SOCIAL OBLIGATION AND ROLE OF GOVERNMENT IN CREATING FUTURE ZOOS FOR RECREATION, EDUCATION AND SCIENTIFIC RESEARCH WITH SIGNIFICANCE FOR WILDLIFE CONSERVATION

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Introduction

From the earliest times "governments" — in their many forms — have started animal collections. In ancient times, "government" was in fact the King or Emperor, who initiated animal collections for a variety of reasons, — for intellectual curiosity, for demonstrating power and prestige, for hunting, or for public or private spectacle or entertainment. Examples of these reasons exist in the literature of India, South-east Asia, China, Europe and even in the Americas many centuries ago.

Other individuals or institutions who could afford to do so also kept collections of animals for many of the same reasons over the centuries. In the last two centuries, democratic governments at the national, state, city, and even small town level have taken responsibility for starting zoos. In the beginning their reasons weren't very different from those of the monarchies but as we approach the present, in the last few years of the last two decades, the motive for starting zoos increasingly has been for the purpose of conservation and its affiliates, research and education.

With increasing reduction and fragmentation of habitat, and concomitantly small and vulnerable populations of wild animals which live therein, the various roles of *ex situ* breeding facilities including and especially zoos have taken on an immense significance. For some species' populations whose numbers and genetic health has decreased to a point of no return, perhaps the only hope for recovery of these populations lies in the tools created and used by zoo biologists. Reintroduction of live animals born in captivity is only one and probably the least practical (at least for some animals) of these tools, however. More subtle and difficult techniques such as artificial insemination, embryo transfer, cross-fostering, and translocation are tools which are likely to be mastered and used routinely within this decade, although at phenomenal expense and mostly for large mammals.

IUCN supports the concept of recovering small populations with the assistance of *ex situ* breeding and has a stated Policy on the establishment of self-sustaining captive breeding programmes and other supportive intervention. According to the Policy, these programmes need to be established "before species are reduced to critically low numbers" so that the risk of disturbing fragile populations further is minimized. The Policy goes on to say that these programmes further need to be "coordinated internationally according to sound biological principles with a view to maintaining or re-establishment of viable populations in the wild." The theory, presumably, is that already zoos have a stock of animals, which, if coordinated properly could become the nucleus for a self-sustaining bank of conservation stock without taking much from the wild. With these animals, or a selected few of them, zoos can also conduct research and education programmes.

Producing animals for supplementation of small populations in the wild is only one of the many conservation objectives zoos can serve. The World Zoo Conservation Strategy, (1993) explains that zoos have been and are increasingly the starting point for much of the valuable research in the science of conservation biology. Zoos are also the most practical venue for a spectacular and stimulating "animal experience" which will not only serve the purpose of education but also raise the level of public support for measures conducive to conservation of wildlife, habitat and environmental issues significantly. Zoo educators through visitors' studies, coordination with local educational institutions, and increasingly innovative and interactive exhibits are able to play a far more effective role than ever before (WZCS, 1993). The fact of so many animal programmes on television have only increased the popularity and effectiveness of zoos and can never replace them, as many zoo detractors claim (Sharma, 1997).

No one could quarrel with the statement that Government has a responsibility to protect the environment. Since a significant portion of forested area is necessary to preserve the quality of the whole environment and wildlife is necessary to preserve ecosystems, and since zoos contribute to the conservation of wildlife and awareness of related issues, then by a process of deduction we must conclude that government has an obligation and role in Creating Future Zoos.

It is not enough, however, to create zoos. They must be maintained at a very high standard or their existence will not merely be neutralized but, indeed, counterproductive.

Government is both the best and the worse agent for insuring a high standard of maintenance.

Government is best!

Government is clearly the best agent for starting and maintaining public institutions for a number of reasons. Government provides stability (or should do) and thus is less likely than private individuals, societies or businesses to lose financial capability of maintaining their institutions. Government is the final authority on whether animals can be imported or exported from the country and thus (theoretically at least) has the power to facilitate the coordination of species management activities necessary for scientific breeding programmes. These characteristics are important as the IUCN Policy states that "conservation over the long term will require management to reduce risk, including *ex situ* populations which could support and interact demographically and genetically with wild populations."

The IUCN Policy Statement also recommends that "whenever possible, captive programmes should be carried out in parallel with field studies and conservation efforts aimed at the species in its natural environment." Government controls related agencies such as wildlife and forestry and can (at least theoretically) insure cooperation between these agencies which conservation and research require. Government is the law-maker and can (again, theoretically) make appropriate laws for the scientific management and maintenance

of standards of zoos. India, for example, passed a stringent Zoo Act in 1991 which is one of the strongest in the world, and under the Authority created by the Zoo Act inspects, monitors, advises and funds individual zoo projects as well as integrated research, training and education programmes.

