems, and threats to all these by human actions can be discussed. People must realize that animals they see at the zoo are special ones, many species may be threatened with extinction, some may be from far away lands.</p>
<p>June 5</p>	<p>World Environment Day</p>	<p>Make it a day to improve the zoo environment activities. Invite people to take part in a “clean up the zoo” morning. (This will need to be well coordinated to avoid chaos and confusion). Visitors can also be told about how the environment for zoo animals is improved by the enrichment facilities and ways in animal enclosures that help zoo animals express species specific behaviours. Enrichment provides zoo animals with occupation something to do with their time as well as mental stimulation and physical exercise. Putting up signages explaining the specific enrichment components at the relevant enclosures gives visitors something new to read and look for.</p>
<p>June 1st week</p>	<p>International Volunteer Week</p>	<p>The best time to have a volunteer orientation/ reorientation programme. Zoos can enlist new volunteers, as well as recognize and encourage old volunteers.</p>

June 18	International Picnic Day	The issue of people bringing in food and eating within the zoo is a difficult one for zoos to handle. Some do not permit food from outside. In case this is allowed, this day can be announced by posters outside and within the zoo and 'picnic'-specific areas designated. Picnickers can be encouraged to observe and enjoy the wildlife outside the enclosures—plants, butterflies, spiders, ants, birds and more. Posters at these spots should urge visitors to not litter, to carry back uneaten food, not to feed the animals, and to contribute to keeping the zoo neat and clean.
July 1st week	Vanamahotsava	Celebrate by having a tree planting event on the zoo campus. Alternatively invite school children to develop signages for the trees in the zoo. Provide them with the basic information, and let them be as creative as they like. Invite the zoo gardeners and horticulture staff.
August 6	Friendship Day	A great day to initiate a Friends of the Zoo scheme. This is to encourage people to sign up either as volunteers, or sponsors, or even adopters of animals. An opportunity to have a public event, invite celebrities and press and publicize the programmes.
August 2nd or 3rd week	Rakshabandhan	Zoos can make and distribute plant and animal rakhis for visitors to symbolize the close bond and interdependence between humans and the plant and animal world, and highlight the conservation message. Animal rakhis for children can be used in so many different ways to tell about different animals, to highlight the value of 'caring and sharing', as prizes for events and more. There could even be a contest to design rakhis for the zoo.

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September 27	World Tourism Day	Tie up with local tour operators to make the zoo visit a part of their itinerary. Offer special discounts for tour groups on this day. Design attractive posters and get the city bus tour and tourist offices to put these up.
First Monday of October	World Habitat Day	A habitat is what offers food, water and security to an animal in the wild. In the zoo, the enclosures are the animal's habitat. On this day, create awareness about the natural habitats of the zoo's animals and that many of the habitats are being destroyed by human activities and actions and this is a threat to the plant and animal species living there. Explain how zoos play a very important role in conservation of threatened and endangered animals.
October 1st week	Wildlife Week	This is perhaps the one that most zoos celebrate with competitions, film shows and other events. Think of innovative ways to mark this week set a theme, run a photography or poetry competition, invite dance and drama performers on the theme and much more. Remind visitors that wildlife is not only fierce animals in thick jungles... that plants and insects, and other non-domesticated animals are also wildlife.
October 16	World Food Day	Tell visitors about the food of the animals in the wild, and at the zoo. Inform about how the zoo had to identify available substitutes for some of

		<p>the food, how it has to procure such food and how animal feeding is done. Some zoos offer “behind the scene” visits to the zoo kitchen or area where animal food is stored or prepared. Put up “did you know” or amazing facts about each animal's eating habits.</p>
November 14	Children's Day	<p>Offer free entry to children. Or allow only children into the zoo. Run a competition for children to draw or describe their “Dream Zoo”. Offer children a chance to be an animal keeper for a day.</p>
December 1st week	Zoo Week	<p>A good time not only for public interface but also for motivating and strengthening staff spirit of the zoo staff. Organize refresher training team building exercises, and peer interactions.</p> <p>For the public put up an exhibition describing the many different roles of a zoo and the different staff that helps the zoo achieve its objectives from the Zoo Director to the enclosure cleaner. Arrange public interactions with different members to help the people better understand and appreciate what it takes to keep a zoo going.</p>



Photo: ZOO, Coimbatore

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Some guidelines for organizing an educational programme around an event or a species

Elements of developing a programme

Functions

Functions may include lectures, parades, parties, ceremonies, press conferences, discussion groups, contests, competitions, special tours, slide shows (both in-house and outreach), etc.

Materials

Posters, newsletters, brochures, packets, brochure-stickers, stickers, stamps, rubber stamps, t-shirts, calendars, postal cards, carry-bags, etc.

Partners

Collaborate on programmes with other organizations such as Rotary club, nature clubs, conservation organizations, climbing and adventure clubs, churches, schools, businesses, etc.

Species

Endangered species, particular

1. An endangered species in your zoo
2. An endangered species not necessarily in your zoo but in India.
3. An endangered species not even in India but as a symbol in the world.

Endangered species, general

1. A group of endangered animals which can highlight the destruction of a particular habitat or biome.
2. The concept of endangered species/"vanishing species"
3. A "representative" group of endangered animals, i.e. a mammal, a bird, a reptile, a fish, an amphibian, an insect.

Engaging /attractive species or the very opposite

1. An “attractive” animal that is not necessarily in trouble but can serve as a focal point to attract public attention.
2. An “attractive” young animal that has a birthday, or is being “named” etc. that can serve as a focal point, such as a tiger cub or a red panda cub.
3. An unattractive or unpopular animal with a negative image but has a story to tell itself can be played upon to make a point on an environmental issue. Vultures, spiders, certain reptiles can become popular if you give them the right “spin’ in your education programme.

Official / commercial animals

1. Your official, state or national animal
2. An animal that is the symbol or logo of a well-known industry of company (that might fund some programme).

Events**Events can be global, national, state, local, in house**

1. World events such as World Environment Day, World Forestry Day, Wildlife Week, etc.
2. National or state national events (do not necessarily have to be connected with wildlife or environment, i.e. Republic Day in India is a free day for children at the Zoo; Mothers Day could focus on zoo animal mothers and their babies and allow all mothers with a baby in, free of charge).
3. Local events can mean your city or your own zoo. Zoo week, clean-up day in your community, Health day, etc.
4. In-house events Zoo special events such as animal birthdays, zoo centenary, or national and international scientific meetings.

Source: (ZOO ED Book, Sally Walker, Zoo Outreach Organisation, 1998) ZOOS' PRINT, Volume XIX, Number 9, September 2004 (RNI 5: 12)

Formal Education

Providing relevant and effective education, communication and information relevant to school groups is a challenge. Zoo education programmes need to be carefully and creatively developed.

Zoos should recognize the concept of lifelong learning and target students from a wide range of ages and abilities from pre-school to university, including students with special educational needs. Indeed good zoo education should be relevant, engaging, span all curricula and with suitable adaptation, appeal to all ages and abilities.

Promoting the Zoo as an Educational Resource

Many educationists argue that a significant amount of learning takes place outside the school. It is important to actively promote the educational opportunities offered by the zoo. The first step is to establish links with schools, colleges, universities and teacher training institutes.

Some ways by which this could be done:

- Open House day for school teachers and principals. Could include a presentation on the zoo highlighting the educational possibilities, a guided tour around the zoo (including any specific trails) and a discussion on how the schools could better structure the students' zoo visit to enhance the educational component or value.
- Visits to schools by the Zoo Education Officer/staff to present Slide Show/Film Show on the zoo and the educational opportunities offered by a zoo visit and how with a little planning, a zoo visit can be both fun and educational.
- Zoo education staff should develop links and partnerships with teachers to ensure that zoo educational programmes are matching the curricular development and other educational needs.

Well-planned and well-tailored educational activities can attract support from educational authorities, while also demonstrating the important educational role of zoos. To use such opportunities and to provide facilities and services to optimize the opportunities requires a proactive approach on the part of the school authorities (management and teachers) and zoo authorities (management and zoo staff).

Linking with Formal Education Systems

Formal zoo education comprises education that is conducted in the framework of the educational curriculum of schools, colleges and research institutions within, or in relationship with the zoo.

There are several ways to do this.

School Visits to a Zoo

A zoo visit is an opportunity to expose students to the amazing diversity of life and help them understand many of the ecological principles and concepts that they have been learning in their textbooks.

For visiting school groups, structured programmes could be offered, which could be thematic and curriculum linked.

Programmes may be structured based on the combination of several factors, e.g.

- The age-group/level of students (pre-primary, primary (1-4), middle school (5-8), high school (standards 8-10), higher secondary (standards 11-12)
- The time available (number of hours)
- Any specific themes or curriculum linkages.

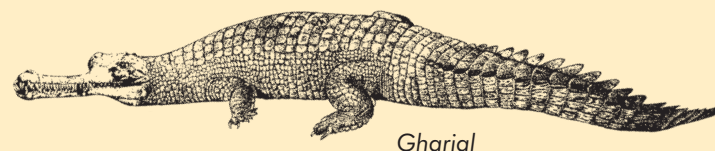
An array of biological and other themes can be explained through properly planned zoo visits. These include themes such as animal adaptations, behaviour, reproduction, and nutrition, and also complex subjects such as evolution and ecology.

For higher classes the visit could concentrate, for example on a particular group of animals (example cats, reptiles, birds) and teach 'classification of animals' or some ecological principles/concepts like the prey-predator, inter-relationships, adaptations, camouflage, etc.

Zoo programmes can explain how easily the subtle balances in natural habitats and ecosystems are disturbed by human interference, and the connections between human consumption and life style and the survival of species and biological systems.

Some ideas for themes

Size and shape	Form and function
Classification (Birds, Reptiles, Insects, Mammals)	
Body coverings	Animal senses
Adaptation	Teeth and diet
Nature trails	Butterflies and host plants
Tree identification	



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Guided Tours for School Groups

Guided tours of zoos for school groups can be offered as structured zoo visits, guided by a zoo educator/officer. It could be a bus tour/battery operated vehicle tour of the zoo and can provide some close encounters with animals.

Zoos can offer also a menu of themes/topics that can be discussed with the students. These visits can be offered at the primary and secondary level.

The school visit programme can be designed so as to closely link with the topics covered in the formal curriculum.

All these programmes can be conducted by zoo education team in a participatory mode, where-in students can observe, ask, find out, discover and carry out hands-on activities.

Teacher Guided Visits

In addition to zoo education staff providing tours and educational sessions, many zoos can invite and provide teachers with resources needed to conduct the zoo visit by themselves. A lot of fun and learning can happen together.

Zoos can develop a menu of programmes which teachers can chose from, to suit their level and theme requirements. These can be planned in such a way that they link with the formal school curriculum.

Education Sessions/Classes

A talk/lecture alone has limited educational value. The aims of zoo education/ environmental education cannot be met by providing information alone. Offering opportunities for questions as well as providing information, experiences and leading by example is good educational practice.

Interactive, discovery learning, hands-on and question and answer sessions for groups/classes can be tailored to the particular needs of the group and the curriculum but which also includes a conservation message. Zoo education has an important role in turning young people into conservationists.

These can be enhanced by use of visual aids, such as slides, as well as videos/CDs, and wherever possible touch screens or computers.

The staff involved in education should be given relevant training and their work evaluated regularly, particularly through feedback from the schools themselves.

Curriculum Linkages

Zoo visits are an integral part of most school calendars. This opportunity can be harnessed as a potential way of linking and integrating curriculum concepts with zoo visits.

All curricula have a wide range of topics that can be effectively explained through a zoo visit.

Providing a structured 2-3 hour programme for specific classes which highlights these concepts through animal observation will attract school groups.

The **National Curriculum Framework** (NCF) 2005 has clearly indicated a zoo visit as a suggested resource, especially for classes 4-8.

Questions	Key Concepts /Issues	Suggested Resources
Class IV Environmental Studies		
Teeth of animals, can we tell what birds eat by looking at their beaks? Are the claws of birds different? Is their shape related to the food they eat?	Beaks and claws in animals and the relationship with the food they eat.	Visit to observe some animals; personal experiences, Visual references
Animals	Animal-human interaction	
Which animals like to move in groups? Which animals are shy and do not come near you?		Observation, child's daily life experience, story on animals moving in groups

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Class V Environmental Studies		
People who depend on animals		
<p>Do you know people who catch, trap/hunt/ entertain using animals?</p> <p>Have you seen how snake charmers depend on animals?</p> <p>What do you understand by cruelty to animals?</p>	To be sensitive about cruelty to animals ; realize that people who depend on animals for their livelihood are not necessarily cruel to them	<p>Child's observations</p> <p>Visit to the zoo and discussion on people teasing/troubling animals at the zoo/public places</p>
Class VI Science		
Animals: Form and Function		
<p>How do animals move? Do all animals have bones in their bodies? How do fishes move? And birds fly? What about snakes and earthworms</p>	Structure and functions of animal body	Observation/discussion on movement and skeletal system
Class VIII Science		
The World of Living Things		
Why Conserve		
<p>What are reserve forests/sanctuaries etc? How do we keep track of our plants and animals?</p>	Conservation of biodiversity/wildlife/plants; zoos, sanctuaries, forest reserves etc. flora, fauna endangered species, red data book; endemic species, migration	Films on Wildlife, TV programmes, visit to zoo/forest area/sanctuaries etc;

Extra curricular linkages can also be made with eco clubs/nature clubs/zoo clubs. Regular structured visits by such student groups can be linked with the projects they may be undertaking. Such students, being already motivated to participate in such activities, are also potential volunteers for the zoo.

Managing School Zoo Visits

In addition to the educational aspect, a school visit to the zoo entails a lot of logistic and other arrangements to be made by the zoo. One important concern is the orderly conduct and overall safety of the children. It would be useful if the respective roles and responsibilities of both the school as well as zoo authorities are clear even before the visit.

Bristol Zoo, UK has developed a comprehensive code of conduct. Some excerpts are given below:

Risk assessment guidelines & code of conduct for schools and groups visiting the zoo

General

We have put together the following guidelines in order that everyone has an enjoyable and interesting day. We undertake to do all that is reasonably practicable to ensure the safety of our visitors.

- Group organisers should undertake to ascertain the supervisory requirements of the group that they are bringing on a visit. Groups of students that are inadequately supervised are a nuisance to other visitors, the staff and the animals and can be a danger to themselves and others.

Out and about in the zoo

Lost children

Zoo responsibilities

- Report the name and description of the lost child to the main office
- Zoo office staff are trained to deal with lost children.
- Announcements will be made throughout the zoo to find supervisor.
- All staff are approachable for help.

School responsibilities

- Make sure an adequate number of responsible adults are present to supervise children.

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- Arrange meeting points throughout the day.
- Advise children to go to the main office if they become separated from their group.
- We advise that each child has a sticker displaying their teacher's name and a contact number for the school.

First aid

Zoo responsibilities

- The First Aid Point is situated next to the Main Office in the centre of the zoo. If closed, go to the Main Office.
- There is a protocol to ensure that there are always sufficient trained first-aiders on site.

School responsibilities

- Anyone on regular medication should carry it with them or a supervisor should store medication and know how to administer it.

Trees & rocks, fences & barriers

School responsibilities

- Supervision in the zoo should be sufficient to prevent children from climbing on trees or rocks
- For the safety of animals as well as visitors, barriers must not be crossed.
- Do not let children touch electric fences.

Zoo responsibilities

- Warning signs displayed on electric fences.

Lakes and water

Zoo responsibilities

- Barriers and warning signs, and buoyancy aids are in place around lakes.

School responsibilities:

- Supervision in the zoo should be sufficient to prevent children from playing near water features

Playground**Zoo responsibilities**

- The playground is suitable for children up to 12 years old.
- Notices are displayed on the equipment to show appropriate usage.
- The equipment is regularly maintained and safety checked.
- The ground surface is designed to limit injury if falls occur.

School responsibilities

- Children should be supervised at all times.

Café and shops**Zoo responsibilities**

- Hygiene regulations are adhered to.

School responsibilities

- Children should be supervised at all times.

Animals**Zoo responsibilities**

- Appropriate signs are located at enclosures.

School responsibilities

- Explain appropriate behaviour around animals prior to the visit.
- Do not allow children to make loud noises at the animals, or bang on enclosures.
- Do not allow children to feed the animals, or drop rubbish into animals' enclosures.
- Do not touch, run towards, corner or make loud noises near wild animals.
- Ensure children wash their hands before eating.

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Zoo vehicles**School responsibilities**

- Be aware that vehicles and trolleys are used throughout the zoo for operational purposes.

Zoo responsibilities

- Speed is 10kmh
- Only competent and trained drivers are allowed to drive within the zoo grounds

Animal Escape**Zoo responsibilities**

- Security of enclosures is tightly controlled.
- In the unlikely event that a dangerous animal escapes there is a trained team to lead the recapture.
- All staff are aware of the protocols concerning leading visitors into safe areas.
(www.bristolzoo.org.uk)

Appropriate Resource Material

Appropriate resource material can help support and enhance the educational experience at the zoo. Some of this could be specifically for school groups and some for the interested general public.

Appropriate teacher support material developed for zoo visits can provide live interpretation opportunities and will serve to better explain concepts in the curriculum. Materials can be developed both for teachers and students.

Resource materials help support student learning by providing facts, information and activity guidelines. All these need to be specially designed so as to transform a visit to the zoo into a rich educational and enjoyable experience.

School Resource material would be of three types: For use

- in school before the visit
- during the zoo visit
- after the zoo visit in the school

These materials could be developed by zoo education officers/zoo team with the guidance of experts and they can also be developed in a workshop mode, with teachers, and specialists.

Resource packs

A resource pack can be designed to relate the zoo visit to the curriculum and several curricular concepts.

The pack can also have fun sheets on animal identification and small information pamphlets giving information about the animals and plants in the zoo. It can also have fact sheets/observation sheets that enhance and sharpen observation skills in students.

The packs can be provided in advance to the teacher accompanying the student group. They can be used back in the school environment to consolidate learning and understanding.

Zoos can develop a zoo quiz and give a copy to the teacher who can go back and use this as a post visit tool.

Activity kits

Activity kits can be developed to assist school educators to develop an awareness and appreciation for wildlife and the environment through a variety of hands-on activities.

Depending on the theme, the kit can contain CD ROMs, books/booklets, music tapes, information cards, teachers resources (lesson plans) and games. The kits can be used independently or as a pre or post zoo visit resource.

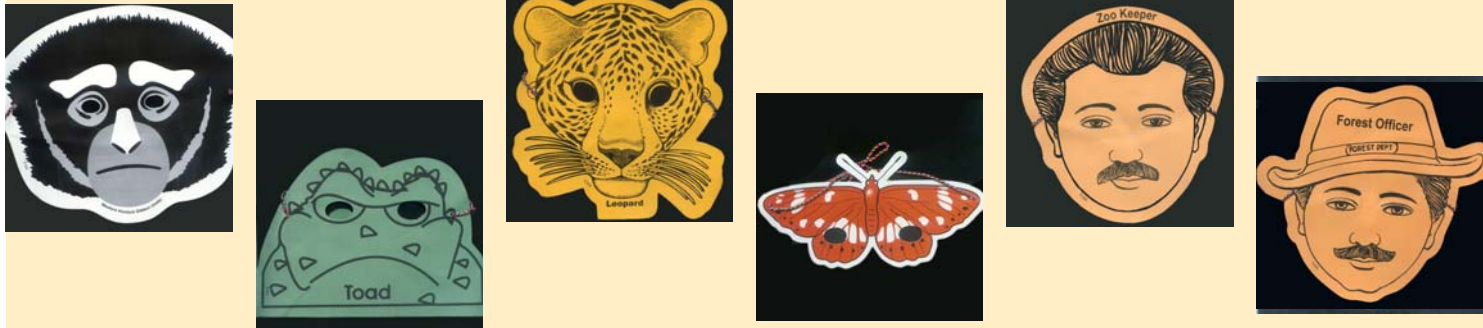
Workbooks, worksheets, charts, posters and stickers could be a part of the Resource Pack/Activity Pack aimed at students. These materials may be developed thematically also conveying educational and conservation messages.

For these resource materials to be effective they need to be available also in the vernacular or the local language.

Most importantly teachers will need to be introduced to the materials and oriented about their effectiveness. (More about teacher orientation in chapter V)

Examples of materials from resource packs developed by Zoo Outreach Organization

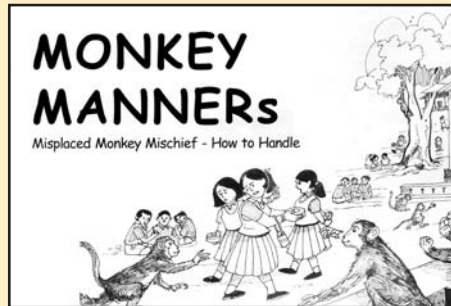
Drama Kit This is used for explaining conservation issues with the help of role plays.



Masks from Drama Kit



Various ways to explain zoo ethics



Monkey Manners



Activity Manuals

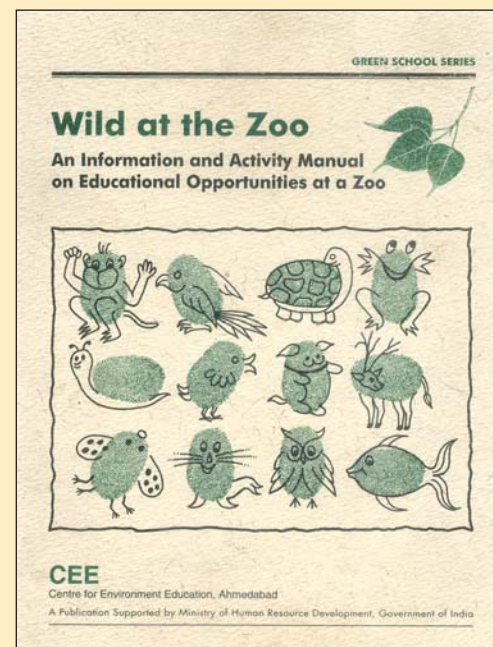
These are good resource materials for teachers. The manuals can provide ideas about a range of activities that can be carried out with relevant target groups, mostly school groups.

Wild at the Zoo: An Information and Activity Manual on Educational Opportunities at a Zoo. This is an example of teacher resource material brought out Centre for Environment Education. The manual seeks to orient and equip the teachers in discharging their role as zoo educators effectively.

The first part of the manual deals with various aspects of zoo management and its changing role in the present scenario. It also gives information about national policies and legislations with regard to zoo and wildlife, and imparts a perspective to readers on the status of wildlife in our country and the role of zoos in complementing the national effort of conservation of wildlife.

There is a separate chapter in the manual titled "School Visits to a Zoo" which provides tips to teachers in arranging a trip of students to zoos, what needs to be done before the visit, during the visit and after the visit.

The second part of the manual gives interesting facts on wildlife and worksheets and activities to make the zoo visit an enriching experience. The manual has been designed in such a way that not only teachers but also the general public would be benefited.



4

Worksheets

Worksheets help to structure and guide student/visitor experiences and observations at the zoo.

Worksheets can be used in many ways:

- Pre and post zoo visit evaluation tools to understand the student's level of knowledge/understanding before a zoo visit and after.
- As an evaluation/reinforcement tool following a zoo visit. To understand what the students learnt/recalled from the zoo visit.
- To reinforce links with the school curriculum and syllabus topics.
- To guide student's observation on specific aspects of the animal exhibits (e.g. body covering, form and function etc.)
- As a self-guided trail material for students to move along a specified route or pattern for exhibit viewing.
- Any other specific need of the teacher/facilitator.

The aim of the worksheet must be carefully thought out and questions devised accordingly.

While preparing careful consideration must be given to the levels of ability knowledge, language of the target children.

Worksheets must be designed so as to be attractive to children and not be like something out of a textbook or school material. Use of reader-friendly language, illustrations, and thought provoking questions arouse interest and curiosity and invite active participation.

The best way to prepare worksheets is by collaboration between the teachers and zoo educators. The latter provides the technical information while the former helps to present it at a level and in a format suitable for the level of the children.

Tail Tales Worksheet

Name animals that:

- Use their tail to help in movement.
- Use their tail to help in balancing.
- Use their tail to protect themselves.
- Have tails covered with hair.
- Have a tuft of hair at the end of the tail.
- Have tails covered with scales.
- Have long feathered tails.
- Have a tail as long as, or longer than, their own body.
- Sleep with the tail curled around them.
- Are trying to communicate something through the position of their tail.



Indian Gerbille

We Are All Ears Worksheet

Look for and name:

- 2 animals with flap-like ears.
- 2 animals with ears on top of the head.
- 2 animals with furry ears.
- 2 animals with no ears.
- 2 animals in which you cannot see the ears.
- 2 animals with ears on the sides of the head.
- 2 animals who were twitching their ears.

Sketch five pairs of ears each of a different shape or form. Label each sketch with the name of the animal to whom the ears belong.



Caracal

Handbooks

Handbooks have detailed information about the zoo and aim at the more enthused and interested reader. These could serve as good resource material for students, teachers and also provide interesting information for general visitors.

Your Guide to Arignar Anna Zoological Park is a handbook aimed at the zoo visitor. The handbook has several sections focusing on various aspects of the zoo and its animals:

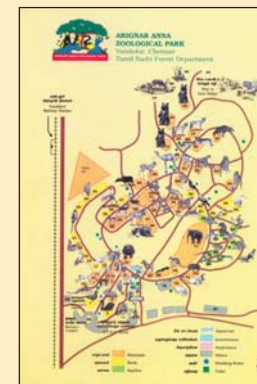
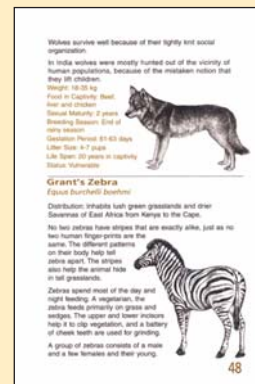
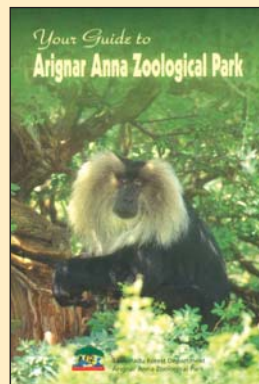
Zoo Ethics: 'How to make the zoo visit more enjoyable for you and the animals', section deals with simple do's and don'ts that visitors need to follow when in the zoo. Also mentions about special attractions in the zoo and other visitor facilities.

Zoo Map: A detailed, colourfully illustrated zoo map which orients the visitor to the zoo.

Knowing more about the zoo: This sections deals with the history of the zoo, what is special about the zoo, information on visitor facilities like the Safari parks, Walk through aviary, Reptile house, Nocturnal house, Butterfly house, Animal care in the zoo, Zoo Club etc.

A special section in the handbook gives detailed write-ups, with illustrations on the various mammals, reptiles and birds seen in the park. The write-up talks about the distribution, characteristics of the animal, food in captivity, litter size, life span, and status of the animal. Star animals of the park have also been highlighted.

In the last section there is a brief write-up on zoos and conservation



Acquiring or Developing Resource Material

Developing suitable resource material is a specialized task. If the zoo has an education officer, he/she can initiate the process. Some ways to help in this task:

- Tying up with local NGOs (WWF, ZOO) other conservation and nature groups to source/develop material.
- Find out what is already available.
- Invite a group of interested teachers/educators to workshops to develop material.

SANIZE, the South Asia Network of International Zoo Educators Zoos and Outreach Organisation conduct education activities in South Asia with the help of ZOO's conservation, education, thematic and taxon networks

Zoo Outreach Organisation hosts SANIZE and raises funds for producing educational materials suitable for students and others in the South Asian Region. These educational materials are theme based, largely focused on non-charismatic animals such as bats, rodents, amphibians, reptiles and vultures as well as plants but also on a few mega charismatic species as well.

Higher Education

The help of universities, colleges and non-governmental organisation shall be taken to educate the students about the benefits of supporting nature conservation programmes (National Zoo Policy 1998).

The objectives of formal education may be promoted through programmes specifically aimed at training teachers, and by assisting curriculum development bodies to ensure that the roles of zoos and of conservation issues are incorporated into courses.

Zoos provide excellent learning places and opportunities for a wide range of disciplines, from animal care to horticulture, from exhibit design to information technology, from visitor management to communication research.

The whole zoo could act as a living classroom with specific on-site courses, and the organization should pursue opportunities for partnerships with local colleges and other educational institutions or agencies.

Research

Many research projects in zoos are conducted by undergraduate and postgraduate students and are therefore integral to their education. Some aspects of research impact directly upon future plans, and research is an important part of establishing conservation projects, new education initiatives, etc. Research findings should be shared, published and disseminated to the general public as appropriate.

4

Human Resources

As is evident, zoo education is a multifaceted and full time activity. The key to an effective zoo education programme is to have dedicated and capable human resources for the educational component of a zoo's overall programme.

Every zoo must have staff members who look after this area. The zoo educator could be a curator or a scientific officer who appreciates and understands wildlife and conservation issues. Or a separate educator must be appointed and trained for the role and responsibilities.

The Zoo Educator should translate the natural world to visitors, interact with visitors, tell the stories of the animals, explain conservation actions, and increase visitor's general knowledge of nature. They could also lead activities and conduct presentations with specific themes. He or she should interact with teachers, NGOs, build relevant partnerships to ensure that zoo educational programmes are carried out in the zoo.

The Zoo Educators' tasks would include:

- To provide educational programmes on and off zoo grounds.
- Doing curriculum analysis and linkages.
- Visits to schools to promote the educational advantages of the zoo visit.
- Planning educational 'trails'/routes in the zoo.
- Developing relevant materials for teacher/self guided trails.
- Leading trails.
- Introductory talk/orientation for school groups.
- Developing interpretive material, signage, hand outs, other publications.
- Maintaining zoo website.
- Facilitating events.
- Teacher orientation workshops.
- Zoo staff orientation for education.
- May also perform PR functions.

The Zoo Education Officer would work closely with all types and levels of zoo staff from zoo director to the maintenance department. He/she should creatively involve the colleagues in the education mission of the zoo. For example orienting animal keepers and vets to interact with visitors, support staff to deal with visitors' behaviour towards animals, vandalism, etc.

Volunteers

Even though a zoo may have a designated education officer, there are still numerous tasks involved in running a zoo, as well as providing thousands of zoo visitors with an educative experience (by live interpretation, animal talks and demonstrations, guided trails and activities). Of course, no zoo has adequate human resources for all this.

One way to address this need is by offering volunteering opportunities.

There are different ways of doing this:

- Inviting high school or college students as volunteers
- Adult volunteers
- Docents
- Internships

Volunteers can be invited to apply through notices in colleges/university departments, nature clubs and NGOs, newspapers or website.

Volunteers must give a commitment to give their services to the zoo. This may vary from a six-month to one-year commitment, or a commitment of a minimum number of hours per week or months.

Volunteers would need to be assigned clear tasks, oriented for these, and also guided and monitored.

Educational activities are one of the possible tasks. Volunteers may be assigned a wide range of tasks ranging from visitor management to administrative tasks, from helping zoo staff in their respective tasks, to fund raising.

Volunteers are generally not paid assignments. However, this group can be offered some special privileges. These may include free admission, zoo membership, discounts in zoo shop/restaurant etc. (More on volunteer training in Chapter V)

Docents: Docents refers to individuals who are trained to provide educational services to people who visit the zoo.

Docents can carry out a variety of educational and interpretation activities. They can lead trails, give animal talks and presentations within the zoo and for outreach programmes, and act as guides in the zoo education or interpretation centre.

It is important to have special training programme for docents, to include scientific knowledge as well as communication skills. There can be a certification programme (theory and practise) which they undergo before they can start their work.

Zoos can have both volunteers as well as docents. Often volunteers, after some experience, move on to become docents.

4

Internships: These can be offered to college students, fresh graduates in areas ranging from Information Technology to Veterinary technology.

- Orientation will be needed.
- Interns should get opportunity for hands-on experience.

The internships could be for fixed duration (number of weeks/months or during vacations).

They need not be paid assignments. Or a small stipend may be given.

Zoos need to publicize about their internship programmes.

Outreach Programmes

Education for non-visitors

While the zoo visitor is the primary target audience of zoo education, there is still a large section of people to whom the zoo can reach out. The 'outreach' can reach sectors of the public who, for whatever reason, do not or cannot visit zoos. The non-visitor can be reached through the media, leaflets/publications and visits/activities.

Outreach may also reach sectors of the public with no access to conservation/ environment messages as well as those who, for whatever reason, do not visit zoos.

A further aspect of outreach is advocacy and promoting the conservation ethic in society in general. For example, following up media reports/TV programmes by contacting programme makers, companies, etc. and talking to the business community.

It is recommended that zoos enhance the effectiveness of conservation education by working closely with other education institutions and organizations, governmental departments and ministries, and by being involved in formal education curriculum activities, and formal educational programmes designed for all ages and abilities.

Zoos can develop outreach programmes with other like minded institutions and agencies like natural history museums, botanical gardens, universities, and NGO's and teacher training institutes.

Outreach Possibilities

School outreach programmes serve the purpose of providing an offsite educational experience for school students.

Different 'packages' can be offered for different levels and needs. They may be curriculum-linked and include hand outs and classroom materials.

Animals to Schools: In cases where schools are not able to make it to the zoo and also for rural based schools, zoo can take some of the animals like the starred tortoise for a 'show and tell' programme in the schools. These could be animals which are safe to be exhibited and handled. The objective of these programmes could be to stimulate curiosity about the animals, and teach about their behaviour, habitats and threats. These demonstrations also help to encourage respect for the natural world.

Zoo Van/Zoo Mobile: For those who are unable to visit the zoo, outreach can be provided through Zoomobile programmes in schools and communities. A zoo mobile consists of a vehicle equipped with a variety of educational materials such as skulls, horns, feathers, shells, posters and even some live animals. They can also carry props and costumes and the team can put up small skits at they venue they visit.

In some countries such zoo mobiles offer special programmes for community events, or visits to old age homes, orphanages and other institutions. Additionally, zoo educators or specifically trained staff may advance the objectives of conservation education by working in the community visiting schools, orphanages and old peoples' homes, or assisting with local environmental projects.



Photo: www.auduboninstitute.org

Evaluation

It is essential that zoos and aquariums use a variety of methods to evaluate the impact of their education and training programmes. This will influence their planning for the future and help them to collect evidence illustrating their effectiveness as centres of good conservation education and as agents of change in affecting human behaviour and values for the benefit of wildlife and society. (WZACS)

Evaluation techniques can include comparative assessments of the educational effectiveness of different exhibits, surveys and questionnaires, observations of visitor behaviour, conversations, and satisfaction, records of sales of products in the zoo that have been

associated with particular messages or campaigns, records of donations received, responses to pledges and petitions, records of media coverage, and teacher feedback on formal programmes.

Evaluation should be ongoing; methods and results should be shared first with the institution and then with the whole zoo and aquarium community through publications, and presentations at conferences, such as the International Zoo Educators Association (IZE) and regional network meetings.

Evaluation is also essential for developing new exhibits, testing resources in development, monitoring interpretation, and undertaking long-term strategic planning. Evaluation may be conducted by education staff, researchers and marketing staff; however, outside opinion is also most valuable. Zoos and aquariums should take advantage of evaluation activities to make links with those local universities whose students who want to conduct social research projects. It is also useful to link up with other visitor attractions and exchange views on each other's methods.

Partnerships

In the area of formal education, zoos can benefit from developing partnerships with other agencies.

Some examples:

- With key Ministries e.g. Ministry of Environment and Forests, Ministry of Human Resource Development and the relevant departments to encourage and support the use of zoos as educational resources. This would be through inclusion in policies, programmes (e.g. National Green Corps Programme, curriculum development etc.) and other opportunities.
- With colleges and universities to encourage internships, work placements and onsite research projects at zoos.
- With professional organizations e.g. veterinary bodies and environment/nature/education NGOs for inputs into planning and developing educational programmes and material. Besides contribution to the educational programmes, such partnerships are also helpful in developing and running training programmes, offering certification, and funding opportunities.

Zoos and aquariums can use a variety of methods to engage their visitors' curiosity about wildlife. Visitors should be able to learn about species, their habits, behaviour and conservation, and be inspired to find out more. They should be encouraged to understand the importance of ecosystems, the socio-economic value of species and habitats and the impact of human behaviour upon wildlife and the environment. Zoos should also enable visitors to take action and recognize their responsibilities for the world we all live in. (World Zoo and Aquarium Conservation Strategy)



Photo: CEE

Animal designs for body and face painting are a great attraction for children during events like the World Environment Day (June 5th)



Photo: CEE



Photo: CEE

5

Training and Capacity Building

Zoo staff must be trained and qualified for their roles: every employee and volunteer should be given an introductory overview of the aims and objectives of the organization, including its conservation and education activities. No matter what their job, the staff should be aware that they are working towards a common goal.

The World Zoo and Aquarium Conservation Strategy

This chapter presents some key findings on various types of training and capacity building programmes conducted in zoos across India. These findings are based on data received from inventory forms and interactions with zoo directors/managers/ curators during field visits and regional workshops in different parts of the country (For methodology and questionnaires see Chapter I).

Key Findings

Common training programmes in most zoos

The Central Zoo Authority and zoos of the country offer some type of training programmes. An overview of target groups for the training programmes and the area of training is provided in the table given below.

The Central Zoo Authority organization zoo director and veterinarian training programmes in alternate year whereas organizations middle level officers and keeper training every year.

Training for zoo staff	Areas of training
Zoo director, zoo keepers volunteers, zoo staff, veterinarians, teachers, students, middle level officer etc.	Zoo management, animal upkeep, animal enrichment, visitor management, visitor interaction, animal management, enclosure and overall area management, etc.

Training for different target groups	Areas of Training
Local villagers, environment educators, researchers, ranger, forest guards scouts and guides, zoo educators, teachers etc.	Nature conservation, animal care (specially pre and post natal care of animal), public relations, solid waste management, to make use of zoo for curriculum, personal health of zoo staff especially keepers, bird flu, wildlife crime, tranquilization, animal physiology, security and safety, conservation education, healthcare and nutrition, patrolling, importance of having zoos, concerns for animals, zoo education, breeding, managing emergencies, etc.

Given below are some examples of specific training programmes for different target groups:

Training Programmes for Zoo Keepers

The Central Zoo Authority (CZA) sponsors annual training programmes for Zoo Keepers. Animal Keepers from various zoos gather at one zoo and are trained in various topics like role of zoo keepers, various techniques and methods related to animal upkeep and management, enclosure enrichment, etc.

This is a good platform for keepers to interact with keepers of different zoos at one place. Here they freely express their feelings and get a good exposure to different types of techniques used by zoos in animal upkeep and management.



A glimpse of zoo keeper training programme

Photo: CEE

Some of the issues dealt with during training programmes for animal keepers are:

- Role of animal keepers in zoo management.
- CZA, Wildlife Protection Act-1972, Zoo Policies.
- Daily reports of health of animals, sanitation and hygiene measures.
- Record keeping of zoo.
- Behaviour changes of zoo animals in different seasons.
- Selection of food for different species of zoo animals.
- Diagnosis of different diseases of zoo animals.
- Behaviour of the animal keeper in the zoo for upkeep of the captive animals.
- Identification of the birds.
- Food and nutrition requirements of different animals in different stages.
- Identification of sick animals and methods of diagnosis.
- Interpretation in zoos.
- Enclosure design.
- Housing of animals, safety and health.
- Zoonotic diseases of zoo animals and birds.
- Help visitors make friends with your animals friends (visitor / animal keeper interaction).
- Practical session: feed preparation and supply to animals.
- Field visits to other zoos.

Session on zoo education/visitor communication is usually included in the training schedule.

Orientation Programmes for Teachers

Some zoos organize training programmes for teachers from local schools. The aim is to provide basic information about the zoo and create awareness and empathy for the zoo animals. Various aspects of zoo and its management are discussed, and teachers are also guided around the zoo. This way the teachers get oriented on why bring students to the zoo and what to explain and do during a zoo visit. Such programmes generally end with a feedback session by conducting a quiz or distributing questionnaires to be filled by the participants.

Linking the school curriculum and zoo visit

There are many zoos which organize teacher training workshops to orient teachers to use zoo as a facility for environment education and make linkages of chapters in the syllabus which could be taught in the zoo



Photo: AAZP, Chennai

An example from Mysore Zoo:

Mysore Zoo organizes teacher training programmes to develop teachers as facilitators who in turn could train students to make best use of the zoo visit for imparting information on wildlife and environment.

Participants: About 25 teachers are deputed for 2-day training programme through Deputy Director of Public Instruction.

Aim: Trained teachers to use zoos as a facility, and make relevant curricular linkages and teach lessons from the syllabus in the zoo.

Resource materials provided: Educational materials including briefing bag, zoo posters and zoo brochures are given to teachers.

Hands on experience: As a part of training, teachers also have to handle a group of students, and take them around the zoo.

Training Programmes for Teachers



Photo: AAZP, Chennai

Teachers for Tigers: The Zoo Outreach Organization (ZOO) regularly carries out training programmes for the teachers. “Teachers for Tigers” (TFT) is a manual consisting of four units which is used by the Zoo Outreach Organization to educate teachers, NGOs and educators about different educational methods and activities, using the tiger as an example. The importance of tigers and their conservation, the importance of suitable habitats and the need to preserve forests to protect tigers is highlighted. The programme also aims to train and develop creativity in teachers by making them prepare resource materials and mini dramas.

The organization also promotes this manual for doing activities themed on other animals by modifying the activities given in the manual of teachers for tigers.

A refresher course is also offered some time after the first workshop. The objective of the refresher course is to do a recap of TFT workshop and to upgrade information related to teaching techniques.

Training Programmes for Zoo Guides

It was found that though there are some zoos, which have the facility for zoo guides, not all of them have enough number of trained guides. All zoos recognize the need to train guides in the area of zoo education. To address this need the Centre for Environment Education (CEE), Bhubaneswar in association with the Nandankanan Zoological Park, Orissa with support from the Orissa Tourism Department has initiated guide training programmes.

Details on the guide training programme are given below:

Rationales: The role of guides is very crucial as they directly interact with the visitors everyday and they can effectively give information on the various species found in the zoo, their habitats, special features, conservation status etc. Nandankanan Zoo gets an inflow of more than 15 lakhs visitors per annum. It is the only zoo in India with the registered guide facilities. The guides are the ambassadors to propagate and inculcate the message and concept of conservation of species in the minds of the visitors. Thus a Guide training programme at Nandankanan zoo was initiated by CEE and Nandankanan Zoo Authority with support from Orissa Tourism Department to build the capacity of about 100 guides at Nandankanan Zoo, to face the need of a large number of visitors coming to this zoo.

Methodology: To begin with, a detailed module was developed considering the need of guides (both for strengthening their knowledge database about Nandankanan Zoo as well as to develop the right communication skills). The whole module was divided into ten sessions having both classroom session and field exercise. The module was also translated into Oriya. It was also planned to conduct the evaluation at the end of the training programme.

There are 39 registered guides operating at the Nandankanan Zoo and all of them were selected for the training programme in one group. Another 88 aspiring candidates to become guide at Nandankanan Zoo applied for participating in the guide-training programme. After the final short-listing, 80 candidates were selected for the pilot guide training programme, in two groups i.e. 40 in each group. In total there were 3 groups, the first group was constituted by the 39 persons registered guides and their classes were held on every Monday. The 2nd and 3rd group was constituted by 40 persons each and their classes were held on every Thursday and Friday. Later on the classes were held on Saturday and Sunday according to the availability of the resource persons for the respective classes.

An attendance register was maintained through out the training programme.

A question bank was developed as per the module for an easy evaluation process. From the question bank 31 questions were selected for the assessment to evaluate the skill of the guides. As per the need of the guides, the questions were made in a bilingual format (i.e. English and Oriya) after the selection of the questions.

Assessment test: An assessment test was conducted to evaluate the skill of the guides. CEE members, Nandankanan Authority and school teachers were involved for smooth conduction of the assessment test. Out of 119 trainee candidates, 97 candidates appeared in the assessment test.

Activities under progress: A manual of the Nandankanan Guide Training covering the details of the module is under preparation, which will be a reference guide for the guides for the information about the animals to refresh their memory.

Courtesy: Dr. D.P. Rath (Programme Coordinator, CEE Eastern Regional Cell, Final Report of Zoo Guide Training Programme at Nandankanan Zoo)

Glimpses of Guide training programme



Photo: CEE



Photo: CEE

Training for Trolley Operators

Trolley operators in the National Zoological Park, Delhi have direct interaction with the visitors to the zoo. The aim is to train these drivers on communication skills and also to provide a forum for the trolley operators to interact with the zoo officials and share their experiences and problems.

Source: ZOOS' Print Volume XIX, Number 6, June 2004(RNI 5:9)

Orientation Programme for Volunteers

The Chamarajendra Zoological Park, Mysore organizes a one day orientation for volunteers. They are briefed on their roles and responsibilities in the zoo, zoo activities which they could be part of and general introduction of the zoo.

Training Programmes for General Public

In June 2005, a Mysore-based NGO, in association with Mysore Zoo, organized a two day workshop on bird's nest-box making. Participation in this programme included students, teachers, retired officials, government officials and businessmen. The various activities included talks and slide show on different aspects of birds nesting (criteria for nesting, nesting season, different types of nest, etc), film shows, field visits and hands-on training on nest making.

Source: ZOOS' Print

Workshops on Noncharismatic Animals

Teachers and volunteers are invited to attend a one day workshop on non charismatic animals for e.g. bats. The workshop involves interactive sessions, talks and slide shows explaining the crucial role of bat in the environment. Workshop also includes field visit to show bat colonies so that the participants could study their behaviour in a natural environment.

Workshops for Local Tourist Departments and Agencies

Some zoos have started organizing workshops to interact with tourist departments, tourist guides etc. so as to make them aware of the importance of zoos and wildlife. This is a good technique also to market the zoo as an important site of the city.

Training for Middle-level Zoo Officers

The Wildlife Institute of India, Deharadun in association with the Central Zoo Authority, Delhi and Kamala Nehru Zoological Park, Ahmedabad organized a ten-day training programme for Middle-level zoo Officers, in January 2008. This ten-day training programme, apart from having training sessions on technical aspects of zoo management, also had a two day session by CEE, on Zoo education and interpretation, including designing and developing signages.

Satat Vikas Sansthan, a Kanpur-based organization in association with the Kanpur Zoo, organizes training programmes for zoo staff of Kanpur Zoo on different aspects of management, interpersonal relationships as well as issues related to waste minimization and need for continuous improvement. Sessions ranging from sense of belongingness, team spirit and emotional stability, awareness level regarding flora and fauna, relationship management, need for continuous improvement, waste minimization takes place. The training is conducted by the means of talks and lectures, use of audio-visual, role plays and power point presentations. The training programme also includes field activity. Evaluation is done through feedback sessions.

Training for Zoo Directors

The Central Zoo Authority (CZA) supports a number of training programmes for Zoo Directors.

Training Programme on Master Planning for Zoos: Considering the challenges being faced by Indian Zoos in developing suitable Master Plan and Management Plan, the Central Zoo Authority (CZA) in collaboration with the Wildlife Institute of India (WII) and Nandankanan Zoological Park, Bhubaneswar organized a training programme on “Master Planning of Zoos” for Zoo Directors and Managers in April 2006.

Glimpses of sessions of the training programme



Photo: Master Planning of Zoos of India, organized by CZA, Nandankanan Zoo and WII, 2006



Photo: Master Planning of Zoos of India, organized by CZA, Nandankanan Zoo and WII, 2006



Photo: Master Planning of Zoos of India, organized by CZA, Nandankanan Zoo and WII, 2006



Photo: Master Planning of Zoos of India, organized by CZA, Nandankanan Zoo and WII, 2006

Workshop on making Zoo Education Sustainable

The Central Zoo Authority sponsored the participation of Indian Zoo Directors from various parts of the country for the workshop on Fund Raising, PR and Marketing in Zoos. The workshop was organized and conducted by the Centre for Environment Education Ahmedabad as a part of the Fourth International Conference on Environment Education (25th - 27th November, 2007)

The workshop was titled Making Zoo Education Sustainable with special focus on Fund Raising, PR and Marketing

The purpose of the workshop was:

- To identify and assess how the current education and interpretation programmes of zoos relate to the mission of the Decade for Sustainable Development (DESD).
- To come up with strategies and Plan of Action that zoos and other related facilities will pursue to make Zoo Education sustainable and effective.
- To facilitate fund raising, public relations (PR), and marketing and effective networking among zoos and other related institutions, in the light of the Decade.
- To develop a set of recommendations and guidelines for action to be taken by zoos and other facility educators.



Photo: CEE



Photo: CEE



Photo: CEE



Photo: CEE

The workshop deliberations and discussions revealed that though annually Zoo staff participate in various types of in-house and outreach training programmes but training and capacity building programmes dedicated to zoo education were not many. Limitation of fund and expertise emerged as a big factor in conducting training programmes. However existing training programmes offered by Government, Non Governmental Organizations etc. were also seen as opportunities to infuse components on zoo education. Zoo directors/managers also came up with recommendations and strategies to develop training programmes for different level of zoo staff and possible linkages with expert agencies.

Key Findings

Listed below are some key findings related to strengths/opportunities, constraints/limitation in the area of training and capacity building of zoo staff in Indian Zoos, especially in the context of zoo education. These have been compiled on the basis of data and information collected through the mail surveys, site visits and regional workshops.

Strengths/Opportunities

- Willingness of zoo staff to get training in various areas of zoo management.
- Existing training programmes for various level of zoo staff. Such training programmes could be utilized to include sessions on zoo education.
- Zoo keepers' knowledge. Zoo keepers work in close association with animals and have gained practical knowledge on animals. This could be seen as an opportunity, and keepers after getting training in visitor interaction could use this knowledge in keeper talks.
- In-house facilities for training. Some zoos do have facilities like, space, staff, expertise in conducting educational programmes etc. which could be taken as an opportunity to give trainings
- Identified target groups for training. Through informal interaction with various level of zoo staff, the directors know the strengths and weakness of their staff, and most of them are clear about what kind of training is needed, and in which areas.
- Exposure visits of zoo staff to national and international zoos is a good means of experience sharing in various areas of zoo management and zoo education.
- Existing linkages with NGOs and educational institutions could be useful in conducting training programmes. Here experts from these institutions could be invited for developing and conducting training programmes.
- Ongoing breeding programmes. Zoos with successful breeding programmes organize captive breeding training programmes for other zoos. This is another area where zoo education session could be infused.

Limitations/Constraints

- Staff: Shortage in number of staff and also lack of dedication in existing staff to carry out training programmes is one of the major constraints.
- Education department: Lack of separate education unit in zoos leads to extra pressure on other staff who also have to look into different matters
- Lack of Expertise: Training programmes on zoo education require suitable resource persons and also resource material on different aspects of zoo education

- Funds: Zoos get funds to organize training programmes in technical and scientific areas, but funds for training programmes on zoo education need to be generated.
- Infrastructure: Space, computers, internet, projectors, lack of publications etc. is a limitation for some zoos to carry out specific training programmes, specially for volunteers, students, teachers etc.
- Sustainability: Due to frequent transfer of directors/managers in some zoos, tailor made training programmes do not sustain on a continuous basis.
- Lack of guidelines: Lack of guidelines for developing training programmes.

Recommendations

- Guidelines: Zoos should develop a vision plan and guidelines for developing and conducting training programmes in the Zoo.
- Training needs assessment: Zoos should conduct need assessment surveys to identify relevant training areas.
- Updating of skills: Zoos should develop training programmes to upgrade skills of all level of zoo staff.
- Exposure visits: Zoo staff should be given exposure visits to national and international zoos to get training on zoo education programmes and activities.
- Getting resources: Zoos should prepare a list of organizations/ institutions to reach to resource persons and also to get resource materials for various training programmes on Zoo education.
- Developing modules: In collaboration with expert agencies, zoos could develop target specific zoo education training modules.
- Documentation: Zoos should also conduct training programmes for proper documentation of various activities of zoos, which could be used in future training programmes.
- Other target groups: Apart from zoo staff, zoos should also develop and conduct training programmes for teachers, students, volunteers, educators, government officers etc.
- Allocation of budget: At the beginning of the year separate budgets could be allocated for training and capacity building programmes.

Zoos should invest heavily on staff training and capacity building and focus on visitor interaction to ensure high standards of service and product quality for sustainable zoo education programmes.

An international zoo expert

Linkages

Linkages can be developed with various organizations/institutions/expert agencies for sustaining training and capacity building programmes in zoos. Some examples:

Linkages with-

- Organisations/NGOs/institutions having expertise in this area for example, Centre for Environment Education (CEE), Ahmedabad, Zoo Outreach Organisation (ZOO), Coimbatore, C. P. Ramaswamy Aiyer Environment Education Centre (CPREEC) Chennai, Wildlife Institute of India (WII) Dehradun, World Wide Fund for Nature and Natural Resources (WWF), etc.
- Regional/International zoos for inviting resource persons.
- Corporates for funds as well as resource persons for conducting training in developing communication skills and human resources.
- State Education Department.
- Government organizations.
- Organizations like Natural History Museums, Botanical gardens, etc.
- Management Institutions.
- Educational institutions, Universities/Colleges.
- Media for advertising the training programmes for different target groups (volunteers, teachers etc.).
- Central Zoo Authority (CZA), Delhi.

5

Master Planning for Training and Capacity Building for Zoo Education

All zoos should develop a structured training plan for their staff and volunteers to ensure best practice in all fields of operation and support for the professional development of their staff.

The World Zoo and Aquarium Conservation Strategy

Success in any area of an organization's functioning depends on how effectively human resources are managed and utilized. This is equally true in the case of zoo education.

All levels of zoo staff need to understand the vision, mission and objectives of the zoo, and to work cooperatively towards supporting the educational role of the zoo. Training and capacity building play a key role in creating and sustaining a committed, motivated and effective cadre of zoo educators and communicators.

Training and retraining and thereby learning have to continue forever by zoo staff. This is the only sure investment to career development.

A Zoo Director

Every zoo must have a strategy and plan for training and capacity building at all levels of the zoo staff. The annual budget of the zoo must build in this component. The strategy must include not only the “who” for training, but also the “why”, “what” and “how” of the process.

In other words every zoo must have in place a Human Resource Development Plan starting from recruitment to training, to upgrading of skills, motivation and job enrichment. The first step for such a plan would be to get a picture of the existing situation and felt needs in this area.

Needs Assessment

Zoos, apart from having diversity in visitors, also have diverse categories of zoo staff, with different educational, socio-economic, and work experience backgrounds. Various levels of zoo staff have their own set of strengths and limitations.

It is necessary to periodically review the training and capacity building needs of the different levels of zoo staff, in the context of the role they would be playing in education activities in the zoo.

There are different ways to do this.

Questionnaires for various categories of zoo staff could be developed to assess that in what area they require training and what could be the best way to design the training.

For example, animal keepers, gate keepers, guides etc. could be interviewed about their experiences in visitor interactions, difficulties faced by them, knowledge on animals, awareness on zoo ethics and importance of zoo education etc. This information may be derived through informal talks, conversations, as well as observing the staff interacting with visitors.

Other zoo staff like education officer, curator, rangers, biologist, veterinarians etc. could be interviewed on the above points but in a more formal manner. In addition they should be also asked about their constraints, their ideas on utilizing their work in zoo education activities etc. Questionnaires on training needs assessment could be analyzed and different training programmes through the year and for different target groups could be organized.

These are some ways that can help assess the needs at different levels: For example the assessment would indicate the need for one or more of the following types of programmes.

- Refresher programme as follow-up to earlier programmes
- Orientation to new ideas as approaches to communication (animal feeding time talks)
- Updating of knowledge and skills (about new animals/exhibits/enclosures, use of interactive exhibits, visitor interaction)
- Training (in developing signages, zoo trails, teacher resource material etc).

This needs to be done periodically (at least once a year)

Annual Training Calendar

Based on the needs, it would be desirable to draw up an annual plan and calendar for training and capacity building.

This would give an overall picture of what happened in the past year, and what would be desirable in the coming year. The priorities could be identified. These would also be somewhat affected by availability of resources (funds, resource persons and material) and other opportunities.

It would also be a ready reference for deputing staff to attend relevant workshops offered by other organizations.

Once the training programmes and target groups have been decided, then the list of possible resource persons for taking sessions should be prepared. If zoos themselves have expertise within the zoo, they should be preferred.

Developing the annual training calendar is the next step. The annual calendar should consist of the themes for annual training programmes, detailed sessions and topics, target groups, resource persons, capacity of the programme (no. of participants), tentative dates.

The whole annual calendar could be presented to several funding agencies starting from the Central Zoo Authority, to local corporates and other sponsors to international agencies like WAZA, IZE etc. for obtaining sponsorships.

Since zoos have limited number of staff and funds, 5-10 zoos in one region, in collaboration with each other, could carry out this activity at one place. This way, apart from having regular interactions with each other, they could save time also as different types of works could be divided among people.

A sample annual calendar for training programmes on zoo education for zoo staff

Themes / Areas	Target group	Resource persons	No. of participants	Tentative dates (In-house training)	Possible external opportunities
Visitor interaction	All staff	Experts from local NGOs, Government, lecturers from mass communication and personality development institutes etc.	100	January 2009	
Zoo education programmes	Director, curator, education officer, volunteers, etc.	Experts from organizations which develop education programmes and materials, teachers (to know their view point and curriculum, lectures etc.	50	March 2009	Zoo Outreach Workshop May 2009
Interpretation	Director, curator, education officer, vets, rangers etc.	Experts agencies in the area or designing and developing interpretive materials, local fine art college students, architects etc.	50	July 2009	CEE-WII workshop on interpretation signage Oct-Nov 2009
Zoo Ethics and handling emergencies and crisis	All staff	Zoo Directors	100	September 2009	
Role of zoos and master zoo education plan	All staff	Zoo Directors, CZA and CEE	100	November 2009	

Once an overall calendar is available, the selection/deputation of staff for the different programmes can be done. The calendar may also indicate possible schedule for exposure visits of zoo staff to other zoos and other relevant facilities/ institutions.

It is also very important to get the feedback of participants.

The trained individual should also be expected to show how the training would be applied in the course of his/her work during the year. The performance evaluation of the individual should include evidence of this.

Planning Training Programmes

Before developing a training programme, the objectives of the training need to be defined. These may be derived based on the outcomes of the needs assessment, the overall mandate and objectives of the zoo, and understanding of the application of the training to the task profile of the proposed participants.

Once the objectives are set, the programme content and schedule can be developed so as to cover these. Then there is need to identify the appropriate resource persons to tackle the different topics. These could be in-house or from institutions (colleges, research organizations, communication/education NGOs).

The training schedule should be planned so as to provide a mix of experiences to the participants. It should include theoretical aspects, practical experience, field/site visits, etc. It is important that there is enough time and space for interaction between participants, and resource persons, and among the participants; and also sharing of experiences. Necessary resource material may be provided. Participants should ideally develop a plan indicating how the training exposure/experience would be applied in his/her assigned tasks.

Good zoo education relies on good assessment and research, good planning in a process involving the targeted learners, pre-testing and revision of ongoing programmes, products and messages and careful evaluation of intended results. The same principles apply to training and capacity building for good zoo education.

Specific Training Programmes with regard to Education/Interpretation

Zoo Managers

Orientation/refresher programme to include:

- Highlighting the role and scope of zoo education within the vision and mandate of the zoo.
- Integrating zoo education as part of the strategic management plan.
- Mobilizing resources human, material and funds for the zoo.
- Leadership challenges team building and orienting towards educational activities, capacity building, motivating and sustaining educational thrust of zoo's programmes.

An annual Zoo Directors workshop would provide time and space not only for reviewing and refreshing the educational aspects, but also for sharing experiences and examples and initiatives which could be emulated by others.

The CZA may provide support for this programme, which could be hosted by different zoos.

Zoo Guides

Few zoos have guides who perform the visitor education/interpretation role. For the zoos that already have guides, and for those which may plan to develop a cadre of zoo guides, it is important to have a structured training programme. This helps to ensure the factual accuracy of information that is communicated, to provide an overall understanding of the roles and objectives of guided programmes, a clear picture of the zoo—including not only the animals, exhibits but also other facilities, specialities and codes of conduct, and develop communication and visitor interaction skills.

The programme may be developed by the zoo managers and education team, or in collaboration with suitable education-communication agencies such as WII, WWF, CEE or ZOO.

The programme must include an evaluation component, both of theoretical as well as practical abilities.

There should be certification. The accreditation can become a plus point for any longer term association with the zoo.

The training programme can be offered also for volunteers interested in becoming zoo guides.

An example of a zoo guide training module developed by CEE, for Nandankanan Zoological Park is given.

Nandankanan Zoo Guide Training Module

Day 1: General Introduction to Nandankanan, its significance, history and status.

- Introduction
- What is a zoo?
- Types of zoos in India (Number of zoos of each category in India)
- Role of zoos
 - Display in captivity
 - Education
 - Entertainment
- Zoo ethics
- Do's and Don't's in the zoo
- Origin, history, significance and present status of Nandankanan zoo

Day 2: Exploring the Nandankanan Zoological Park

- Lay out of Nandankanan zoo.
- Total area of Nandankanan zoo.
- Different animal sections i.e. carnivore section, herbivore section, nocturnal animal house, reptile park, aquatic, aviary, small mammals section with reference to different trails.
- Total number of reptiles, birds and mammals in captive and wild in Nandankanan and their conservations status.
- Other tourist amenities i.e. library facility, ropeway, children's toy train, boating, drinking water and rest room facilities.
- Dominant plant diversity of Nandankanan zoo.

Day 3: Mammals & Reptiles of Nandankanan

Identifying characters with brief introduction of their classification, behaviour, conservation status and their distribution and other related information.

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Day 4: Birds of Nandankanan:

Identifying characters with brief introduction to their classification, behaviour, conservation status and their distribution and other related information.

Field exercise in the morning for bird identification along with identification of common butterflies, plants, etc

Day 5: Specialties of Nandankanan Zoo

- Successful captive breeding of different group of animals.
- White tiger safari.
- Lion safari.
- Types of food and their management.
- Zoo kitchen.
- Captive slaughter house.
- Fodder farm.
- Health care of captive animals of Nandankanan zoo, by zoo hospital.

Day 6: Right attitude for the guides in developing good communication skills

- Good Communication skill.
- Neat appearance.
- Polite in expression.
- Subject expert.
- Identifying the need of tourists.
- How to interact with tourists.

Day 7: Mock test by preparing about 45 questions regarding the animals, and the participants should pick up one of the token and answer them as directed in that token.

Second session for the discussion on doubts of the guides

Day 8: Wildlife in India and Orissa

- Total wildlife coverage in India (Number of mammals, birds, reptiles and amphibians of world, India, Orissa.)
- Number of Biosphere reserves, National Parks, Wildlife Sanctuaries in India.
- Protected Areas and their significance at National level.
- Number of Biosphere reserves, National Parks, Wildlife Sanctuaries in Orissa.
- Wildlife based eco-tourism in Orissa and brief description about Similipal, Bhitarkanika, Gahirmatha, Chilika, Satkoshia and Chandaka.
- Brief description about Wildlife Protection Act (1972), IUCN, CITES, Endangered Species, Project Elephant, Project Tiger and Project Crocodile.

Day 9 & 10: Evaluation

Forming groups of the participants and assigning each group to a different animal section, then asking them to describe/explain as if in front of visitors, followed by mock field exercise.

Distribution of Certificates to the guides.

Zoo/Animal Keepers

Animal keepers have a great potential to take on the role of zoo educators and interpreters. Many keepers are not fully aware of the importance of their work in the larger zoo vision and management context. This may result in low interest and motivation levels. Zoo Keepers are important for zoo education because:

- they have continuous and prolonged contact with the animals.
- they possess first hand knowledge about the animals, their characteristics, health and behaviour.
- they are directly involved in feeding and handling the animals an area which visitors are curious about.
- they are directly involved in the care and safety of animals and visitors.

At the same time the level and conditions of animal keepers is generally such that they do not get a break from routine duties and have limited chances of interacting with visitors.

While many keepers have had long association with the animals under their care, and know them closely, the challenge is to develop a meaningful training programme in the light of the existing conditions. Largely the keepers are illiterate or not highly educated, not formally trained in their job, and not up-to-date with new developments and technical knowledge.

Zoo keepers who are well oriented about the role of the zoo in conservation education, and are equipped to interact with visitors can provide an important service as they can communicate with all types of visitors, and make the visitors feel that they are getting first-hand information about the animals that the keepers look after. Zoo keepers have many experiences and stories to tell about the animals, and this can be a great attraction for visitors.

Today increasing exposure to TV channels and wildlife programmes has increased visitor awareness and raised expectations of ordinary zoo visitors, who expect more knowledge and ready replies from zoo staff.

With reference to zoo education, the workshop/training for Zoo Keepers can have the following objectives:

- To develop better interaction between keepers and visitors.
- To orient the keepers to their role as educators
- To enhance their knowledge (about the animals and other zoo-related areas).
- To introduce skills and techniques for visitor interaction.
- To build confidence and self-esteem of the staff as they perceive themselves in a new role.
- To develop better interaction and coordination between animal keepers, other staff and management.

Methodology:

The workshop can have in-house resource persons, veterinarian, curator, director who would provide the technical and management perspective and inputs. Suitable resource persons may be invited to take sessions on communication techniques and visitor interaction.

The schedule must provide space and time for free and frank sharing of experiences, concerns and possible solutions. Interaction must be encouraged between resource persons and participants, as well as among the participants themselves.

The participants can develop a list of

- Frequently asked questions (by visitors).
- Frequently encountered situations (caused by animal or visitor behaviour).

- Challenges faced by zoo keepers in their daily work (in the context of their additional role as educators. e.g. heavy-work load and no time to interact with the visitors, interruptions in daily work etc.).
- Innovative ways of meeting challenges.

Sharing these experiences provides a great resource in itself.

These workshops can be internally planned and held periodically depending on the need. They could be arranged on zoo holidays, during time slots suitable for most of the keepers.

It is important to work out a system of accreditation for those participating, and include evaluation of the impacts/application of the training.

Sending keepers to visit other zoos, either as part of mutual agreements between zoos, or as part of larger workshops helps to broaden horizons, get new ideas, and opportunity to meet peers.

Regional Training Course for animal keepers which is organized by the CZA, and held in four parts of the country is a very good opportunity. The keepers gather at a particular zoo and experts from around the country take a variety of sessions ranging from veterinary sciences to zoo interpretation and education. As part of the course, participants also visit a few other zoos and sites in the region. One day of the training schedule generally also includes a half day session on education and interpretation.

Samples of sessions conducted by CEE, during training programme for animal keepers

Theme: Help make visitors friends with your animals in the zoo

Session I

There were about 9 zoos represented in the training programme. The session started with the participants introducing themselves and telling which animal/s they work with. Then the game 'Who am I' was played. In this game one participant has a card with an animal name pinned on the back. He/she has to ask the other participants questions which will help him/her to identify the animal. The questions can be answered only in "yes" or "no". For example, if the card has "Tiger" the participant can ask am I carnivore (yes), do I live in jungle (yes), am I also seen in cities (no) etc. The person should guess "Whom am I" with the minimum number of questions.

Thereafter the group of about 20 participants was divided into five groups of 3-4 participants. Each group was given 10-15 minutes to choose an animal they work with and what kind of special and interesting information they would give to visitors coming to their zoos. It was also emphasized that they should not give only information that is there on the sign boards.

After the discussions each group did a 5-7 minute presentation and the participants came up with very interesting and unique information on each of the animal they selected.

Session II

In another session animal keepers discussed about what kind of visitors come to the zoo (school groups, adult and family groups, and other groups which are not literate). What kind of programmes are being planned out for the different target groups that come to zoos.? What is the kind of animal teasing that happens in the zoos and how do they handle such groups were also discussed.

The one hour long session started with a quick round of introduction of the keepers. This was followed by a warm up activity "*Pakshi* (bird), *Prani* (animal) aur (and) *Ped* (Tree)". In this activity the keepers were asked to stand in a circle. One of the keeper had to pretend that he had a camera in his hand and was asked to go to each of the participants sitting in the circle. While standing in front of each of the participant he was supposed to ask them *Pakshi, Prani aur Ped* and depending upon whatever he asks, the other person has to quickly tell the name of any bird, animal or tree. If the other person takes time in responding then that person has to take camera in his hand and start the game again. There were two-three rounds of this activity and the keepers enjoyed the activity and then the main part of the session started.

To help keepers understand the importance of visitor interaction and to know the ground reality and the problems faced by the animal keepers during such interactions, hypothetical situations of visitor-keeper interactions in the zoo were created and a role play was conducted. These situations were written in Hindi to make it easy for the keepers to read and understand. Based on different types of visitor and keeper interaction eight to nine situations were created. The participants were divided into groups of two. One of member of the group played the role of visitor and the other was the animal keeper.

On every given situation two-three members from each group came in the front and read out the given situation. The participant from the visitor's group then acted out the situation. Then after observing the visitor behaviour, the keepers group presented their response to that particular situation.

During the role play the keepers came out with some general problems as well as some specific problems which they face on a day to day basis while dealing with different groups of visitors.

Some of the key issues/concerns of the keepers were:

- Most of the keepers face the problem when some high profile people come to the zoo and start smoking near the enclosure or start teasing or feeding the animals. Even if the keeper tries to stop them, they don't stop, rather they warn the keeper that they would complain to the higher zoo authorities about the keeper. In this situation the keeper finds himself helpless and is unable to take any action.
- One of the shocking issues which came into light was the problem of dealing with local boys who work in and around the zoo. These boys, when warned by the keeper of their notorious behaviour with the animals of the zoo, instead of listening to the keeper the boys threatened them and sometimes also beat them on their way back home.

The keepers said that there are different categories and kinds of people coming to the zoo and we need different strategies to deal with such varied audiences. Also, there is an urgent need of placing armed security guards in the zoo, for the safety of animals as well as the zoo keepers.

Exposure to such ground realities would be helpful in planning guidelines related to zoo staff and visitor interactions in the zoo.

Volunteer Training

A well-organized and trained volunteer cadre can help to meet the ever-present need to augment human resources, especially for zoo education.

Volunteers who have given a long- term commitment need to go through an intensive training programme similar to that for zoo guides.

Short-term volunteers also require orientation which includes:

- Understanding the zoo's mission and vision.
- Familiarity with the zoo's layout and exhibits.
- Knowledge about the species displayed.
- Communication skills and techniques.
- Visitor interaction (including handling visitor queries, behaviour, vandalism etc.).
- Safety and security of zoo property, animals, as well as visitors.
- Handling emergencies and crisis.

The orientation may be carried out by the zoo education officer with inputs from other staff and external resource persons. Some zoos have a volunteer coordinator to handle this as well as other aspects—from volunteer recruitment to schedules and management. It is also useful to have some written material available for all to ensure clarity of roles and responsibilities. Excerpts from a Zoo Volunteer Handbook, New Zoo, Wisconsin, USA provide a comprehensive picture.

Zoo Volunteer Programme

The mission of our Volunteer Programme is to provide SUPPORT and ASSISTANCE to the staff and visitors of the Zoo and to REPRESENT the Zoo as goodwill AMBASSADORS to the community.

Objectives

1. Utilize the site's diversity to promote recreation, conservation and education.
2. Provide assistance and education to visitors in a zoological setting.
3. Assist staff in completing their objectives.
4. Share information with fellow volunteers.
5. Act as a networking source for our community.

Rules and Policies

When you work as a Zoo Volunteer, you are representing the Zoo to the public and therefore must conduct yourself in a professional, respectable manner.

Attire: No open-toed shoes are allowed. All volunteers must wear a volunteer (not a Zoo) t-shirt during summer season.

Parking: Volunteers must park in the regular lot across from the Zoo. No volunteer vehicles can be parked on Zoo property.

Volunteer Centre: Volunteers must sign in before beginning their shift. Promptness and reliability are extremely critical. Please remember to log your hours before you leave. Finally, please help keep the volunteer centre clean.

Restricted Areas: Volunteers are NOT allowed to be in any non-public area unless they are working on a scheduled activity or are with zoo staff

Health Concerns: Any injury to yourself or a visitor, no matter how slight, must be reported to a staff member. In the even of a serious problem, go to the nearest phone (Visitor Centre, Animal Hospital, Administrative Building) and call 911. All volunteers should wash their hands thoroughly before they leave the zoo.

Escaped Animal: Any animal escape must be handled by zoo staff members ONLY! Do not allow visitors or other volunteers to approach the animal. Notify staff immediately! Help to keep visitors calm and move them into a closed building.

Questions: You are not expected to know everything. Please do not be afraid to say "I DON'T KNOW." We do not want to give out any misinformation.

Lost Children: Take lost children to the Visitor's Centre where an announcement can then be made with the PA system. If you pass a zoo staff member on your way to the Visitor's Centre, please inform them of the situation.

Zoo Rules: Volunteers must follow all Zoo rules. You should also help to enforce the visitor rules.

Procedure of Consequences

- First offence - verbal warning with written documentation of conversation
- Second offence - written action plan and restriction of volunteer categories
- Third offence - unable to volunteer for one year

Volunteer Requirements

All volunteers must fill out a volunteer application and sign a liability waiver. Both documents must be on file at the Zoo at the time of volunteer duty. All volunteers must complete one volunteer orientation before volunteering. Updates and changes to contact information must be received in a timely manner.

All volunteers are required to attend a volunteer orientation in the beginning of each calendar year to maintain an active volunteer status.

Signing up for Volunteering

There are three ways to sign up for volunteer opportunities. The first is physically at the zoo signing up your name and time. The second is for you to call the Education and Volunteer Coordinator and let he or she know what you would like be signed up for. The Coordinator will sign you up and respond back to you to confirm your spot. The third way to sign up for volunteering is by emailing the Education and Volunteer Coordinator. The Coordinator will then sign you up and respond back to you to confirm your spot.

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How to contact each other

It is important that you have each other's contact information. This will create a community of volunteers working together as a group. Get to know other volunteers and start forming friendships. Volunteering will be much more fun if you know the people you are working with.

Also, it is helpful if you can find another volunteer that can cover a shift you signed up for and are unable to complete. This saves time for all zoo staff if we know that the shift is still covered.

A phone and email directory will be located on the volunteer sign up board. The directory will also be emailed or mailed to you. This directory will always be changing and we will try to up date the directory that is located on the volunteer sign up board as often as possible. At any time, a copy of the current directory can be made for you by zoo staff.

Specific Duties

Contact Station

Description: The station will use the education animals to educate the public. Guests will be able to get up close and touch the animals.

How to: Fill out the white board chart, obtain the contact station keys, and head to the contact station. Check the station to ensure that you have enough germ gel before you take any animal out. Fill out the contact station chart and take one animal out at a time. An animal should only be out for 30 minutes and they should be rotated appropriately. When you are finished, make sure all animals are locked, grab the contact station chart you filled out, and return the keys to the Education building. Don't forget to fill out the white board chart and sign out before you leave.

Roving (with biofacts)

Description: A roving is a short program given to visitors

How to: Decide what exhibit you would like to talk to guests about and grab the appropriate biofact. Fill out the white board chart and head out to the exhibit. As guests approach you, talk to them about the animal in the exhibit and the biofact you have with you. Your focus should be on basic animal facts, specific characteristics of the new zoo animal and conservation. When you want to change to another exhibit, please return to the education room and complete the white board chart. You may then choose another biofact, fill out a new section on the white board chart, and head out to the exhibit. Don't forget to sign out before you leave.

(Source: www.newzoo.org/support/volunteer/volunteer-handbook.pdf)

Capacity Building of Education Officer

The Education Officer is the focal point of the zoo's education programme. As discussed earlier, this person has numerous roles and responsibilities—not only as the interface with the public, but also in contributing to the process that will help the overall education mandate at all levels of zoo staff and management.

Some areas for building capacity are:

- Visitor management and interaction.
- Handling school visits.
- Developing programmes and resource material for schools (teachers and children).
- Development of other educational/information print material (zoo handbook, brochure, pamphlets, publicity material).
- Development of slide shows/video programmes.
- Setting up and running zoo newsletters and website.
- Interpretive techniques (live interpretation, trails, signage, enclosure enrichment etc.).
- Training of other zoo staff for education/communication.
- Networking with educational institutions, resource agencies, funding agencies, media, etc.

Some of this can be done through in-house opportunities, while also deputation of the officer/staff for training/on site learning offered through other programmes.

Accreditation: Staff should be encouraged and supported in attending workshops, conferences and seminars, internally and externally. Each zoo must work out a system of accreditation for the training acquired by different levels and groups. This may be in the form of certificate from CZA and/or individual zoo, other partner organizations etc.

Accessing Expertise

It is understood that zoos would not have all the different kinds of expertise required for capacity building different sections of the zoo staff for taking on an education role.

What is important is that zoos should build up a database of relevant resource persons and organizations. These could include

- Colleges and Universities
- Nature clubs/groups
- Non-government organizations working in the area of conservation

- Training institutes with expertise in communication methods and techniques
- Professional bodies including IT, offering training in relevant areas

Building up long-term partnerships with such organizations would help to sustain an ongoing process of training and capacity building.

Teacher Orientation

Visits by school groups is perhaps one feature that almost all zoos share. Such visits also provide a receptive audience for achieving the mandate of education. However, often this opportunity is missed or diluted due to unstructured and unfacilitated time spent at the zoo. A potentially rich educational experience remains simply an enjoyable picnic.

To add value to zoo visits, it is important that the zoos involve teachers as partners and stakeholders. One good way of doing this is to organize teacher orientation programmes.

Teachers may need to be oriented to:

- The vision, mandate and objectives of the zoo.
- What is the zoo layout and plan (including facilities), animal exhibits (species of mammals, birds, reptiles, others), the other non-captive animal and plant species on the zoo site.
- The educational potential of the zoo to complement and supplement classroom teaching.
- Structured programmes offered by the zoo (if any) for school visits (e.g. zoo trail, meet the keeper/vet, film shows/talks).
- Structuring the zoo visits (ideas for pre- and post-visit activities/discussions as well as the on-site experience).
- Curriculum linkages demonstrating how syllabus concepts can be explained through observation, recording and discussing the experiences.
- Resources available to help facilitate their zoo visit (information and activity pack etc.).
- Preparation of teaching-learning materials (e.g. worksheets) for zoo visit.

An effective strategy is to run a part of the workshop exactly as you would like teachers to carry out with their students. For example a three-hour session would include:

- Ice-breakers (quick games to get students into the spirit of the visit)
- This would be followed by a zoo trail facilitated by a guide/education officer.

- Then teachers may be divided into groups and each group assigned a section of the zoo (e.g. mammals, reptiles, birds, big cats) for observation and recording. Prepared worksheets can be given to structure this process.
- Consolidation of observations and experiences and highlighting of relevant concepts linked to the syllabus. This can be done through a variety of environmental games.
- Feedback on the experience

Once teachers have gone through the 'role-switch', they would be convinced about the effectiveness of a zoo visit as an educational experience. This needs to be facilitated by an Education Officer or a team of environmental educators.

Zoos may also offer to host species-specific training programmes for educators. One example is the Teachers for Tigers workshop facilitated by the Zoo Outreach Organization. While the focus of these workshops is on Tigers and Tiger Conservation, the methodology could also be used for general education workshops.



Tiger Cub

An example of the programme content and methodology is given:

Teachers for Tigers Programme

Objectives of the Programme

- To educate trainees about:
 - the importance of tigers and their conservation.
 - the importance of suitable habitats and the need to preserve forests to protect tigers.
 - the different educational methods such as games and activities using tigers as an example.
- To train and bring out the creativity in trainees by making them prepare different materials and mini-dramas.
- To get trainees to cooperate and become involved in group activities and discussions.
- Testing the “Teachers for Tigers” Manual prepared by Wildlife Conservation Society and getting feedback from the participants.

Topics included in the programme

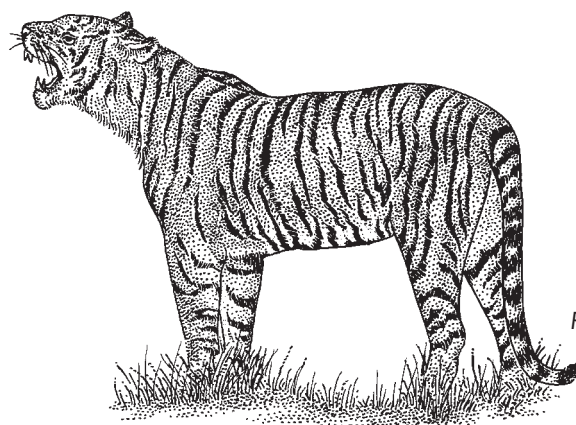
- Tiger Ranges
- Characteristics and Habits of Tigers. Body size and weight, jumping and leaping activities, hunting, camouflage, eating and speed
- Subspecies of Tigers
- Tiger Timeline
- Tigers in Mythology, Art and Culture
- Global Perspectives
- Tigers in Nagarhole National Park
- Census Techniques of Tigers
- Tiger Medicine
- Planning an Education Programme
- Evaluation

Methodology

The five-day Zoo Educators workshop on tiger was entirely based on:

- Activities
- Discussions
- Games
- Presentations
- Mini-dramas / dialogues
- Demonstrations
- Story-writing
- Observation
- Invited guest lectures
- Zoo visit
- Planning a programme

Courtesy: Zoo Outreach Organization. Teachers for Tigers Zoo Educator workshop Report (24-28 February 2003)



Royal Bengal Tiger

Evaluating Training Programmes

Over the 14 years we really don't know how much impact we have made with all the programmes, with all the money that's gone, with all the resource, with all the tax, but we really don't know what happened to all the input that we have given.

An Education Officer

A variety of methods can be used to evaluate the effectiveness of the training programmes.

Questionnaires

Develop questionnaires and interview participants. Questionnaires should be different from the traditional 'yes' 'no' or 'tick in the box' types.

- Frame indirect and interactive questions.
 - To gauge what was learnt about visitor interaction, a situation could be given, and the participant's response invited.
 - e.g. *A visitor is throwing stones in the crocodile enclosure. What would you do in this situation?*
- Invite personal opinion/choices
 - *Given below is the list of training programmes scheduled to be conducted next year, tick the programmes which you would like to participate in, and give reasons.*
 - *Please tick from the list of zoo activities other than your designated tasks, what you would like to volunteer for next year.*
 - *Which session of the training is helpful to you and how?*
- Design the content for a student of third standard for any enclosure of your choice.
- List out three key learnings from this training programme.
- List five things you liked, and five things you disliked in the training programme.

Evaluation through visitor feedback

Some sample questions for informal interaction:

Did you interact with any zoo keeper, if yes tell us the type of interaction?

Were you satisfied with the zoo staff?

Did you and your family learn something new today?

How did you find our volunteers?

How much time did you spend in the zoo?

Give your suggestions on the zoo activities and facilities

Would we see you again at our zoo?

Indirect survey

Observing keeper and visitor interactions.

Making a note of rise or fall in visitation numbers through monthly visitation data.

Making a note of increased/decreased demand for becoming a zoo volunteer or enrolling for other training programmes of the zoo.

It is essential that zoos and aquariums use a variety of methods to evaluate the impact of their education and training programmes. This will influence their planning for the future and help them to collect evidence illustrating their effectiveness as centres of good conservation education and as agents of change in affecting human behaviour and values for the benefit of wildlife and society.

World Zoo and Aquarium Conservation Strategy

Networking and Partnerships

Zoos are visited as a place for entertainment. Visitors to zoos are like customers who pay for their entry and expect good facilities to be offered by zoos. Today zoos have to compete with the fast growing entertainment options like malls, cinemas, amusement parks etc. Zoos need to devise not only strategies but suitable linkages to offer an attractive and unique experience to the visitor.

Key Findings

Below given are some key findings on various types of external and internal linkages as found in zoos across India. These findings are based on data received from inventory forms and interaction with zoo managers during field visits and regional workshops.

Existing situation

It was found that although external linkages with different corporates, institutions, volunteers etc. are taking some shape in zoos, but there is much to do as far as linkages with media, and internal networking within the zoo staff is concerned.

Some examples of the variety of linkages and partnerships established by zoos in different parts of India:

Partnership for signage and facilities

Banks



Photo: CEE



Photo: CEE



Photo: CEE

In many zoos it was found that banks not only adopt animals but also sponsor the designing and developing of signages and facility signs like zoo maps

Experts



Photo: CEE

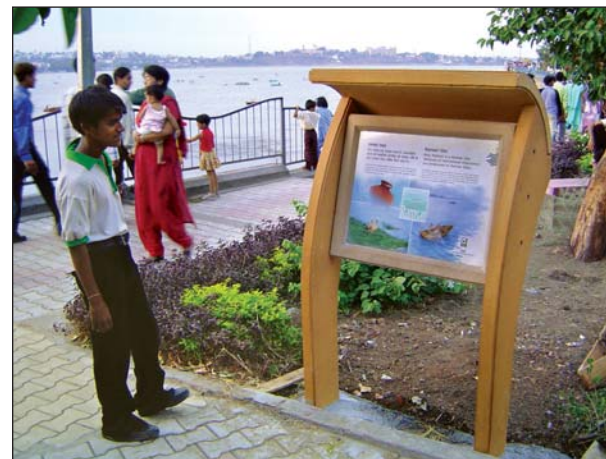


Photo: CEE

Zoos develop signage with help of agencies / organizations/ individuals who are experts in designing and developing interpretive materials.

Local bodies



Photo: CEE

With the help of local bodies zoos put up signages on conservation issues

Local designers



Photo: CEE



Photo: CEE

Zoos are establishing linkages with students of fine arts and local graphic designers to develop low cost signages

Botanical gardens and museums



Photo: CEE



Photo: CEE

Linkages with botanical gardens and regional museums to establish a centre within the zoo, provide added value for the zoo visitor

Small funders



Photo: CEE

Sponsored temporary signs

Partnerships for zoo shops

Zoo shops run in collaboration with organizations like World Wide Fund for Nature-India)



Photo: CEE

Corporate Sponsorship

Excellent opportunities are provided to enhance the corporate image and enhanced profile throughout the community through education, environmental activities.

The benefit of zoo sponsorship can include display of your company's logo at special events to having an exhibit named for your company, as well as special mentions in zoo publications.



Photo: CEE

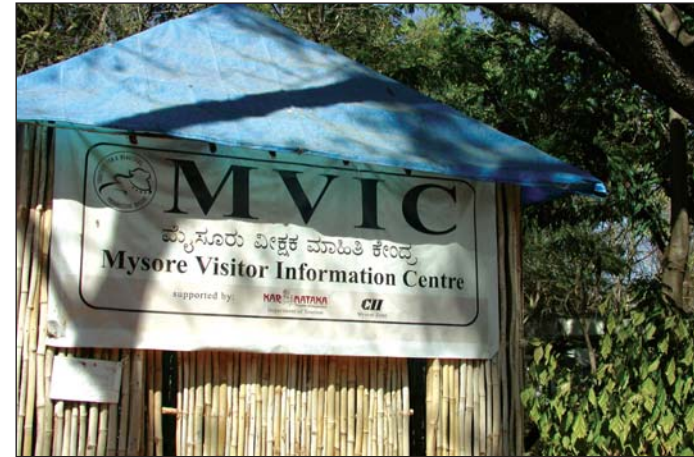


Photo: CEE

Information centres inside the zoo can be sponsored by corporates and non-governmental organizations

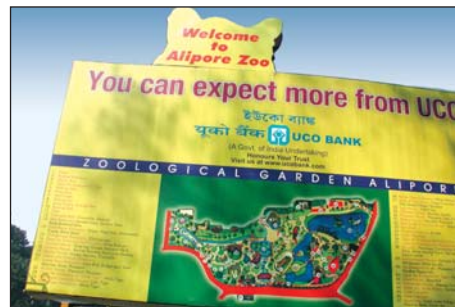


Photo: CEE



Photo: CEE

Signages sponsored by Corporates

Travel agents



Photo: CEE

Travel agents can publicize and popularize the zoo and have the zoo in their itinerary so that zoo becomes an important site to visit. Travel agents through the tourism department can create awareness about the zoo and market the attractions and unique facilities offered by the zoo.

Zoos are important sites of the city. Linkages with travel agents and tourist guides are helpful in getting visitor inflow.

Institutional Linkages

Institutional linkages with school of planning and architecture and landscape designers can help the zoo in coming up with innovative and new enclosure designs, suitable for the animal and also aesthetically pleasing for the visitor. These institutes can also come up with eco friendly buildings and designs for the zoo and public facilities for zoo visitors.

Linkages with institutes like School of Planning and Architecture and architects, civil engineers etc, help zoos develop animal enclosures



Photo: CEE

Community linkages

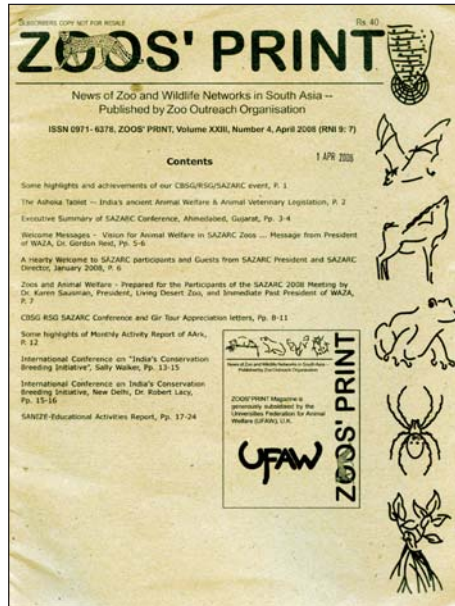
Linkages with communities in and around the zoo and developing merchandise in collaboration with them develops a sense of belongingness and ownership for the zoo

Non-governmental organizations

Zoos link up with non-governmental organizations (NGOs) to invite resource persons to carry out programmes and activities in the zoo

Linking through Media

Magazines



Magazines like ZOO'S PRINT, an initiative of Zoo Outreach Organization (ZOO), provide a great forum where anyone linked with zoos could share their views, ideas and experiences of happenings in zoos.

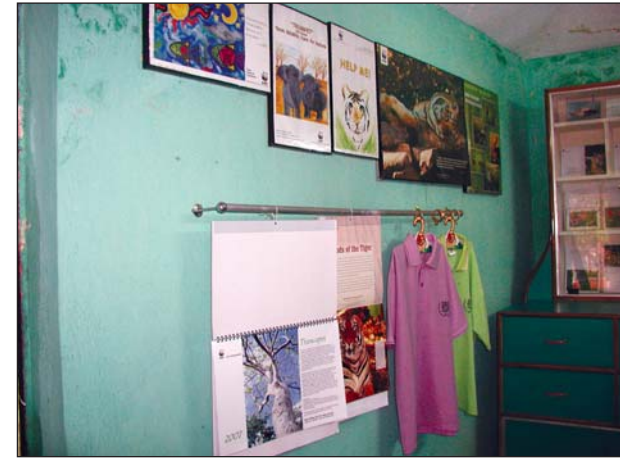
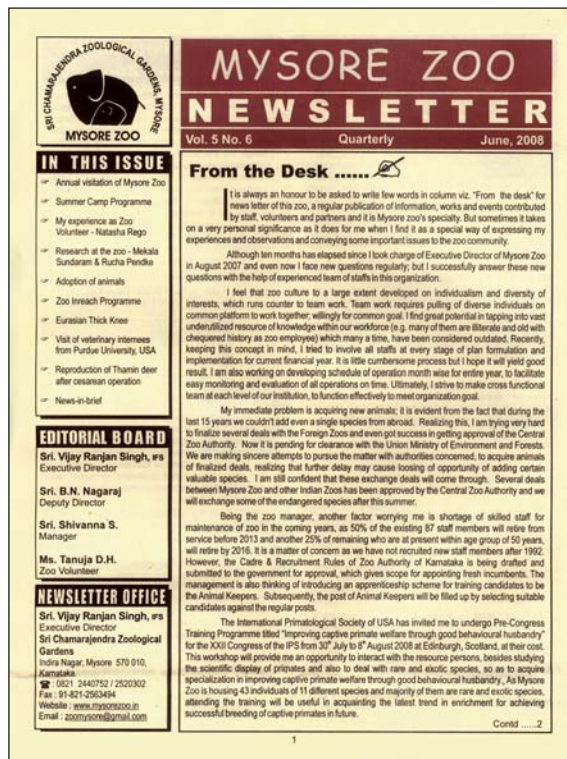


Photo: CEE

Newsletters



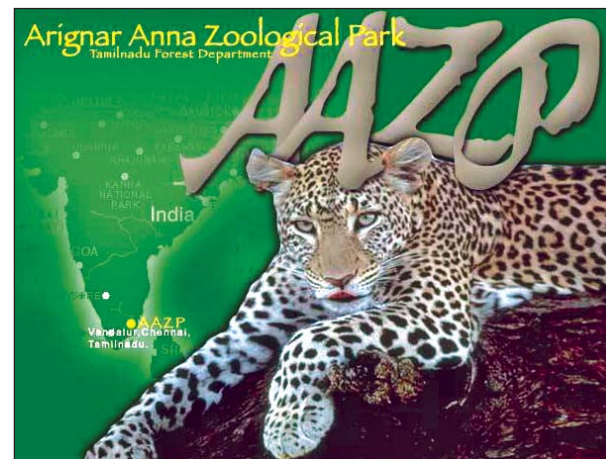
Some zoos regularly publish newsletters which are also being sent to other zoos. Such newsletters contain the latest happenings of the zoo and keep people updated.

Websites

Websites give an updated information on the zoo's activities and the programmes offered by the zoo. The zoo programme details can be put up accordingly.

Zoo ticket rates, opening and closing times, special happenings at the zoo all this information is made available on the zoo website.

Zoos are developing their own website, which is one of the best ways to reach to a wider audience where people could come to know all about the zoo, in one click.



Internal Networking

For developing signages

Zoo directors, curators, veterinarians, education officers etc. work jointly to develop content for signages in many zoos.

Meetings

Most interactions between the different levels of staff are in the form of informal discussions. A system of structured meetings between zoo staff was rare in most zoos. When meetings do take place every few months, or in most case annually, there is no defined objective, but people come together to discuss their constraints.

We have a specific and defined method for achieving our mission. There is a platform wherein people can express their idea (innovative/stupid/stereotypic). The zoo management promotes employees to express their ideas/feelings/ worries, etc. example is "Hamaari yaaden" a document on animal keepers' experiences. We have an in-house Zoo Advisory Committee, comprising members from all levels of staff, including sweepers, keepers, gardeners etc., apart from officials. The committee meets once a month and discusses the relevant issues.

Kanpur Zoo Director

Zoos and Media

Most zoos across the country give press releases about the happenings in the zoo as well as to announce the latest activities of the zoo. Press articles also consist of follow up articles on the zoo activities like, animal exchange, animal adoption, celebration of birthdays, wildlife week etc.

But many zoos are facing a severe crisis in context of media relations and coverage. Journalists often publish wrong information which they collect by wrong means from wrong sources. Directors from various zoos are concerned on getting media oriented towards zoo education as well as to develop guidelines to deal with the media.



Photo: Ahmedabad, Times of India

Some examples of negative and positive press coverage:

Excerpts from press clippings showing negative media reporting

Delhi zoo: It's a jungle out there

12 Apr 2006, 0139 hrs IST, Kunal Doley, TNN

NEW DELHI: What's ailing Delhi zoo? Close on the heels of a female Himalayan black bear 'disappearing' from its enclosure and a dead sambar deer being reportedly left to rot in the open, a female hippo is on the verge of death allegedly due to negligence on the part of zoo authorities.

Zoos Turn Death Traps

Wednesday, April 09, 2008 20:31 IST, Eklavya Atray

Eklavya Atray peeps into India's zoos and finds animals, especially tigers, dying by the dozen.

Some may argue zoos are privileged enclosures, probably the best place for animals and birds in today's troubled times.

But the story of Indian zoos is totally different. The 169 recognised zoos in India are actually death traps where a staggering number of rare animals breathe their last every year.

Excerpts from press clippings showing positive media reporting

Zoo animals get air coolers to beat the heat

9 May 2006, 2311 hrs IST, Deependra Jha,

AHMEDABAD: Amdavadis are enjoying their summer vacation, and so are Raja and Seema at the Kamla Nehru Zoological Park in Kankaria. Air coolers, sprinkling of water at regular intervals and Earth Tube Heat Exchanger (ETHE) ensure that the tiger and the tigress at the zoo can beat the scorching temperature of forty plus degrees centigrade.

Little giraffe is best zoo baby

17 May 2005, 0225 hrs IST,TNN

LUCKNOW: The baby giraffe at the city zoo was awarded the best baby in the 'Know the baby contest' organised by the zoo authorities on Monday. Around 76 students of 19 schools participated in the contest. The baby giraffe secured 50 votes out of the total 76 votes. The other competitors in line were baby leopard securing 8 votes, baby zebra getting 6, baby wolf and baby hippopotamus getting one vote each.

The Indroda Nature Park, (GEER Foundation) of Gujarat had a link up with the radio channel and weekly Sunday programme on conservation issues was aired on All India Radio (AIR).

Dealing with the media : Some issues and concerns

When there is a very bad press release, we get a list from senior officers for an inquiry report. We have to do a lot of exercise for giving explanations to them. To prevent such type of press releases in advance certain things have to be taken care by us.

A Zoo Director

"Interface with media in a proactive manner is important. It is also important to, keep them posted about zoo happenings through press conferences and media brief".

A Zoo Director

A full proof crisis communication plan should be used in emergency. The zoo spokes person, ideally the zoo director, or education officer interact with the media in the absence of a trained PR officer. The staff has to be informed that the news to media should emanate only from one source that is the Director's office.

Professor, Indian Institute of Mass Communication

"I normally issue press notes giving detailed information on how the animal died, so once this valid document reaches to the media they do not make any other added comments on that."

A Zoo Director

"Lack of support from regional language newspapers and TV channels is a limitation. Solution is regular press releases to highlight important event in the zoo, another point is to invite celebrities to the zoo to promote media coverage and visitation."

A Zoo Director.

Sponsorships

Animal Adoption Scheme

Adoption of captive animals is an old practice in zoos of the world and now zoos in India are picking up this activity very fast.

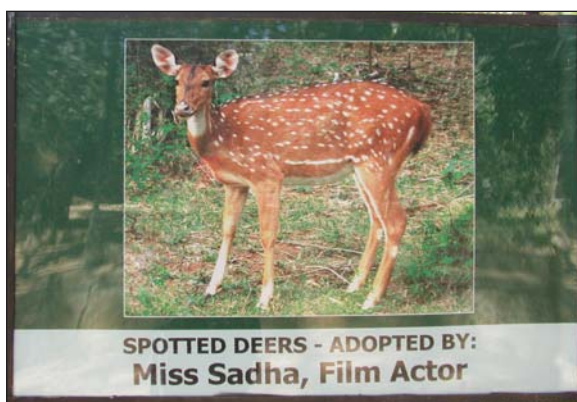


Photo: CEE



Photo: Assam Zoo



Photo: CEE

Signages showing adoption of animals from different groups of visitors

Press releases on this issue and responses of people on this scheme are quite positive. Visitors are excited to adopt wild animals. As per their budget they could adopt animal of their choice and there is something which would fit everyone's' pocket. Money generated from such scheme goes in the welfare and upkeep of animals. From time to time the parents of the adopted animal could come and see their animal. This whole scheme apart from generating funds for the zoo and thus helping dealing with the constraint of limited funds, also is a great step in creating awareness and changing attitude of people towards conservation of wildlife and nature.



Photo: Ahmedabad, Times of India, March-2008

Marketing and Fund raising at Zoos

Involvement of corporate and others: a case study of Mysore zoo

Excerpt from presentation by Mr. Manoj Kumar, ex, executive director of Mysore Zoo, in the training programme on - Master Planning for Zoos for directors and managers of zoos in India (13th-16th April 2006)

Opportunities explored in Mysore Zoo

Inhouse opportunities- Some areas explored by Mysore Zoo for revenue generation

Karanji Nature park- This park has India's largest aviary, childrens park, joggers park resting places and kiosks. This area of the zoo has great potential for revenue generation.

Adoption scheme- Details of revenue generated through adoption scheme

Year	Number of animals adopted	Amount collected (Rs. In lakh)
2001-02	07	0.38
2002-03	26	2.21
2003-04	65	3.09
2004-05	93	4.11
2005-06	99	2.69

Wild card- The zoo has a facility of wild card which offers facilities like special entry, free information brochure, guide facility, eco friendly vehicle for zoo rounds, library books for reference, camera allowed for photography, five percent discount at zoo shop, free entry to Karanji nature park.

Sale of products- Selling of ornamental plants and vermicompost is also a fund raising activity of the zoo.

Sponsorship opportunities- Kiosks, drinking water facilities, toilets, working lunch for special groups of people, prizes, interpretation centre etc.. are sponsored by different organizations.

Zoo education

Mysore zoo organizes several types of educational programmes for various target groups, which is a good way of popularizing the Zoo.

Zoo branding

Various components involved in branding the Mysore zoo:

- Print products- stationeries, newsletters, mailer, redesigning of all these into a creative and exiting format was proposed.
- Electronic Media- Designing and hosting of a website for Mysore zoo, production of CDs and DVDs for multimedia presentation of various exhibits events and facilities of the zoo.
- Event management Summer and winter camps, classes and workshops for training children and teachers, celebration of special days, childrens night out, information fare, etc.

Source: *Master Planning of Zoos, Proceedings of training programme on master planning of zoos for directors and managers of zoos in India.*

Networking through Training Opportunities

The Central Zoo Authority (CZA) which is the Regulatory body for all the zoos of India, in itself is a good forum for networking as CZA sponsors various workshops, meetings, conferences etc. for various level of zoo staff on different aspects of zoo management of which zoo education is also a part.

Various types of training programmes offered by CZA, as well as conducted by zoos for different target groups, is a good means of networking and making linkages where people share their experiences, get exposure and learn from each other.

Key Findings

Listed below are some key findings related to strengths/opportunities, constraints/limitations in the area of networking in Indian zoos. These have been compiled on the basis of data and information collected through the mail surveys, site visits and regional workshops.

Strengths / Opportunities

Existing linkages

- Existing linkages with CZA, state forest department, municipalities, local NGOs, research & educational institutions.
- Corporate bodies and tourism department.
- Existing networking grounds like International Zoo Educators Association(IZE), World Association of Zoos and Aquarium (WAZA) etc.
- Websites of different zoos.
- Regular training programmes and workshops.
- Exchange programmes and workshops.
- Exchange of animals for display, breeding, conservation for educational activities.
- Zoo is used as an opportunity by media to build stories, ready to use stories.
- Growing sensitization about corporate social responsibility (CSR) in industry is an opportunity.

Special programmes

- Special programmes of zoos like adoption scheme.
- Wildlife Week, animal fortnight, green days celebrations: A forum to invite people of different background.

Documentation

- Existing Annual Report & Publications could be circulated among various Zoos to keep them updated about the happenings of the zoo.

Limitations

Funds

- Lack of Funds.

Time

- Lack of time to build and sustain networks.

Human Resources

- Staff: Lack of relevant training and expertise, limited number of staff.
- Turnover of staff in small and private zoos.
- Lack of appropriate attitude.
- Lack of motivation.
- Lack of Public Relations Officer.

Infrastructure

- Insufficient infrastructure like, computer, internet etc.

Media relations

- Negative publicity by media.

Documentation

- Lack of comprehensive zoo educator's journal.
- Lack of database on zoos.
- Websites not updated regularly.
- Lack of enough publicity matter.

Training for networking

- No formal training/grooming.
- Communication Gap.

Guidelines

- Lack of policy framework.

Others

- Frequent change in zoo managers.
- Getting permission to attend meetings/ conferences/workshops/seminars takes lots of time.

Recommendations

Database

- Developing a centrally prepared Directory of Zoos, related organizations, both offline and online.
- CZA Database to be updated frequently.

Infrastructure

- Introduction of latest communication technology and equipment to support Internet.
- Provision of grant to establish required infrastructure.
- Optimum utilization of existing infrastructure and resources.

Guidelines

- Guidelines by CZA and proper monitoring and timely implementation.

Meetings

- Regular interaction at inter and intra state level zoo personnel.
- Periodic seminar/workshop at State/Regional/National level.
- Structured meetings to be included in zoo management plan.
- Exposure to other zoos

Dissemination

- Effective dissemination of publicity and communication materials at various workshops/meetings.
- Publication of newsletter/pamphlets on Environment Education for awareness and knowledge.

Collaborations

- Guidelines on sponsorship and advertising.

Media relations

- Need to be more proactive to media about zoo happenings.
- Frequent interaction with media in the form of workshops, meetings, etc.

Training

- Training on Networking skills .

PR unit

- P. R. Department/P. R. Personnel should be established for all zoos.

Linkages with

- Non Governmental Organizations(NGOs) and Community Based Organizations(CBOs).
- International Zoos.
- Educational & research institutions.
- CZA and other relevant government departments/bodies.
- Corporates.
- Media and Media institutes.
- Local people and administration.
- E-groups.
- Neighbourhood groups/associations/nature clubs.
- Tourism departments and guides.
- Media.
- Celebrities.
- NSS & NCC, NGC, Scouts.
- Other enthused individuals.

Every zoo should create its unique brand and set a model role for other zoos.

Bernard Harrison, Ex-director, Singapore Zoo

Annually 600 million visitors visit the zoos globally. This is only 10%of the total world population. it is quite obvious that the marketing wise the penetration is very poor and thus we should concentrate on 90% of the world population which does not visit zoos.

Bernard Harrison, Ex-director, Singapore Zoo

Master Planning for Networking and Partnerships for Zoo Education

Zoos represent a unique mix of technical and interpretative expertise, legal and environmental ethics, and biological diversity. There is a growing trend for them to cooperate with each other and with other government and non-government organisations and build relevant linkages and partnerships. Such networking is an important factor for developing and sustaining effective zoo education programmes.

World Zoo and Aquarium Conservation Strategy

Communication

Building networks can help achieve strategic goals and engage in constant exchange with citizens and partners.

Exchange requires communication strategy

Communication plays a key role in establishing and shaping the mission and vision of the zoo and thereby to facilitate linkages and partnerships. The role of communication in context of zoos and education has also evolved over time.

Today it has three key dimensions:

- Communication to attract visitors and increase park income.
- Communication to win allies (the media, corporates, government departments entitles and conservation organizations).
- Communication for conservation.

World Zoo and Aquarium Conservation Strategy recommends that all zoos and aquariums and their associations, no matter how large or small, design and implement a communication strategy.

This should include the following basic steps: define the overall communication goals, identify the target audiences, decide key messages, choose tactics and methods; identify resources available and needed, and develop monitoring and evaluation techniques.

The audience: A zoo's communication strategy should begin by considering the zoo staff and volunteers as an important audience. Visitors are the key audience, but the zoo community also needs to reach out beyond them to the media, academics, influential public figures, educationists and potential sponsors and supporters.

Strategic plan: Zoos should have strategies in place supported by appropriate methodologies and technologies, so that they can communicate quickly and effectively with each other, with media, and other relevant partners (NGOs, educational institutions, corporates, government departments, etc.)

Skill building: The zoo community needs to raise the level of professionalism in the communication skills of its staff. Marketing skills should be a part of the senior managements' profile, and these should be developed through trainings, exposure and networking with relevant institutions.

Marketing: Marketing should be fully integrated as part of the zoo's numerous activities from animal collection to enclosure design, from site management to crowd management. In case these are in place, marketing and education staff within zoos should work closely together to ensure that similar messages are being communicated, to different audiences, in different ways.

Clarity of messages: Zoos need to be clear, precise and consistent in the messages they communicate. Messages should be positive and invite people to participate in conservation.

Integrated approach: For effective communication of the conservation work and spreading of the messages, zoos must establish links with a wide range of professionals, marketing experts, scientists and researchers, educationists, government/administration officials, and corporate representatives.

There is equally a need to create awareness about the benefits derived from partnerships, association and networking for a common conservation ethic.

Promoting the Zoo

The zoo is not a static place. Its dynamism needs to be conveyed to the outside world through its plans, creativity and energy.

The mission, vision and work of the zoo need to be promoted for many audiences:

- Public in the zoo.
- Public outside the zoo.
- Specialist audiences.
- Conservation and animal welfare organisations.
- Educational institutions.
- Decision makers and governments.
- Companies that might promote zoos.
- The Media.
- The Anti Zoo lobby.

All zoos and aquariums should link with other organisations that can help them carry out their conservation mandate. Such organisations will in turn benefit by their association with the zoo community. (WZACS)

Linking Up

Zoos must explore possibilities of a variety of partnerships or linkages. Through collaboration, each institution can strengthen each other's work to mutual benefit.

Some examples are given. There may be many other locale-specific opportunities and linkages.

- Government departments, Ministries (e.g. education, environment, forestry, agriculture, animal husbandry, tourism, etc.) and wildlife and environment agencies. The attempt should be to place the zoo's role as a conservation education facilitator on the policy and programme agendas of these departments. When these departments plan their programmes they would find the educational resources of zoos a valuable adjunct to their other activities.
- Academic institutions (schools, colleges, training institutes, research institutions). Zoos can offer facilities and opportunities for hands-on educational experiences and research options. The institutions can help the zoos to plan relevant educational programmes and resource material, as well as provide human resources in the form of volunteers, interns, etc.
- Conservation and scientific organisations like Wildlife Institute of India and World Wildlife Fund for Nature (WWF), as well as Botanical Survey and Zoological Survey of India. There would be opportunities for collaborative research in conservation, biological, wildlife, veterinary and social sciences. Zoos can also partner with botanical gardens, urban parks and national parks, for similar collaborations.
- Professional organisations such as those for architects, landscape architects, engineers, and others involved with planning and developing the built environment in order to get their creative inputs on activities of common interest.
- Non-government organisations working in the area of education as well as conservation for collaboration in providing or developing relevant resources (communication material as well as training of different types).
- Local community organisations. Zoos can play a role by taking leadership in public discussions and debates on sound ecological practices, sustainable community development and issues of human-animal interactions. Zoos can also be key resources for engaging the local communities in projects related to conservation and appreciation of nature and natural resources.

- Industry and corporate groups to invite sponsorship and support for the zoo programmes and materials, while offering product/brand visibility to large audiences.
- Media for promoting a positive and comprehensive image of the zoo and its mandate.
- Tourism department. Zoos are important cite of the sites and so zoos could establish linkages with tourism department. It should be ensured that visiting zoos be a part of every sight seeing activity.
- Hotels- Zoos should orient local hotel network on the importance of the zoo as an important site of the city. Zoo brochures could also be displayed in few hotels so that the tourists come to know about the zoo. Linkages with hotels could also be established for getting discounts on boarding and lodging facilities for zoo guests and members.

Given are two examples of linking up with formal educational institutions.

Schools

One of the most sustained groups of visitors to zoos are the schools. Zoos should identify this opportunity as one of the biggest strength. Every zoo should have a list of schools of their region. Below given are some of the opportunities where zoos could link up with schools.

- Celebrating 'green days' of the year this is a practice in many zoos, but is restricted to different types of competitions only. Interesting activities could be planned to make these days more interesting. (see chapter IV)
- Annual days of schools. A zoo stall could be put up in exhibitions of annual day of schools, with panels and posters of zoos and also display of zoo merchandize and publications.
- Identification of curriculum linkages with wildlife-related topics and offering training to teachers for using the zoo as an informal, outdoor educational facility.
- Making school students as zoo ambassadors. Students interested in wildlife related topics could be selected through quiz competitions and could be designated as "Zoo Ambassadors". These ambassadors would be helpful in carrying out zoo outreach activities and would be privileged members of the zoo.
- Teachers could be asked to give wildlife related topics as vacation projects to students, to be done in the zoo.
- Zoo teacher club. On a membership basis, zoos could form a zoo teacher club, for teachers trained in carrying out zoo education activities.

Sniff, swing, swipe

An example of a zoo linkage involving school students

This is a 10-week project based on the New Zealand Technology and Science Curricula.

New Zealand students are being asked to assist the Auckland Zoo with behavioural enrichment for the: Ring-tailed lemur, Meerkat, Zebra, or Kea.

The aim of behavioural enrichment is to encourage species-typical behaviour in the animals to encourage physical exercise and mental stimulation. Like humans, animals also like new challenges and new experiences.

After researching their chosen animal, students are asked to design a prototype of a form of behavioural enrichment. This will be displayed on the project's website for comments by the Auckland Zoo keepers and enable students to make any modifications before construction. The finished version will also be displayed on the website and viable solutions will be chosen by the keepers to use with the animals.

<http://www.aucklandzoo.co.nz>

Colleges/Universities

Training Programmes: Zoos should identify its expertise in animal upkeep and management and should develop training programmes in these areas for college and university students in related professional courses.

Project works: Zoos should also have a list of colleges in their region. Education officers in zoos could go to respective colleges and encourage students to use zoo as an outdoor educational facility for research projects.

Networking Among Zoos

All zoos should be members of regional or national associations. Such associations have proved themselves to be extremely effective forces for improvements in zoos, whether by policies, peer pressure or politics.

Networking among zoos at local, national and global levels is very effective for information exchange, learning from one another, and benchmarking. Such interaction will establish trust and cooperation between zoos in all parts of the world. They will expose local zoos to international standards and ethics. National, Regional and International zoo associations are useful towards this.

All regional and national zoo associations should make every effort to represent a conservation conscience appropriate to their culture within their member institutions and to bring their members' activities into a common ethical and technical framework.

Education and other staff should be encouraged to participate in local, national, regional and international networks such as the International Zoo Educators Association (IZE) and its regional groups. The sharing of ideas whether face to face or via written or electronic means is an essential part of maintaining an effective education base. Zoos and aquariums should encourage educators and give the means, to engage in such productive dialogues, not just with fellow zoo educators but also with their counter parts in botanic gardens, museums, science centres and relevant institutions.

National and regional associations should persuade their respective governments to improve or create zoo legislation that will provide mechanisms to help zoo carry out their conservation purpose. (WZACS)

Some Zoo Networks

International Zoo Educators Association (IZE)

IZE is a professional association dedicated to expanding the educational impact of zoos and aquariums worldwide. Its dual mission is to improve the education programmes in the facilities of its members and to provide access to the latest thinking, techniques, and information in conservation education.

IZE facilitates communication and professional development among zoo/aquarium educators and liaisons with related organizations such as WAZA (The World Association of Zoos and Aquariums) and CBSG (Conservation Breeding Specialist Group). IZE and individual members work together with other conservation organisations, including the World Zoo Organisation, the Conservation Breeding Specialist Group, and the IUCN (The World Conservation Union), to enhance the understanding of conservation issues and to share information on effective informal education methods. **www.izea.net**

World Association of Zoos and Aquariums (WAZA)

The World Association of Zoos and Aquariums is the "umbrella" organization for the world zoo and aquarium community. Its members include leading zoos and aquariums, and regional and national Associations of Zoos and Aquariums, as well as some affiliate organizations, such as zoo veterinarians or zoo educators, from all around the world.

Together they are 'United for Conservation'. **www.waza.org**

South Asia Network of International Zoo Educators (SANIZE)

SAN-IZE is an acronym for the South Asian Network of International Zoo Educators. SANIZE represents the International Zoo Educator Association in South Asia. The International Zoo Educators Association IZE (www.izea.net) governing board & members have decided to make two regions in Asia for the purpose of better networking and serving of Asian zoos and zoo educators. It is hosted by Zoo Outreach.

South Asia includes: Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka.

The South Asian Zoo Association for Regional Cooperation (SAZARC)

The South Asian Zoo Association for Regional Cooperation (SAZARC) was formed on 4 August 2000 at the first meeting of South Asian Zoos, held at Central Zoo, Kathmandu, Nepal, initiated by the Zoo Outreach Organization, CBSG, South Asia and Central Zoo. Directors, Veterinarians and other senior technical staff attended the meeting and, after giving "state of the zoos" reports for their country and individual zoo reports, agreed that there was a crying need for a zoo association for the region. It was given a name at this meeting: South Asian Zoo Association for Regional Association or SAZARC. SAZARC, ZOO and CBSG, South Asia work together with WAZA and other zoos of the world. www.zooreach.org

Marketing

Zoos are not generally perceived by the general public as institutions for conservation and education. However this is a critical role and mandate of every zoo, and should become part of the corporate identity of the zoo.

Today urban India is seeing many changes in leisure activities. There are a variety of entertainment options from cinemas to amusement parks and shopping malls. People are always looking for something new and different and at the same time looking for "added value". Even zoos have to confront these new competitive situations and must offer more than just a walk between enclosures to attract visitors. They must prepare their products, their presentation of the animals and the site, and target their marketing to address these trends.

Marketing is a process of planning and executing the conception, pricing, promotion and distribution of ideas, goods, services, organizations and events to create and maintain relationships that will satisfy individual and organizational objectives.

Marketing and fundraising are important parts of a zoo's conservation and education activities. The promotion of this aspect of a zoo's activities requires market research, advertising and reaching out.

For marketing, zoos need to know their Unique Selling Propositions (USP's).

The planning and setting up of a Visitor-Emotion Management System will possibly be the most important marketing instrument for zoos in the near future. If it is possible to grab the visitor emotionally and lead him or her around the zoo wrapped in a mixture of information and emotions, he or she will regard this as a positive experience.

Heinz Rico Scherrieb, Institute of Tourism and Leisure Research

There is an area of commonality between marketing and education both disciplines are in the business of communication: in particular 'selling' conservation to an audience that is largely in a recreational rather than conservational mindset when we are talking to them.

Conservation and education are not very visible or short-term products the results are often visible or felt in the long-term. So to market this, the zoo must be credible and be able to show that its programmes and policies will help to achieve long-lasting and sustainable results.

Let's be inspirational. No one ever sold anything by making people feel depressed so we need to, while being realistic about the difficulties our natural world faces, be positive and give hope. We need to look at "ways into learning" to help people not just absorb and store information but to make them feel differently about things, and ultimately to do something. Awareness to action is all very well its what goes on in between that's important, and that, I believe, involves stirring up people's emotions. That is something, as educators and marketers, we should be good at doing.

Stephen McKeown President, International Zoo Education

Fund Raising

Interactions with Zoo directors and field visits across different zoos of the country revealed that lack of funds and resources are some of the main reasons behind a weaker networking system amongst the Indian zoo network.

During the four regional workshops it was suggested and agreed by most participants that zoos should explore business opportunities and develop an annual plan for identifying partners and sponsors to raise funds and resources to sustain zoo education activities. For carrying out these programmes and activities zoos could have partnerships with various institutions/organizations/agencies etc. In some cases the partners may not provide direct funding, but may contribute in terms of providing free/subsidized accommodation (hotels, guest houses etc.) workshop material and support, e.g. publications, stationery, catering, free/subsidized tickets for travel and so on.

Given below is an example of a sample annual plan for fund raising:

Annual plan (fund raising) for the financial year 2009-10				
Identified areas for fund raising	Interpretation	Education and Outreach	Training and Capacity building	Networking and Partnerships
Funds required for	Setting up an interpretation/orientation centre on bats	Purchase of a mobile van to reaching out to schools	A seven day training programme on developing educational materials in the Zoo	National Zoo Educators conference
Details of activities	Installation of panels, dioramas, livesize models, interactivity area etc..in	A mobile van with facilities of touch table, computers, screen projector, library with few collection of books on wildlife, exhibition of panels on Zoo	Education officers/veterinarians/curator/director etc.. Of five zoos would be trained on the above topic	Two day conference on strengthening zoo education activities in Indian Zoos
Tentative budget (in Rs.)	50 lakhs	20 lakhs	1 lakh	3 lakhs
Possible sponsors/partners	Corporates, CZA, individual donors, state government, designers, architects etc..	Automobile companies, travel agencies, CZA, corporates, state government, individual donors and media for advertising the van, tourism department	Participating zoos, CZA, state government, WII, WWF	WII, CZA
Means of partnerships	In cash/kind	In cash/kind	In cash/kind	In cash/kind
Sponsors/partners benefit	Logo of the sponsor on each product, a free zoo membership and a certificate of appreciation	Logo of the sponsor/partner on the van, free zoo membership and a certificate of appreciation. Zoo van is a paid facility offered to schools as zoo outreach programme. 25% of the revenue generated would go to the sponsor agency.	Logo of the sponsor/partner on the van, free zoo membership and a certificate of appreciation.	Logo of the sponsor in all advertisement and publicity material and merchandize (T-shirts, folders, mugs, posters etc..)
Time frame for getting sponsors and initiating the process	April, 2009	May, 2009	July, 2009	October, 2009
Coordinator	Curator	Education officer/curator	Education officers	Director, curator, education officers/veterinarians, PR person

Apart from developing an annual plan, zoos should also fix targets for the annual revenue to be generated at the year end. Zoos should develop targeted programmes and activities exploring all possible opportunities in the zoo (see chapter IV) and should conduct activities on a charged basis.

Sponsorship

Sponsors come in with a goal. Zoos already have their own goals. While exploring sponsorship possibilities, zoos need to meet their respective goals.

Sponsorships are tailor-made agreements between advertisers and zoos that can last anywhere from one time to several years. They can include elements from a logo on a zoo map to branding a company's name on the zoo's various products, signage, events and the website.

Sponsors frequently link their logos to an attraction or event in the park that is related to their products. For example, a local electric company may sponsor nightly laser light show, and or a company with tiger as logo may sponsor the tiger exhibit (enclosure and signage).

Sponsorship benefits can include on-site signage at specific attractions, as well as putting a company logo on maps and message boards. Sponsors are usually included in the publications and signages.

In some countries, couponing is often tied into sponsorship relationships, with a discount to the zoo provided at the product's point of purchase. Similarly, a product discount may be provided at the zoo.

Passes and discounts for advertisers', customers and employees are often an element in sponsorship agreements.

Many zoos are also offering sponsors for website exposure and linkage.

Zoos can explore sponsorship from various sources like

- Local banks
- Corporate agencies
- Tourism department
- Municipal corporation
- Mobile phone companies
- Hospitality industry



www.aucklandzoo.co.nz

Branding

Branding implies that a product or a service has attained an enhanced status amongst its competitive peer group namely it has become a brand. People form emotional bonds with their favourite brand. Zoo must become brands to their visitors, so that the visitors become their fans and supporters. The challenge is to create, educate and motivate the 'consumers' by positioning the zoo as a brand leader in the chosen marketplace.

To be a brand, zoos should consider these:

Zoo Branding

Do you have a recognized brand?

What is your brand's perception?

What is your brand's difference and are you really different?

What is your brand's promise?

Will you have brand confusion?

Source: Presentation by Bernard Harrison

Animal Adoptions

Animal adoptions can make a wonderful gift that would bring a smile to everyone's face no matter how young or old. They can be a statement of one's personal consideration and support to some of the world's most endangered species.

Through the animal adoption scheme one can come closer to nature by identifying oneself as a person who cares about animals and conservation. An animal adoption helps to feed and care for the chosen animal and helps the zoo to continue to invest in the ongoing protection of endangered species that require refuge.

It can also provide special zoo privileges and concessions that are not available to non-adopters. Apart from this, names of animal adopters are displayed on the signage in front of the animal adopted.

Few examples:

Knoxville Zoo, U.S.A

Adopt-an-Animal

Knoxville Zoo's, Adopt-an-Animal programme provides funding that goes towards the care for more than 800 wild animals that call the zoo their home. Any animal currently at Knoxville Zoo can be adopted. By becoming an Adopt-an-Animal parent, you can help to provide a year of feed and care for your favorite Knoxville Zoo animal. Animal adoptions help to ensure that the animals at Knoxville Zoo are receiving the nutritious diet that they require, the best cutting-edge health care possible and a safe and happy environment in which to live. Through Knoxville Zoo's Adopt-an-Animal programme, you can support Knoxville Zoo one animal at a time.

Adopt-an-Animal as a Gift!

Adopt-an-Animal adoption is the gift that gives for a whole year! Your friends and family members would love to have a Knoxville Zoo animal adopted and cared for in their names. You can purchase an adoption to celebrate birthdays, anniversaries, holidays or for any reason at all!

DNA

speak up

E-mail: speakup@dnaindia.net
 call 3961 4021
 Team Speak Up: Nitish Jain, Anil Arora & Geeta Nair

At first you do not succeed, skydiving is not for you. —Tina Patel

Send us funky hi boards at speakup@dnaindia.net

Feed strongly about something that you see, hear or feel. Share your story and we will take it across the city. Mail us on speakup@dnaindia.net

big shout

Today's Question:
Do you manage your daily expenses with a budget?
 SMS 5452 <space> A or B or C to 5452 for answer.
 A: Yes B: No C: Can't say

Yesterday's Question:
Do you think there should be more city blog?
 72% Yes 20% No 08% Can't say

Kankaria zoo animals up for adoption

AMC's new 'Friends of the Zoo' scheme opens up an entire new territory for both the animals and animal lovers. The scheme says that people or any private entity can adopt an animal and will get to use the enclosure to advertise their brands. Though this means big money for the Kankaria Zoo, it also means good facilities for the animals. Amdavadi's *Speak Up* on the proposed scheme

Know more about animals

The scheme which has been proposed is called 'Friends of the Zoo'. If any person or an institution wants to adopt any animal then they have to pay annual maintenance cost for the animals which they are adopting. The adoption fee will include expenses on animal's food, and other routine expenses such as medicines and cleanliness charges. Even they can pay cost of emergency medical treatment and can even sponsor medical equipments. People can now adopt an animal of their choice and even can know more about them. We have asked for Rs2 crore from the municipal committee to reorganise the zoo. We even want people to get close to animals. The programme will help them become an integral part of an animal's life. —JA Sacha, Deputy Managing Committee, AMC

Good news for the animals

The initiative which is proposed is really good and will help to connect people with animals. The adoption plans will also help the zoo to get more funds and authorities will be able to provide better facilities to the animals, which they were unable to do earlier. And I do not think there is anything wrong with the corporates entering making use of these schemes and helping animals in the process. If get a chance to adopt an animal then I will go for the marsh crocodile because their adoption rates are in my budget. —Ajay Kumar, Mumbai

Would be a win-win situation

The government funds have been insufficient for the maintenance of the animals in the zoo. If the corporate sector are generally coming forward to adopt those animals and provide for their care, then I think this move should be applauded. If in return they want to use the cage for the branding of their products, I don't think anything wrong in it. The government can show their gratitude for this help by allowing them to do so. This would be a win-win situation for all. —Abhishek Sharma, Mumbai

Shouldn't use animals for personal gains

I do not agree with this scheme. I feel if people and corporate sector really want to do something for the welfare of the animals then they should make money contributions in the zoo rather than adopting a few and not the rest. Also it is not correct if the corporate sectors use the cage space for their product branding. They can adopt animals and pay for their health and care but should not make it a money gaining source. —Tanya Chhabra, Mumbai

Lion Rs1,26,260
Leopard Rs38,260
Elephant Rs2,58,260
Tiger Rs1,26,260
Marsh Crocodiles Rs5,260
Emu Rs19,260
Cobra Rs2,760
Hippopotamus Rs1,51,260
Bears Rs23,260
Swan Rs10,260

Offer only till stock lasts

These figures are per annum

It will be like adopting a child

Adoption of animals schemes are new in Indian but in several other countries such programmes on adoption of animals are going for quite some time. In international projects, there are three schemes in practice. People can adopt only animals, or people can adopt babies of animals and finally people can adopt an entire project. Such programmes are made for conservation of animals in zoo. Adoption schemes are structured in such a way that makes everyone's pocket. Money received from the adoption plans are utilised for feeding and maintenance and it is not like a donation. It is all about adoption animals as your baby and you can visit zoo to see them. The whole idea is to connect and build relationship between animals and people. —Manisha Choudhary, Zoo education programme officer, IIC

It is a unique scheme

The scheme is unique and I think it's a very good idea. I am sure such kind of plans and schemes will create awareness in the society. Moreover, animals will get better facilities. Entry of the private firms might even ensure world class facilities for the zoo. The exchange programmes of doctors can also take place with the help of corporate support which will be good for the zoo. The scheme is good but it should be executed well and as early as possible. The scheme will also attract people back to the zoo and it's good to know that finally these schemes are proposed in Ahmedabad. —Sandeep Bhatt, former student

Promotion of brands not an issue

I think it is a very good idea that the zoo authorities have proposed something like this which will help them take care of the animals in a better way. More and more people should come forward and support this scheme. I think the corporate sector is doing a great job, if they adopt animals. I have no issues with corporate sectors using the cage space for their promotional purposes as long as the money collected goes into the benefit of the animals. I too, would love to adopt an animal. —Ajay Gadhvi, Entrepreneur

It is a corporate benefit

The idea is very good but more emphasis should be on taking care of the animals. Feed it is extremely hard to keep the animals in the cage. Zoo should not be for promotional projects of the corporate sectors or for advertising. It is only by an innovative idea to promote own's brand but inhuman. It looks more beneficial for the corporates than the animals. I would like to adopt an animal but would not use its cage (boxed) for promotional activities. —Pratik Sethi, Entrepreneur

Numericks 54 different types of animals are available for adoption at the Kankaria Zoo

Friends of the Zoo (FOZ)

The Zoo needs Friends

A concept pioneered in the West, Friends of the Zoo societies get people intimately involved with the zoos. In the process, the friends understand the significance of conservation.

Any one can join the Friends of the Zoo programme, which could be an independent non-profit organization, to support the zoo and animal conservation. By paying nominal membership fees/charges, in the form of either single memberships or family package memberships one can enjoy several privileges in the zoo. One can become part of a very special family: people who love nature, who are keen to get involved in the animal life and who want to enjoy nature and preserve it for future generations. As a Friend one could help the Zoo with its enormous task of conserving wildlife and endangered species that are becoming extinct in the wild all the time.

Membership benefits could include :

- Free admission to the zoo for one year.
- Free subscription to the zoo newsletter.
- Free admission to some events in the zoo .
- Admission passes for your friends.
- Invitations to "members only" events.
- Discounts on education and special programs, and childrens' birthday parties.
- 10% discount at zoo gift shop.

Few examples:

Arignar Anna Zoological Park (AAZP), Chennai

The zoo, which is among the fifteen largest in the country, has the concept of `Friends of the Zoo' group through which interested persons can help in the upkeep of the animals by taking an individual, family or corporate membership.

The friends could provide either technical help or financial support, such as adopting the upkeep of an animal. "We are looking forward to involving real zoo supporters."

Dickerson Park Zoo, U.S.A is Calling You!**Join Friends of the Zoo and Answer the Call of the Wild!**

Members of Friends of the Zoo help make Dickerson Park Zoo, USA a first-class facility. FOZ helps care for the animals, construct new exhibits, provide fun, meaningful education experiences and makes possible participation in Species Survival Plans that are saving animals from extinction all while giving members the time of their lives at the zoo! You, too, can be a part of the excitement and growth by answering the call of the wild!

Media

First time visitors often quote recommendations from friends or relatives as the motivation factor to the zoo visit. However advertisements and media reports are an important influencing factor, not only for the first, but also subsequent visits to the zoo.

Zoo must be open and transparent in their activities, in public and behind the scenes. The zoo community should be pro-active in celebrating and publicising good work or news in the zoo. At the same time, they must face detractors with honesty and sound science. They should listen to their critiques, share their concerns and invite them to see what they are doing. They should encourage debate and use it to promote their work and message. All zoo staff must be well informed, not just those that are in the forefront of talking to visitors or media, so that the messages passed on to the media remain consistent.

Writing Press Release: Some useful tips

1. Provide complete information: who, what, where, when.
2. Keep the item of LOCAL interest (but you can bring in relevant foreign and Indian references.)
3. Keep it as short as possible (one page double spacing best). If it is long they will edit and if they edit they will get many things WRONG.
4. Rephrase information for different media.
5. Use a quote if possible. Quote the zoo director or veterinarian. Have one spokesman for the zoo. (NGOs get permission from the zoo before speaking to press or giving press release).
6. Type everything you send. (If they can't read it, they won't use it).
7. Give name, address, phone, etc. of local contact in case there are questions.
8. Build up interest with advance news and background information.
9. NGOs: DO NOT repeat DO NOT use zoo education programmes as a platform to criticize the zoo.

6

Kinds of Media

Different types of media require different types of information

Radio

TV

Newspapers

Magazines

Kinds of News

1. Announcements of general interest programmes and activities to which the public are invited.
2. Hard News Something specific happens, i.e. a birth, a death, an acquisition.
3. Features articles, background, profile (animal or human), general.

Managing Media: Some Partners

Newspapers

Press release of item

- Can be longer than radio but not too long.
- If your press item is too long they will edit it; this can lead to bad mistakes.
- Photos: inclusion of a good photo almost guarantees inclusion as a press item.
- Rules of thumb for length: Hard news item 1 page, double spacing; Announcement: ½ page, double spacing; Feature: 3-5 pages, double spacing.

TV

Should be visually interesting and short.

- TV item is expensive; each second is precious.
- TV is visual; must show something unique.

Radio

Should be short and snappy

- Radio is audial so try and paint an audial picture of most important items; bring a vocal animal if possible

- Seconds are a long time on the radio
- Rules of thumb of radio speaking time 10 seconds = 25 words, 20 seconds = 50 words, 60 seconds = 150 words
(Source: ZOOS' PRINT, Volume XIX, Number 9, September 2004, p 11)

Zoo should take every opportunity to share what they are doing and what is happening to achieve their conservation education objective and use all means to do this from Internet, to face-to-face interactions.

Zoos and aquariums should accept that they will never persuade everyone, but they can go a long way towards enlightening and convincing people with doubts

WZACS

E-links

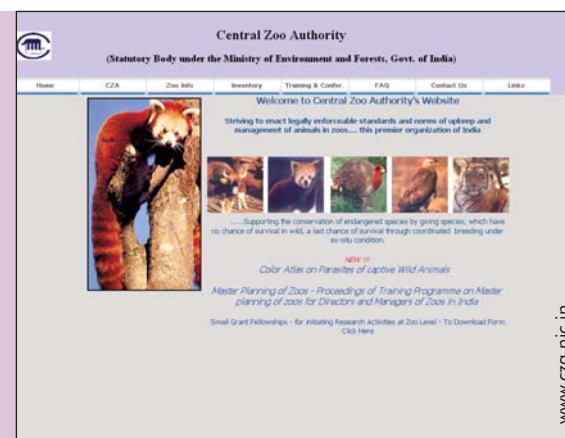
The use of internet is expanding rapidly. This provides a huge opportunity for zoos to share and learn, as well as to communicate to a very large global audience. The internet also provides a rich resource for accessing information, verifying facts, data, and sharing experiences.

A zoo website can give information about the zoo to people everywhere, and not just the zoo visitors. Thousands of people can enjoy a 'virtual' zoo tour. A well-maintained website provides necessary information and also regular updates on what is happening at the zoo.

A network of zoos, working together online, makes it possible to share news, views, techniques and resources relatively cheaply and speedily. Internet technology can also be used for specific educational activities such as training.

The website of Central Zoo Authority is a useful reference for Indian zoo managers. Apart from giving information on policies, rules, guidelines related to zoo management and wildlife protection, the website also has sections where one can get links to addresses and categories of all the zoos of the country. A section called 'Inventory' on the website, shows records of different species of mammals/birds/reptiles/amphibians of each year from 1991 to 2007 for all the Zoos mentioned in the list.

The website also announces the training/workshops and conferences sponsored by CZA. The section on FAQ answers some of the common queries related to zoos and wildlife. <http://www.cza.nic.in/>



ZooNews Digest is a weekly compilation of links to Zoo News from all over the world. Established back in 1995 the digest includes short articles, vacancies zoo queries and related information. It has been e-mailed out almost every week since it started. ZooNews Digest has readers in over 600 zoos and aquariums in over 80 countries around the world. It is the widest circulated zoo periodical (cyber or terrestrial). Anyone with an interest in zoos can subscribe to this e-magazine. Its called the zoo-biology@yahoogroups.com

“Zoos and aquariums are in a unique position: that of providing conservation in a genuinely integrated way. For the young people of the world's cities, zoos and aquariums are often the first contact with nature and so you are the incubator of the conservationists of tomorrow. The research you conduct is vital to our understanding of the components of biodiversity and their interactions. The public awareness campaigns and communication programmes you oversee are critical in making the general public understand both the utilitarian and the aesthetic importance of nature. Your efforts to build capacity, and transfer technology to colleagues in other parts of the world, will ensure the longer term contribution of zoos and aquariums to biodiversity conservation, while also fostering a spirit of collaboration and cooperation much needed in our troubled world. Finally, the financial support that you gather for conservation in the field will demonstrate the commitment of urban populations to maintaining the wild areas of the Earth”.

Achim Steiner, Director General IUCN

Foreword to Building a Future for Wildlife: The World Zoo and Aquarium Conservation Strategy

Zoo education spans a wide spectrum of activities including planning, visualizing, developing, appropriate communication media and strategies, and offering attractive programmes for all kinds of visitors.



Photo: CEE



www.nandanamzoo.org



Photo: CEE



Photo: CEE



Photo: CEE



Photo: CEE



Photo: CEE

7

Zoo Education for A Sustainable Future

In the 21st century, it is important to develop [the educational role of zoos] so as to have an active and direct impact upon people's attitudes and behaviour. In this way, awareness will be converted into action that has positive benefits for wildlife, people and conservation (WAZA)

As is evident the educational role of zoos is broad in scope and focus, with many target audiences. This document has discussed how zoos can provide meaningful educational information, activities and experiences for all zoo visitors and employ a wide range of techniques to achieve their educational objectives.

The traditional focus of zoo education programmes is still important; instilling respect, understanding and empathy for wildlife and the natural world are fundamental to creating a society able to deal with the serious issues it faces in the 21st century. However, knowledge, understanding and empathy don't in themselves save endangered species or the environment.

Raising awareness of the wide range of environmental issues and of threats to biodiversity has a higher purpose -that of promoting a sustainable future. This future is entirely dependent upon converting awareness into appropriate responsive action. Zoo education is therefore far more than information, awareness and inspiration; it is a call to action. But what can zoos really do? What examples can be highlighted to achieve the desired sustainable future?

Zoo education with its egalitarian appeal can make a serious contribution to a sustainable future by providing lifestyle information and examples for the visitors to make informed choices. Everything a zoo does, does not do, communicates or does not communicate, contributes to the educational message, or rather contributes to the effect of zoo's education for sustainability. This is true of the exhibited animal collection, the design of enclosures, and the tone of the message emphasis. Even the attitude of the employee at the entrance of the zoo influences the effectiveness of zoo education.

Education for sustainability is much more than adding an attractive sign, designing a nice enclosure, or choosing an 'educational' animal, the whole zoo contributes to the educational message.

If zoos want to get the message across, they have to ensure that every facet of the zoo supports this message.

The message is so much stronger if zoos actually practice what they preach and show how the action of individuals and organizations can and does make a difference.

Sustainability

Zoos practicing environmental sustainability can influence attitudes and change behaviour. Sustainability is defined as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. It embodies social, economic and environmental dimensions. The Earth Summit or the United Nations Conference on Environment and Development in Rio de Janeiro in 1992 was a landmark event in the evolution of Sustainable Development (SD). Several agreements important for zoos were part of the many agreements and documents produced at this conference including the Agenda 21. The Rio Declaration sets out 27 principles for SD. An important aspect of the Summit was the participation of the International Organisation for Standardisation which resulted in ISO 14001 which addresses environmental management and pollution prevention.

ISO 14001

ISO 14001 is a comprehensive, global standard for an Environment Management System (EMS) which stipulates that all members of the organization participate in environmental protection. It considers all stakeholders, and sets out processes to identify all environmental impacts. It is proactive, focusing on forward thinking and action. ISO 14001 stresses improving environmental protection by using a single EMS across all functions of the organization. It does not measure performance or product; rather, it allows institutions to measure how their activities affect the environment.

To register and gain ISO 14001 accreditation, a zoo or aquarium must have an EMS. ISO 14001 is broadly recognized across public and private sectors. As more and more zoos and aquariums are accredited with ISO 14001, there will be greater recognition of, and benefit to, the zoo community from government, corporations and society at large.

An environmental management system (EMS) is a set of processes and practices that enables an organization to reduce its environmental impacts and increase its operating efficiency. Developing an EMS is a structured way to reach goals of sustainability. An EMS stresses the importance of health and safety alongside environment. It should lead to continual improvement through a structured process of planning, implementing, checking, reviewing and acting to make necessary changes.

An EMS can be based on standards already available, and zoos and aquariums should adopt the one most appropriate to their circumstances. Some countries have developed their own EMS standards, as have some regions. An example is the European Union's Eco-Management and Audit Scheme (EMAS).

7

The World Zoo and Aquarium Conservation Strategy has listed a set of eight guiding principles under which any zoo can define its objectives and activities for sustainability. These are given on the following pages:

Guiding principles for a sustainable zoo or aquarium

Use environmentally sound waste management

- Minimize the total production of waste.
- Manage separation of waste at source to encourage maximum re-use and recycling.
- Minimize the risk of polluting.

Be energy efficient

- Maximize energy efficiency in all on-site and off-site operations.
- Try to reduce travel-related energy consumption.
- Efficiently maximize the use of energy which is produced and distributed, especially from renewable sources.
- Apply the three R's reduce, re-use, recycle where possible.

Use natural resources responsibly

- Use products that embody the most efficient and least environmentally damaging use of renewable and non-renewable natural resources. This applies to products from major construction materials to daily consumables, and should apply back along the supply chain to source.
- Apply the three R's .
- Make sure that animal acquisitions and dispositions are not only sustainable environmentally but also ethically acceptable.

If you pollute, you pay

- Support the general principle that the polluter should not pass on to others the cost of cleaning up pollution.
- Apply the principle in your own institution as a measure of good practice.

Put local consumption first

- Maximize the proportion of goods and services that come from local providers with acceptable environmental practices.
- Reduce the environmental impact of transportation wherever feasible.

Contribute to equitable development

Keep in mind that sustainable development requires a reduction in the differences of living conditions across the world and that you can contribute to this by:

- Conducting activities that contribute to this ideal;
- Supporting conservation projects that embody this general principle
- Adjusting purchasing policies and practices to help.

Apply the precautionary principle

- Obtain and analyze as much information as possible before making a decision.
- When in doubt, put in place measures to reduce environmental impact.

Encourage public awareness and participation

- Use the zoo's or aquarium's educational resources to help people understand why changes are important and what they can do personally to live in a more sustainable manner.
- Set an example for other businesses in Earth-friendly operations.

Probably the most effective way that zoos can encourage attitude and behaviour change for a sustainable future is by example. Zoos should strive to become environmentally sustainable in all their activities - from evolving policies to management style, from use of resources to public relations.

Zoos should celebrate and share these activities with the public visitors as well as non-visitors.

Zoos across the world are beginning to incorporate policies, and actions that support their role in education for sustainability.

Some examples are given here:

Some steps towards a Green Zoo:

- Development of an Environmental and Education policy and commitment to the international standard ISO14001 (for the best environment or eco-friendly zoo)
- Designing animal enclosures which are not only animal friendly but also eco-friendly.
- Designing and developing interpretive facilities like signages, wayside exhibits, directional and facility signs which are environment friendly (e.g. Use of materials, messages etc.)

7

- Using energy and water saving/efficient devices in the zoo.
- Using recycled and environment friendly materials in construction of buildings, enclosures etc.
- Recycling waste generated within the zoo, e.g. office paper, bottles, tins, organic waste from animals and restaurant, etc.
- Declaring and maintaining the zoo as a plastic free zone.
- Using and promoting fuel efficient vehicles.
- Training and capacity building of staff in the zoo on choosing lifestyles that are low on consumerism.
- Setting up model examples of recycling like setting up compost pits and display of the amount of energy being used and saved in different parts of the zoo, and compare with levels of energy used in the past.
- Use the zoo's educational resources to help people understand why changes are important and what they can do personally to live in a more sustainable manner.
- Set an example for other businesses in Earth-friendly operations.

Zoos have the potential to be extremely important agents of change in creating a sustainable future and ensuring the conservation of species and habitats on a global scale.

WAZA



Appendix I

Sample of Checklist

No. Name of the zoo
Observations

I Signage

Present
Absent

a If Present

- 1 For animals
- 2 For Plants
- 3 For directions
- 4 For 1,2
- 5 For, 1,3
- 6 For 1,2,3

b Text (language)

English
Hindi
Both
Any other language

c Pattern

(give order in which it is written, 1,2,3..., a,b, c..)
Naming
Latin
Common

Local
Information on animals

d Information on animals

Present
Absent
If present

e Type of information

Scientific
General
Interesting

f Contents on

Physical characteristics
Life cycle
Animal behaviour
Any thing else, specify..

g Type and design of signage

Pictures attached

h Location of signage

Very near to the enclosure
Near to the enclosure
Little away from the enclosure
Far from the enclosure

i **Font size of text**

Very very small

Very small

Small

Big

Very Big

i **Uniformity**

Yes

No

k **If, yes**

Same pattern for animals, plants and directional signage

Same for all animals

Same for plants

Same for directional signage

Different for different groups of animals

Different for plants and animals

Different for directional signage, plants and animals

l **If, no**

Please specify how..

m **Text supported by any visuals**

Yes

No

If yes, specify..

n **Enclosures where signage is absent**

II Enclosures

a **Maintenance**

Poor

Average

Good

Very good

Excellent

b **Type**

Natural/ Open Moat

Closed cage

c **Enclosure which attracts the visitor most**

d **Are these enclosures supported by educational material**

Yes

No

- e **If yes, please specify..**
- f **Enclosure facing maximum vandalism**
- g **Routing of enclosures**
(Take lay out of the zoo from the Director)

III For zoo keepers (during observation)

- a) **Name of the Enclosure**
- b) **Where is this animal from ?**
- c) **What is the difference between male and female**
- d) **What time do you feed them?**
MorningDayEveningNight
- e) **How many times do they take food**
OnceTwiceThrice
- f) **What kind of food do they take**
Do they fall sick
YesNo
- g) **If yes what kind of illness**
- h) **How do you know they are not well**
- i) **When was this zoo established**
- j) **Can I feed something to this animal?**
YesNo
If, no, why?

- k) **Can I touch the animal**
YesNo
If no why?

IV On the basis of these questions, observe....

Communication with the visitor

- Very Good
- Good
- Average
- Poor

Interest in communication

- Most
- less
- least

Knowledge on animal

- Very Good
- Good
- Average
- Poor

Zoo ethics sensitivity

- High
- Medium
- Low
- Least



V Zoo staff and visitor interaction

Nature of interaction

For general enquiry on directions

For knowledge on animals

To stop any vandalism

Nature of staff towards visitors

Alert

Helpful

Avoiding

Uninterested

Irritated

VI Visitor facilities

1 Canteen

Presentabsent

a If present, visitor responses

SatisfiedNot satisfied

b If not satisfied, specify reason...

2 Public amenities (drinking water, toilets ec..)

a PresentAbsent

b If present, condition

Very goodGoodAverageBadWorse

3 Open spaces to rest

Present Absent



Appendix II

Sample of Questionnaire for Zoo Directors/ Managers

Date of Visit:

Name of the zoo:

Location/ Place:

Name of the Director/Manager

How long have you been in the current zoo: less than a year; 1- 3 years, 4-6 years, 7 and above

1. **How long has the zoo been in existence?**
 - a) 10 years or less
 - b) 11 years- 20 years
 - c) 21 years+
2. **What are the existing and ongoing educational programmes and facilities?**
3. **What was the basis of the existing layout and flow of the zoo?**
 - a) based on various species
 - b) convenience of the visitors
 - c) popularity of certain animals
 - d) educational considerations
 - e) don't know/can't say
4. **Do you feel the existing signage is adequate?**

Yes/ no

- 4.1 If yes,**
- a) In terms of numbers
 - b) Placement
 - c) Content
- 5. What role do information centres play?**
- 6. How many people on an average visit the information centre monthly?**
- a) Less than 100
 - b) Between 100-200
 - c) 200-300
 - d) 300+
- 7. Is there any visitors' registers kept there for visitor's comments/observations?**
Yes/no
- 7.1 If yes, what are some general comments/observations?**
- 8. How many school visits do you expect every month?**
- a) less than 10
 - b) 11-20
 - c) 21-30
 - d) 31+
- 8.1 Are these visits free of cost for the groups?**
Yes/no
- 8.2 Are there guided tours for school children?**
Yes/no
- 8.3 What are the other facilities provided to school groups besides guided tours (if any)?**



9. Are there any guided tours for general public?

Yes/ no

9.1 If yes, how many such tours are organized in a day?

- a) Less than 5
- b) 6+
- c) Depending on the demand of the visitors

9.2 Are zoo guides especially trained and knowledgeable about various animals?

Yes/no

9.3 If yes, how many training programmes do you conduct in a year?

9.4 Could you please elaborate on kind of training programmes vis-à-vis various kinds of staff members?

9.5 Do you undertake any need assessment for training various genres of staff?

Yes/no

10. Do you have animal keeper talks for visitors?

Yes/no

10.1 Are such people formally trained/equipped in the job?

Yes/no

10.2 Is there a regularity in conducting such programmes, if yes, what is it?

- a) Once in a year
- b) Once in every 2-4 years
- c) It's not fixed
- d) Any other (please specify.....)

11. Are there any special programmes for various target groups commemorating certain occasions?

Yes/no

11.1 What are the commemorative programmes in an average year?

11.2 How are people informed about special programmes?

- a) Through signage
- b) Through pamphlets
- c) Through inquiry
- d) Through mass media

11.3 Do you undertake any formal feedback of such programmes?

Yes/no

12. Does your zoo have educational camps?

Yes / no

12.1 If yes, how are these organized?

- 1. By informing schools
- 2. By publicizing in the mass media
- 3. By circulating information within zoo premises
- 4. Any other (please specify)

12.2 Are there any regular slide shows?

Yes/no

12.3 If yes, what do they contain

12.4 Where are these slide shows developed?

Inhouse Outsourced

13. What kind of research is conducted in the zoo, if any?

- a) Structural
- b) On animals
- c) On management
- d) Visitor's perceptions



- 13.1 How are research findings used for improving the areas in question?**
- 14. Do you have any eco club?**
Yes/no
- 14.1 If yes, what are their activities?**
- 15 Do you organize talks and lectures by experts?**
Yes/no
- 15.1 If yes, how many such talks/lectures have been organized in the last three years and on what subjects?**
- 16. Are there any training programmes for zoo keepers, zoo staff in your zoo?**
Yes/no
- 17. Is there a specific officer assigned to undertake the job of zoo education?**
Yes/no
- 18. What is the average education of zoo keepers?**
- a) Never been to school
 - b) School drop out
 - c) Matriculation
 - d) Any other (please specify)
- 19. What is the average education of zoo staff?**
- a) Matriculation
 - b) Graduate
 - c) Any other (please specify)
- 20. What are the various publications/ merchandize brought out from your zoo?**
Regular Publications
Regular Publicity material
Merchandize

- 20.1 What are your suggestions for augmenting and improving the current publications/literature/merchandise?**
- 21. Are volunteer services available in your zoo?**
Yes/no
- 21.1 If yes, how do you inform people to join as volunteers?**
- a) Through publicity material available at the zoo
 - b) Through notifications in schools/colleges
 - c) Through mass media
 - d) Any other (please specify)
- 21.2 What type of work are volunteers involved in? Please specify.**
- 21.3 What kind of incentive is given to volunteers? Please specify.**
- 22. Is there any youth club and if yes what are the activities?**
- 23. Is your zoo equipped to undertake various activities involving people?**
Yes/no
- 23.1 If no what resource augmentation do you need?**
- 24 Are there any collaborations with Schools/NGOs/Corporate sector?**
Yes/no
- 24.1 If yes, what kind of collaboration is that?**
- 25 Does the zoo have a media policy?**
Yes/no
- 25.1 If yes, what does it contain?**
- 25.2 Are the media informed of various zoo activities in advance?**
Yes/no



- 25.3 Are journalists invited to visit the zoo for reportage?**
Yes/no
- 25.4 Do journalists call up for stories in normal times?**
Yes/no
- 25.5 Do journalists generally visit when there is a crisis in the zoo?**
Yes/no
- 25.6 Does the zoo director facilitate such visits?**
Yes/no
- 25.7 If yes, is a press note prepared for such occasions?**
Yes/no
- 25.8 What are your various suggestions for making the zoo visit a memorable and enjoyable experience for a visitor?**

Appendix III

Sample of Questionnaire for Zoo Keepers

(To assess their interest towards zoo education programmes and activities and limitations in the application)

For Animal Keepers

- **Educational Background**

School drop out

Matriculation

Intermediate & above

- **Years of Service**

Less than six months

6 months - 1 year

2 -5 years 5-10 years

Above 10 years

- **Daily Routine**

Enclosure cleaning

Animal feeding

Animal care

Visitor interaction

Anything else ,

Please specify....

- **Do you enjoy your work**

1. To a great extent

2. Some what

3. Its like any job

4. Don't know / can't say

- **Importance of zoos?**

For fun

For research

For education on conservation

For conservation for all

Anything else,

Please specify....



- **Which animal do you have the expertise of handling in?**
- **What challenges do you find in animal keeping?**
- **What kind of bond is expected from the animal keepers with animals**
 - Of a helper
 - Of a care taker
 - Of a parent with children
 - Don't know/ can't say
- **Is dealing with animals**
 - Very easy
 - Easy
 - Difficult
 - Very difficult
- **Does the visitor ask you questions ?**
 - Yes
 - No
- **What kind of information is generally required by the visitors?**
 - Animal Behaviour
 - Animal habits
 - Animal care / zoo management
 - Any thing else, Please specify....
- **What kind of problems do you face with respect to care of your animal?**
 - Enclosure maintenance
 - Food for animals
 - Health of animals
 - Visitor interference
 - Any other

- **Do you like to interact with visitors?**

Yes

No

- **If a visitor is feeding the animal then what do you do to stop them, and what do you do when they don't listen?**

1. Don't say anything and ignore
2. Tell them the reason of not doing that and stop them
3. Warn them to stop it or they will be punished
4. Any thing else, please specify....

- **Which enclosure do you like the most and which one is liked by the visitor most? What do you think can be the possible reason behind this liking?**

Possible Reasons:

- | | |
|--|-----------------------------------|
| 1. Exotic species | 2. Typical behaviour |
| 3. Because animal responds back on teasing | 4. It is attractive and dangerous |
| 5. Because the keeper narrates good story about them | 6. Design of the enclosure |
| 7. Anything else, please specify.... | |

- **In what way do you like to interact with visitors?**

At certain fixed time and arranged place in the zoo or Any time, Any place

- **What behaviour of the visitor irritates you?**

1. Asking too many questions
2. Asking questions when you are busy
3. Teasing and feeding animals
4. Shouting in the zoo
5. Any thing else, please specify....

- **If given a chance would you like to interact more with visitors and share your experiences with them?**



Appendix IV

Sample of Questionnaire for Education Officer

- **Age**
- **Educational Background**

Graduate	Post graduate	Ph.D or above
----------	---------------	---------------
- **Years of Service**

Less than six months	6 months -1 year	2 -5 years	5-10 years	Above 10 years
----------------------	------------------	------------	------------	----------------
- **Daily Routine**
- **What is the importance of the zoo?**

As a Fun place	For conservation of animals	
For conservation education	For research	All
- **Why do we need educational programmes in the zoo? (Prioritize your answer by writing 1,2,3.. against the options)**
 - To get more number of visitors
 - To spread the message of conservation
 - To popularize the zoo
 - To make zoo an unforgettable educational and entertainment experience
 - All
 - Any thing else, specify
- **What is the limitation of the zoo according to you in carrying out educational activities? (Please tick against appropriate answer/s)**

a) Funds	b) Staff	d) Inspirations)Space
f) Expertise	g) Controlling authority	Any thing else...(please specify

- **Annually how many meetings are arranged which involves all the staff of the zoo, for zoos betterment?**

None

Once a month

Once in two- three months

More that three in a year

- **Write three different activities you would like to do with the visitors coming to the zoo**

Name of the activity	Target group Children/ college group/ adults	Details of the activity	Limitation to carry out the activity (if any)

Appendix VI

List of zoos surveyed in different regions and their category

S.No	Name of the zoo	Category
1	Arignar Anna zoological Park, Chennai	Large
2	Nehru zoological Park, Hyderabad	Large
3	Sri Venkateswara Zoological Park, Tirupathi	Large
4	Sri Chamarajendra Zoological Park, Mysore	Large
5	National Park and Zoological Garden, Bangalore	Large
6	Thiruvananthapuram Zoo, Thiruvananthapuram	Large
7	State Museum and Zoo, Thrissur	Medium
8	Madras Crocodile Bank Trust, Chennai	Large
9	Indira Gandhi Zoological Park, Visakhapatnam	Large
10	V.O.C Park cum Mini Zoo, Coimbatore	Small
11	National Zoological Park, Delhi	Large
12	Lucknow Zoological Park, Lucknow	Large
13	Kanpur Zoological Park, Kanpur	Medium
14	Mahendra Choudhary Zoological Park, Chandigarh	Large
15	Sanjay Gandhi Zoological Park, Patna	Large
16	Alipore Zoological Garden, Kolkatta	Large



17	Calcutta Snake Park, Badu	Medium
18	Nandankanan Biological Park, Bhubaneshwar	Large
19	Assam State zoo cum Botanical Garden, Guwahati	Large
20	Padmaja Naidu Himalayan Zoological Park, Darjeeling	Small
21	Himalyan Zoological Park, Gangtok	Mini
22	Sepahijala Zoological Park, Tripura	Large
23	Biological Park, Itanagar	Small
24	Kamala Nehru Zoological Garden, Ahmedabad	Large
25	Sundervan Nature Discovery Centre, Ahmedabad	Mini
26	Sakkarbaug Zoo, Junagadh	Large
27	Sayajibaug Zoo, Vadodara	Medium
28	Indroda Nature Park, Gandhinagar	Small
29	Udaipur Zoo, Udaipur	Small
30	Jaipur Zoo, Jaipur	Medium
31	Kanan Pendari Zoo, Bilaspur	Mini
32	Maitri Baagh Zoo, Bhillai	Small
33	Rajiv Gandhi Zoological Park, Pune	Large
34	Gandhi Zoological Park, Gwalior	Medium
35	Bondla Zoo, Goa	Small
36	Bahinbai Chaudhary Pranisanghralay, Pune	Small
37	Van Vihar National Park, Bhopal	Small

Appendix VII

Name and category of zoos where visitor survey was carried out

S. No	Zones	Zoos	Category
	North		
1		National Zoological Park, Delhi	Large
2		Lucknow Zoological Park, Lucknow	Large
3		Sanjay Gandhi Zoological Park, Patna	Large
	South		
4		Arignar Anna Zoological Park, Chennai	Large
5		Nehru Zoological Park, Hyderabad	Large
	East & North East		
6		Padmaja Naidu Himalayan Zoological Park, Darjeeling	Small
7		Himalyan Zoological Park, Gangtok	Mini
8		Alipore Zoological Garden, Kolkatta	Large
9		Nandankanan Biological Park, Bhubaneshwar	Large
10		Assam State Zoo cum Botanical Garden, Guwahati	Large
	West		
11		Kamala Nehru Zoological Garden, Ahmedabad	Large
12		Jaipur Zoo, Jaipur	Medium
	Central		
13		Van Vihar National Park, Bhopal	Small
14		Nisargakavi Bahinabai Choudhary Pranisanghralay, Pune	Large
15		Kanan Pandari Zoo, Bilaspur	Mini
16		Veer mata Jijabai Bhosale Udyan and Zoo, Mumbai	Medium



Appendix VIII

Sample of Questionnaire for Visitor Survey

Visitor Survey form

Objective:

- To know the visitor composition, educational status, frequency, duration and time of visit to the zoo.
- To know visitor behavior towards animals in the zoo.
- To know their preferences of programs and activities in the zoo

Dear Respondent,

Thank you for agreeing to complete this survey. It should take approximately ten minutes of your time to complete it. The survey is a part of a collaborative project of Central Zoo Authority (CZA) and Centre for Environment Education(CEE). The survey is to understand more about visitors to the zoo so as to plan an effective and appropriate educational programme during their visit to the zoo.

The results of the survey will be a part of the " Master Education Plan for Zoos of India", being developed by CZA and CEE.

The Centre for Environment Education is a national institution engaged in developing programmes and material to increase awareness about the environment and sustainable development.

CEE was established in 1984 as a Centre of Excellence in environmental education, supported by Ministry of Environment and Forests(MoEF), Government of India. It is affiliated to Nehru Foundation for Development

- **Survey No.** _____
- **Date/Time** _____
- **Name of the zoo** _____
- **Interviewer** _____

Note for the interviewer: To undertake the survey preferably at the following points: After about 75% of the zoo area covered by a visitor/ in cafeteria/parks within the zoo. The idea behind this is to talk to the respondent when he has already seen the entire zoo or is about to complete it.

I Name of the respondent

II Gender

M

F

III Age

9-12

13-19

20-35

36-50

51 and above

IV Education

Never been to school

School drop out

SSC/HSC

Undergraduate

Graduate/Postgraduate

V Occupation

Salaried

Business

Retired

Student

Teacher

Others



1) You have come to the zoo

a) With family

b) With friends

c) Accompanying a guest

2) Was the visit to the zoo

a) Your own choice

b) Sponsored trip

c) Family Program

d) At the instance of friends/guests

3) Is this your first visit to the zoo?

Yes

No

4) Did you enjoy your visit to the zoo?

Yes

No

5) What is your purpose of visit to the zoo?

Tick mark (✓) which are the three strongest reasons

- | | |
|---------------------------------|--------------------------|
| a) To enjoy outing with family | <input type="checkbox"/> |
| b) Fond of animals | <input type="checkbox"/> |
| c) To learn about animals | <input type="checkbox"/> |
| d) To entertain kids | <input type="checkbox"/> |
| e) To see a new place | <input type="checkbox"/> |
| f) Others (please specify.....) | <input type="checkbox"/> |

6) Do you visit the zoo any time of the year?

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

7) How often do you visit the zoo?

Often	Once in a few months	Whenever we have visitors from other places	Rarely
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



8) Among a range of activities, which one activity would you prefer to do the most? (Tick mark (✓) in order of preference of top three)

- i) Shopping
- ii) Watching movie at home
- iii) Watching movie in a theatre
- iv) Be in an entertainment park
- v) Be in a zoo
- vi) Be at a friend's place
- vii) Any other (please specify)

9) What motivated you to visit the zoo? (tick mark (✓) the most motivating top three factors)

- a) Wildlife films/ documentaries on T.V
- b) Lectures on wildlife
- c) Reading wildlife related books
- d) Is one of the important sites of the city
- e) Suggestion by friends

- f) As there was no other place to go
- g) Insistence of kids
- h) Out of town guests
- i) Any other reason, Please specify.....

10) Do you watch channels like the National Geographic, Discovery etc?

- Yes No

10 a) If yes, do you think the channel/s have increased your interest in the wild life?

- a) To a great extent
- b) To some extent
- c) No effect
- d) Don't know/can't say

11) Did you go around the entire zoo?

- Yes No



11a) If no, which are the sections you visited?

- i)
- ii)
- iii)

11b) Why did you visit these sections only?

- a) Nearest to the gate
- b) To watch my favorite animal
- c) Lack of time
- d) zoo is too large

12) How did you move around in the zoo?

- a) On foot
- b) On Battery operated vehicle
- c) Others, please specify.....

13) Are the signage, directions/ labels and information provided by the zoo adequate?

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

14) Is there a suggested planned route, which people are supposed to take to facilitate the visitors?

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

14a) Is this route adequately marked?

Yes

No

14b) Do you think the way the zoo is laid out, it makes it easy to see the animals you want to see?

Yes

No

14 c) If no, what in your view is the problem with the layout of the zoo?

.....

15) How much time did you spent at the zoo?

About one hour

2-3 hrs

4-5 hrs

more than 5hrs

16) Which animals interested you the most?

17) What did you enjoy doing the most in the zoo?

a) Watching animals

b) Relaxing

c) Moving around with your family

d) Other programs provided by the zoo about animals

e) Any Other (please specify.)-----



- 17 a) One thing that you liked about the zoo and why?
b) One thing that you disliked about the zoo and why?

18) How much money did you spend at the zoo?

Less than Rs.50/-

Rs. 51-100

Rs.101-Rs.200

Rs.201 and above

18 a) What did you spend the money on?

- | | |
|-------------------------------|------------------------|
| a) Commuting | b) Zoo ticket |
| c) Refreshments | d) Purchase of memento |
| e) Any other (please specify) | |

18b) What kind of programmes and activities and facilities do you think can improve the zoo?

- a) Talks by animal keepers
- b) Guided tour of the zoo
- d) Activities for children and adults
- e) Wildlife film shows
- f) Binoculars and cameras on hire
- g) Zoo publications and merchandise (like, guide map, books, posters,
- h) Souvenir shop in the zoo
- i) Personalized event (for eg: venue for birthday parties)
- j) Talks /lectures/ slide shows by wildlife experts
- k) Camping facility

19) Which areas in the zoo do you think need to be improved and maintained well?

Animal enclosures

Public amenities

Canteen

19 a) Why do you say so?

.....

**20) How would you evaluate the zoo for being clean and well maintained on a scale of 1-5?
 (Tick mark in the relevant box on your assessment, 5 being the highest and 1 being the lowest)**

1

2

3

4

5

21) How would you like to support the zoo?

a) By donating funds to the zoo

b) By adopting animals

c) By working for the zoo as a volunteer

d) Any other (please specify)



Appendix IX

RECOGNITION OF ZOO RULES 1992

Notification

10. Standards and norms subject to which recognition under section 38H of the Act shall be granted:

The Central Zoo Authority shall grant recognition with due regard to the interests of protection and conservation of wild life, and such standards, norms and other matters as are specified below :

General :

- (1) The primary objective of operating any zoo shall be the conservation of wildlife and no zoo shall take up any activity that is inconsistent with the objective.
- (2) No zoo shall acquire any animal in violation of the Act or rules made thereunder.
- (3) No zoo shall allow any animal to be subjected to the cruelties as defined under the Prevention of Cruelty to Animals Act, 1960 (59 of 1960) or permit any activity that. exposes the animals to unnecessary pain, stress or provocation, including use of animals for performing purposes.
- (4) No zoo shall use any animal, other than the elephant in plains and yak in hilly areas for riding purposes or draughting any vehicle.
- (5) No zoo shall keep any animal chained or tethered unless doing so is essential for its own well being.
- (6) No zoo shall exhibit any animal that is seriously sick, injured or infirm.
- (7) Each zoo shall be closed to visitors at least once a week.
- (8) Each zoo shall be encompassed by a perimeter wall at least two metres high from the ground level. The existing zoos in the nature of safaries and deer parks will continue to have chain link fence of appropriate design and dimensions.
- (9) The zoo operators shall provide a clean and healthy environment in the zoo by planting trees, creating green belts and providing lawns and flower beds etc.
- (10) The built up area in any zoo shall not exceed twenty five per cent of the total area of the zoo. The built up area includes administrative buildings, stores, hospitals, restaurants, kiosks and visitor rest sheds etc., animal houses and 'pucca' roads.
- (11) No-zoo shall have the residential complexes for the staff within the main campus of the zoo. Such complex, if any, shall be separated from the main campus of the zoo by a boundary wall with a minimum height of two metres from the ground level.

Administrative and Staffing Pattern:

- (12) Every zoo shall have one full-time officer in-charge of the zoo. The said officer shall be delegated adequate administrative and financial powers as may be necessary for proper upkeep and care of zoo animals.
- (13) Every large and medium zoo shall have at least one full-time curator having the sole responsibility of looking after the upkeep of animals and maintenance of animal enclosures.
- (14) Each large zoo shall have at least two full-time veterinarians and medium and small zoo shall have at least one full-time veterinarian. The mini zoo may at least have arrangement with any outside veterinarian for visiting the zoo every day to look after the animals.

Animal Enclosures - Design, Dimensions and other Essential Features:

- (15) All animal enclosures in a zoo shall be so designed as to fully ensure the safety of animals, caretakers and the visitors. Stand of barriers and adequate warning signs shall be provided for keeping the visitors at a safe distance from the animals.
- (16) All animal enclosures in a zoo shall be so designed as to meet the full biological requirements of the animals housed therein. The enclosures shall be of such size as to ensure that the animals get space for their free movement and exercise and the animals within herds and groups are not unduly dominated by individuals. The zoo operators shall take adequate safeguards to avoid the animals being unnaturally provoked for the benefit of viewing by public and excessive stress being caused by visibility of the animals in the adjoining enclosures.
- (17) The zoo operators shall endeavour to simulate the conditions of the natural habitat of the animal in the enclosures as closely as possible. Planting of appropriate species of trees for providing shade and constructing shelters which would merge in the overall environment of the enclosures, shall also be provided. Wherever it is technically feasible, only moats shall be provided as enclosure barriers.
- (18) The enclosures housing the endangered mammalian species, mentioned in Appendix I to these rules, shall have feeding and retiring cubicles/cell of minimum dimensions given in the said appendix. Each cubicle/cell shall have resting, feeding, drinking water and exercising facilities, according to the biological needs of the species. Proper ventilation and lighting for the comfort and well being of animals shall be provided in each cell /cubicle /enclosure.
- (19) Proper arrangement of drainage of excess of water and arrangements for removal of excreta and residual water from each cell /cubicle /enclosure shall be made.
- (20) Designing of any new enclosure for endangered species shall be finalized in consultation with the Central Zoo Authority.

**Hygiene, Feeding and Upkeep:**

- (21) Every zoo shall ensure timely supply of wholesome and unadulterated food in sufficient quantity to each animal according to the requirement of the individual animals, so that no animal remains undernourished.
- (22) Every Zoo shall provide for a proper waste disposal system for treating both the solid and liquid wastes generated in the zoos.
- (23) All left over food items, animal excreta and rubbish shall be removed from each enclosure regularly and disposed of in a manner congenial to the general cleanliness of the zoo.
- (24) The zoo operators shall make available round the clock supply of potable water for drinking purposes in each cell /enclosure /cubicle.
- (25) Periodic application of disinfectants in each enclosure shall be made according to the directions of the authorised veterinary officer of the zoo.

Animal Care, health and Treatment:

- (26) The animals shall be handled only by the staff having experience and training in handling the individual animals. Every care shall be taken to avoid discomfort, behavioural stress or physical harm to any animal.
- (27) The condition and health of all animals in the zoo shall be checked every day by the person in-charge of their care. if any animal is found sick, injured, or unduly stressed the matter shall be reported to the veterinary officer for providing treatment expeditiously.
- (28) Routine examination including parasite checks shall be carried out regularly and preventive medicines including vaccination be administered at such intervals as may be decided by the authorised veterinary officers.
- (29) The zoo operators shall arrange for medical check-ups of the staff responsible for upkeep of animals at least once in every six months to ensure that they do not have infections of such diseases that can infect the zoo animals.
- (30) Each zoo shall maintain animal history sheets and treatment cards in respect of each animal of endangered species, identified by the Central Zoo Authority.

Verterinary Facilities:

- (31) Every large and medium zoo shall have full-fledged veterinary facilities including a properly equipped veterinary hospital, basic diagnostic facilities and comprehensive range of drugs. Each veterinary hospital shall have isolation and quarantine wards for newly-ariving animals and sick animals. These wards should be so located as to minimise the chances of infections spreading to other animals of the zoo.

- (32) Each veterinary hospital shall have facilities for restraining and handling sick animals including tranquilizing equipments and syringe projector. The hospital shall also have a reference library on animal health care and upkeep.
- (33) The small and mini zoos, where full-fledged veterinary hospital is not available, shall have at least a treatment room in the premises of the zoo where routine examination of animals can be undertaken and immediate treatment can be provided.
- (34) Every zoo shall have a post-mortem room. Any animal that dies in a zoo shall be subjected to a detailed post-mortem. and the findings recorded and maintained for a period of at least six years.
- (35) Each zoo shall have a graveyard where the carcasses of dead animals can be buried without affecting the hygiene and the cleanliness of the zoo. The large and medium zoos shall have an incinerator for disposal of the carcasses and other refuse material.

Breeding of Animals:

- (36) Every zoo shall formulate a programme for captive breeding of only such animals as are approved by the Central Zoo Authority for that zoo. They shall abide by the guidelines and directives of the Central Zoo Authority in this regard.
- (37) Every zoo shall keep the animals in viable, social groups. No animal will be kept without a mate for a period exceeding one year unless there is a legitimate reason for doing so or if the animal has already passed its prime and is of no use for breeding purposes. In the event of a zoo failing to find a mate for any single animal within this period, the animal shall be shifted to some other place according to the directions of the Central Zoo Authority.
- (38) No zoo shall be allowed to acquire a single animal of any variety except when doing so is essential either for finding a mate for the single animal housed in the said zoo or for exchange of blood in a captive breeding group.
- (39) Every zoo shall take up regular exchange programmes of animals so as to prevent the traits or ill effects of inbreeding. To achieve this objective each zoo shall maintain a stud book in respect of every endangered species.
- (40) To safeguard against uncontrolled growth in the population of prolifically breeding animals, every zoo shall implement appropriate population control measures like separation of sexes, sterilization, vasectomy, tubectomy and implanting of pellets etc.



(41) No zoo shall permit hybridization either between different species of animals or different races of the same species of animals.

Maintenance of Records and Submission of Inventory to The Central Zoo Authority:

(42) Every zoo shall keep a record of the birth, acquisitions, sales, disposals and deaths of all animals. The inventory of the animals housed in each zoo as on 31st March of every year shall be submitted to the Central Zoo Authority by 30th April of the same year.

(43) Every zoo shall also submit a brief summary of the death of animals in the zoo for every financial year, along with the reasons of death identified on the basis of post-mortem reports and other diagnostic tests, by 30th April of the following year.

(44) Every zoo shall publish an annual report of the activities of the zoo in respect of each financial year. The copy of the said annual report shall be made available to the Central Zoo Authority, within two months, after the end of the financial year. The report shall also be made available to the general public at a reasonable cost.

Education and Research:

(45) Every enclosure in a zoo shall bear a sign board displaying scientific information regarding the animals exhibited in it.

(46) Every zoo shall publish leaflets, brochures and guidebooks and make the same available to the visitors, either free of cost or at a reasonable price.

(47) Every large and medium zoo shall make arrangements for recording, in writing, the detailed observations about the biological behaviour, population dynamics and veterinary care of the animals exhibited as per directions of the Central Zoo Authority so that a detailed database could be developed. The database shall be exchanged with other zoos as well as the Central Zoo Authority.

Visitor Facilities:

(48) The zoo operators shall provide adequate civic facilities like toilets, visitor sheds, and drinking water points at convenient places in the zoo for visitors.

(49) First-aid equipments including anti-venom shall be readily available in the premises of the zoo.

(50) Arrangements shall be made to provide access to the zoo to disabled visitors including those in the wheel chair.

Development and Planning:

(51) Each zoo shall prepare a long-term master plan for its development. The zoo shall also prepare a management plan, giving details of the proposal and activities of development for next six years. The copies of the said plans shall be sent to the Central Zoo Authority.

Appendix X

Chronology of Recommendations of Indian Zoo meetings with reference to Zoo Education

1955

All India Zoo Superintendent's Meeting no specific recommendation on education was made but in the notes and through the text the objective of zoo as educational institutions was clearly stated.

1956

First meeting of Zoo Wing of Indian Board for Wildlife held 16 May 1956, Mysore. Education as such as not discussed but Agenda Item 10 dealt with Labels for the Zoos. The Superintendent of Trichur Zoo explained the educative value of properly prepared labels giving data about the animals and birds and the zoos. The labels, he said, could be prepared in enamel and should give all the information, i.e. name of the animals, description about its habits, its feed and other special features, etc.

The Committee approved the proposal and recommended that such labels should be printed giving the information and should be sealed with transparent sheet and displayed at appropriate places, protected from rain and sun.

1973

Management of Zoo in India: Report of the Expert Committee on Zoos, p.23

The completed section on Education in this Report is given below:

Ref: Educational Activities in Zoos

- 3.1 The increasing role of zoos in imparting education in Natural History to visitors has been recognised in many zoos in the United Kingdom, Europe, United States of America and Japan. An international zoo education officers' conference is held annually in Europe and USA. In most of these zoos regular instructions in Natural History are imparted to groups of students etc. in 'zoo schools' as well as in front of the enclosures. Various



methods like lectures, guided tours, encouragement of independent study by individuals are also adopted. In the USA there are educational centres in zoos where guides and teachers are also engaged on a voluntary basis.

3.2 Such educational programmes serve to:

- (i) impart instructions in Natural History which supplements in an interesting manner classroom lectures;
- (ii) arouse the interest of student in not only the animals displayed but also in their evolution, ecology and conservation;
- (iii) shift emphasis from the purely entertainment value of the animal viewed, which lowers its natural dignity in the eyes of the viewer, to an awareness of its functions in the scheme of nature.

The programmes include bringing out publications further above projects.

3.3 In Indian zoos, no distinct educational facilities are provided at present. The above mentioned objectives are served to a limited extent in some zoos with the help of charts, boards, radio and television programmes.

3.4 It is, therefore, recommended that in Indian Zoos:

- (a) Natural History education centres be set up
- (b) Zoos should be placed on the educational excursion curriculum of schools and colleges (teaching biology);
- (c) Special publications oriented towards these objectives be issued;
- (d) Special educational charts highlighting Natural History should be put up in the zoos;
- (e) Audio-visual aids should be collected in the zoos to be made use of in various educational programmes in the zoo and in educational institutions;
- (f) Zoos should employ special educational programme organizers who should collect necessary literature, films and other material and use these for promoting love and knowledge of animal and plant life in general.

1982

New Delhi Indian Zoo Directors' Meeting no specific mention of education

1986

Silver Jubilee of National Zoological Park unable to find specific reference to discussion on Education but there was at least one paper presented on zoo education.

1988

1988 Resolutions of the Zoo Directors at Trivandrum Meeting June 23-24 with reference to Education and related subjects.

2. It is recommended that all zoos should conduct Visitors' Surveys.
4. It is recommended that all zoos should adopt creation of awareness for wildlife and their environment as one of their chief objectives through education and interpretation. In this regards all **zoos must develop a separate education wing in the zoo.**

Reference: ZOOS' PRINT, Vol.4, No.1, January 1989 p.42

1990

Role of Zoos in Wildlife Management and Indian Zoo Directors Meeting, Sakkarbaug Zoo, January 1990.

A protocol is to be followed for choosing the **Animal of the Year** and for conducting the campaign to promote and assist in the conservation of the selected species. The protocol is listed under the Proceedings of the 6th Meeting of Indian Zoo Directors, Government of India should be moved to give official recognition to the Animal of Year campaign and to utilize it as a 'flagship species' for the national conservation strategy of the coming year.

There should be a **National Zoo Week in the first week of December.** Some guidelines to be followed in this regard are listed in the Proceedings. Government of India should be moved to give official recognition to this week.

ZOOS' PRINT April 1990 Vol. V No.4, pp6

1991 Zoo Act (included in Amendments to Wildlife (Protection) Act 1992

Ref. objectives of Central Zoo Authority 38(c)i Coordinate research in captive breeding and educational programmes for the purposes of zoos.

Ref: Gazette of India, 1991

**1991**

Workshop Perspectives in Zoo Management, National Zoological park, October 30 - November 1, 1991, Indian Zoo Directors Meeting.

It was recommended that **each major zoo should have an Education Wing under the charge of an Education Officer. Even in smaller zoos, one officer should be trained in education.**

Ref. (1991) Perspectives in Zoo Management, National Zoological park, New Delhi.

1992

Sixth National Conference of Indian Zoo Directors held at Nehru Zoological Park, Hyderabad, 15-16 February 1992. Resolutions taken.

The Conference unanimously resolves that conservation education should be given priority in the management of zoos and to that end the zoo management should evolve programmes to educate visiting public on ecology and on the role of animals in survival of man.

Ref: ZOOS' PRINT Vol. VII, No.5, May 1992. p.6

1992

Recognition of Zoo Rules, 1992

EDUCATION AND RESEARCH:

- 45) Every enclosure at zoo shall bear a sign board displaying the scientific information regarding the animals exhibited in it.
- 46) Every zoo shall publish leaflets, brochures and guidebooks and make the same available to the visitors either free or cost or at a reasonable price.

Ref. Gazette of India, Extra-ordinary, 4 August 1992, Part II, Section 3, Subsection 1

1992

All India Zoo Directors Conference held in Madras, Arignar Anna Zoo, May

6. Not much work has been done in Indian zoos in the field of education and interpretation, which is mainly due to constraint in obtaining funds. All zoos should strive to give adequate attention to this aspect. It was recommended that the CZA may help zoos to develop interpretation programmes and provide for necessary zoo education.

Ref: ZOOS' PRINT Vol. VIII, No.9, September 1993, pp 20-21

1994

Indira Gandhi's Vision on Wildlife Conservation: The Zoo as one such Instrument Education.

2. Research on visitors management is also very crucial for management of zoos. Efforts to record visitors' response to management and properly documenting the information should be made.
3. Proper signages should be developed and projected at such places whereby the visitor to the zoo is able to get detailed information of the species.
6. Not much work has been done in Indian zoos in the field of education and interpretation, which is mainly due to constraint in obtaining funds. All zoos should strive to give adequate attention to this aspect. It was recommended that the CZA may help zoos to develop interpretation programmes and provide for necessary zoo education.

Ref: Anon. (1994). Proceedings of the symposium and workshop of "Scientific Management as an Instrument for Conservation of Wildlife" 29-31 October 1994, Central Zoo Authority, Coimbatore.

1996

CZA/INDA Meeting. Recommendations of Zoo Directors Meeting in New Delhi, 19-21 November, 1996.

(IV) Education:

1. The primary role of zoos in a country like India where million people visit zoo every year is to create an empathy amongst visitors towards all forms of life and to convince them to live in harmony with nature. A systematic zoo education programme in every zoo is a must.



2. To convey the message of conservation amongst the visitors, every zoo should have a library, classroom, video film, screening facilities and zoo souvenir shops. Those who can afford could have computer facilities and auditorium facilities.
3. Every zoo should attempt to establish a Youth Club involving local students and introduce them to the field zoo management.
4. Activities such as painting, elocution, essay writing and visit to nature areas should be organised periodically.
5. Zoo staff, particularly executive level and supervisory level, should be trained in communication skills, the skill could be passed by them to keepers level also.

Ref. : ZOOS' PRINT, Vol. XII, Number 1, January 1997

1998

National Zoo Policy

3.8 Education and Outreach Activity (www.cza.nic.in)

1999

Kanpur: Zoo as Instrument of Conservation Workshop to suggest ways to implement the National Zoo Policy, 4-6 April 1999.

Education and awareness

29. Each zoo should develop an education programme based on proper evaluation of local needs.
30. An education officer or a trained officer should be entrusted the task of implementation of the programme.
31. Zoo should have linkages with existing eco clubs/nature clubs for promotion of educational material and programmes in comprehensive manner.
32. Evaluation and monitoring should be built in each programme for its continuous upgradation.
33. Zoos should develop mechanism of exchanging ideas, information, outputs and products with all zoos.
34. Each zoo should create mechanism for capacity building of the zoo staff in organising educational programmes.

Appendix XI

Websites and Zoo Networks

Some International Zoo Websites

	Name	Place	Website
1	Auckland Zoo	New Zealand	www.aucklandzoo.co.nz
2	Adelaide Zoo	Australia	www.adelaidezoo.com.au
3	Antwerp Zoo	Europe	www.zooantwerpen.be
4	Artis Zoo	Netherlands	www.artis.nl
5	Australia Zoos	Australia	www.australiazoo.com.au
6	Berlin Zoo	UK	www.zoo-berlin.de/en.html
7	Birmingham Zoo	USA	www.birminghamzoo.com
8	Bowmanville Zoo	Canada	www.bowmanvillezoo.com
9	Bristol Zoo Gardens	UK	www.bristolzoo.org.uk
10	Bronx Zoo	USA	www.bronxzoo.com
11	Brookfield Zoo	USA	www.brookfieldzoo.org
12	Calgary Zoo, Botanical Garden & Prehistoric Park	Canada	www.calgaryzoo.org
13	Central Zoo	USA	www.centralparkzoo.com
14	Chester Zoo	UK	www.chesterzoo.org
15	Chevron Open Mind School Program	Canada	www.chevronopenminds.ca
16	Cincinnati Zoo & Botanical Garden	USA	www.cincyzoo.org
17	Cleveland Metro Park	USA	www.clemetzoo.com
18	Cologne Zoo	Europe	www.zoo-koeln.de
19	Columbus Zoo	USA	www.columbuszoo.org
20	Denver Zoo	USA	www.denverzoo.org



21	Disney's Animal Kingdom	USA	http://disneyworld.disney.go.com/wdw/parks/parkLanding?id=AKLandingPage
22	Dudley Zoo	UK	www.dudleyzoo.org.uk
23	Durrell Wildlife Conservation Trust	UK	www.durrellwildlife.org
24	Edinburgh Zoo	UK	www.edinburghzoo.org.uk
25	Gembira Loka Zoo	Indonesia	www.joglosemar.co.id/diparta_ygy/zoo.html
26	Gladys Porter Zoo	USA	www.gpz.org
27	Johannesburg Zoo	South Africa	www.jhbzoo.org.za
28	Jurong Bird Park	Singapore	www.birdpark.com.sg
29	Los Angeles zoo	USA	www.lazoo.org
30	Marwell Zoological Park	UK	www.marwell.org.uk
31	Melbourne Zoo	Australia	www.zoo.org.au/MelbourneZoo
32	Munster Zoo(Allwetter Zoo)	Europe	http://www.allwetterzoo.de
33	Nashville Zoo	USA	www.nashvillezoo.org
34	National Zoological Gardens of South Africa	South Africa	www.zoo.ac.za
35	Ocean Park	Hong Kong	www.oceanpark.com.hk
36	Paignton Zoo	UK	www.paigntonzoo.org.uk
37	Papanack Park Zoo	Canada	www.papanack.com
38	Perth Zoo	Australia	www.perthzoo.wa.gov.au
39	Rotterdam Zoo	Netherlands	www.rotterdamzoo.nl
40	Royal Botanic Gardens	UK	www.kew.org
41	Sandiego Zoo	USA	www.sandiegozoo.org
42	Santa Barbara Zoo	USA	www.santabarbarazoo.org , www.sbzoo.org

43	Singapore Science Centre	Singapore	www.science.edu.sg/ssc/index.jsp
44	Singapore Night Safari	Singapore	www.nightsafari.com.sg
45	Singapore Zoo	Singapore	www.zoo.com.sg
46	Smithsonian National Zoological Park	USA	http://nationalzoo.si.edu
47	St. Louis Zoo	USA	www.stlzoo.org
48	Taipei Zoo	Taiwan	http://english.taipei.gov.tw/zoo
49	Taronga Zoo	Australia	www.zoo.nsw.gov.au
50	The Belize Zoo	Central America	www.belizezoo.org
51	The Biblical Zoo	USA	www.jerusalemzoo.org.il/len
52	The Maryland Zoo	USA	www.marylandzoo.org
53	The Phoenix Zoo	USA	www.phoenixzoo.org
54	Toledo Zoo	USA	www.toledofoo.org
55	Toronto Zoo	Canada	www.torontozoo.com
56	Twycross Zoo	UK	www.twycrosszoo.com
57	Victoria Zoo	Australia	www.zoo.org.au
58	Vienna Zoo	Europe	www.zoovienna.at/e/index.html
59	Wellington Zoo	New Zealand	www.wellingtonzoo.com
60	Wildfowl and Wetlands Trust	UK	www.wwt.org.uk
61	Wildlife Conservation Society	USA	www.wcs.org
62	Zoo Melaka	Malaysia	www.zoomelaka.gov.my
63	Zoological Society of London (ZSL)	UK	www.zsl.org/zsl-london-zoo
64	Zurich Zoo	Switzerland	www.zoo.ch



Some Zoo Education Networks

1	African Association of Zoological Gardens and Aquaria	PAAZAB	www.paazab.com
2	American Association of Zoo Veterinarians	AZA	www.aza.org
3	Australian Regional Association of Zoological Parks and Aquaria	ARAZPA	www.arazpa.org.au
4	Botanic Gardens Conservation International	BGCI	www.bgci.org.uk
5	British and Irish Association of Zoos and Aquariums	BIAZA	www.biaza.org.uk
6	Central Zoo Authority	CZA	www.cza.nic.in
7	Colombian Association of Zoos and Aquariums	ACOPAZOA	www.acopazoa.zoobaq.org
8	Conservation Breeding Specialist Group of the IUCN/SSC	CBSG	www.cbsg.org
9	Eurasian Regional Association of Zoos and Aquariums	EARAZA	www.zoo.ru
10	European Association of Zoos and Aquaria	EAZA	www.eaza.net
11	International Zoo Educators Association	IZE	www.ize.net
12	Japanese Association of Zoos and Aquariums	JAZA	www.jazga.or.jp
13	Malaysian Association of Zoological Parks and Aquaria	MAZPA	www.mazpa.org.my
14	South Asian Zoo Association for Regional Cooperation	SAZARC	www.zooreach.org
15	South East Asian Zoos Association	SEAZA	www.seaza.org
16	The World Conservation Union (formerly called International Union of Nature Conservation)	IUCN	www.iucn.org
17	Wildlife Information Network	WIN	www.wildlifeinformation.org
18	World Association of Zoos and Aquariums	WAZA	www.waza.org
19	WWF-The Global Conservation Organization	WWF	www.wwf.org
20	Zoo Outreach Organization	ZOO	www.zooreach.org

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Alipore Zoological Garden, Kolkatta, Arignar Anna Zoological Park, Chennai, Assam State Zoo cum Botanical Garden, Guwahati, Aurangabad Municipal Zoo, Bahinabai Choudhary Pranisangrahalaya, Banerghatta Biological park, Biological Park, Itanagar, Bondla Zoo, Goa, Calcutta Snake Park, Badu 24 Pargana (N), Crocodile farm, Amaravathi nagar, Deer Park, Chittoor, Deer Park, Donimalai, Deer park, Moti bagh, Punjab, Gandhi Zoological Park, Gwalior, Hill palace Zoo, Ernakulam Himalyan Zoological Park, Gangtok, Himayath Sagar Mini Zoo, Andhra Pradesh, Indira Gandhi Zoological Park, Visakhapatnam, Indroda Nature park, Gandhi Nagar, Jaipur Zoo, Jaipur, Jhargram Mini Zoo, Medinipur, Kamala Nehru Zoological Garden, Ahmedabad, Kanan Pandari Zoo, Bilaspur, Kanpur Zoological Park, Kanpur, Kesoram Cement Deer Park Kinnerasani Deer Park, Kuanria Deer Park, Orissa, Lucknow zoological Park, Lucknow, Madras Crocodile Bank Trust, Chennai, Maharajbag Zoo, Nagpur, Mahendra Choudhary Zoological Park, Chandigarh, Maitri Baagh Zoo, Bhillai, Mini zoo, Bhiwani, Mini Zoo, Haddo, Mrig Vihar, Almora, Nandankanan Biological Park, Bhubaneshwar, Nandanvan, Raipur, National Park and Zoological Garden, Bangalore, National zoological Park, Delhi, Nehru Zoological Park, Hyderabad, Nisargakavi Bahinabai Choudhary Pranisangrahalaya, Pune, Padmaja Naidu Himalayan Zoological Park, Darjeeling, Pilikula Wildlife Safari, Mangalore, Pillalamarri Deer Park, Mehboobnagar, Rajiv Gandhi Zoological Park, Pune, Rajkot Minicipal Corp. Zoo, Rajkot, Rohtak Small Zoo, Rohtak, Sakkarbaug Zoo, Junagadh, Sanjay Gandhi Zoological Park, Patna, Sayajibaug Zoo, Vadodara, Sepahijala Zoological Park, Tripura, Sri Chamarajendra Zoological Park, Mysore, Sri Venkateswara Zoological Park, Tirupathi, State Museum and Zoo, Thrissur, Sundervan Nature Discovery Centre, Ahmedabad, Thiruvananthapuram Zoo, Thiruvananthapuram, Tungabhadra Mini Zoo, Paloncha, Udaipur Zoo, Udaipur, Van Vihar National Park, Bhopal, Veermata Jijabai Bhosale Udyan and Zoo, Mumbai, V.O.C Park Mini Zoo, Coimbatore, West Bengal Snake Park Laboratory, Badu, Wildlife Conservation Centre, Moti jharan, Sambalpur

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