Government is Worst !

Government also can be the worst possible agent for maintaining quality in anything, particularly in institutions like zoos — for a number of reasons. Some of the very characteristics which make Governments good have a terrible "down side" which render them hopelessly ineffective and perverse. Before continuing in this vein let us compare some of the characteristics of a large organisation (represented by Government) with those of a small organisation (represented by a non-governmental organisation).

CHARACTERISTIC FEATURES OF A

LARGE ORGANISATION	and a	SMALL ORGANISATION
Stability		Flexibility
----> Inertia		—> Innovation
Continuity		Change

The stability and continuity which are the pride and objective of good government can lead to inertia, which is not good. On the other hand, the flexibility and change possible in small organisations can result in innovation and catalyctic change. These are simple principles of management research (Drucker, 1991) Government bureaucracy is dependable to a greater extent but slow. Government accountability keeps people straight but can also frighten them into a nearly total paralysis of will.

In India, for example, most of our zoos are government zoos run by career forest officers. The system of accountability is connected with a perhaps archaic system of honour in which the in-charge assumes responsibility for everything that happens, both good and bad. Life-saving procedures for wild animals often involve a certain amount of risk which many of our zoo directors are not up to facing. A terrible accountability will censure the director for trying to save the life of the animal by attempting something new which fails, but will ignore inaction which amounts to negligence. In addition, this accountability make the zoo directors an easy target for the some unscrupulous members of press and animal welfare lobby who merely want a cheap shot.

Many governments in countries which were formerly under colonial rule have maintained the transfer system which insures officers will not spend more than a few years at a particular post. This feature is to prevent corruption and also to give the officer a broader perspective of his service. For some subject areas, this works very well. Zoo management is not one of these areas, however. The IUCN Policy Statement points out the "wealth of experience" available in zoos, including husbandry, veterinary medicine, reproductive biology behaviour, and genetics. Under the transfer system, unless it is between zoos and within a close zoo/wildlife community, it is difficult for professionalism to develop at all, much less to improve.

Governments also are burdened with a plethora of bureaucratic regulations which, instead of facilitating movement, often produce inertia and even obstruction. This can be very destructive to a field in which the technology is improving and evolving at a very rapid rate, as well as to management measures for live animals which require immediate (often life-dependent) decisions. The IUCN Policy Statement confirms that species loss is predictable and that one mammal, bird or reptile species has been lost in each year this century. Timely action is required to put recovery tools in place in order to prevent extinctions.

Government service itself, simply because their in an inbuilt protection of the citizen's job, can attract individuals who are more concerned with security than public service. Government is also known for being conservative in areas where a liberal philosophy produces the best results. Independent thinking and imagination, — creativity and innovation — sometimes is not reinforced in government service. These are essential tools for zoo and interactive management.

Government must provide safeguards— from itself

Government, then, must find ways to preserve the benefits brought by its power, stability and resources and to eliminate the disadvantages which accompany them. Government must find ways to insure that its departments are not only able to create good zoos but to maintain them and all their activities with a very high standard ... to be self-critical and find ways and means to change or overcome the administrative characteristics which lead to stagnation, obstruction and decline in quality of its institutions.

Government can use Zoos to fulfill its commitment to conserve Biodiversity

Malaysia is one of the important centres of biodiversity in the world and today the Convention on Biodiversity seems almost a last chance to redeem decades of carelessness and excess. Conservation of biodiversity is the primary focus of the programme of IUCN. In a note requested by the Species Survival Commission Secretariat from the IUCN Biodiversity Policy Coordinating Committee, ten specific areas were suggested in which SSC can support the implementation of the Conservation on Biodiversity. Three of these involve zoos directly. They are

- Identification and monitoring species diversity and status
- Linking *ex situ* biodiversity back to *in situ* biodiversity
- Public awareness
- Research and Training

Article 7 (Identification and monitoring species diversity and status) is already being implemented by the Conservation Breeding Specialist Group (CBSG), SSC, IUCN and its networks by organising workshops to assess the conservation status according to IUCN criteria in order to prioritise species for conservation. CBSG has developed a methodology for this called the Conservation Assessment and Management Plan Workshop, of which some 50 have been held for dozens of groups of animals in more than 30 countries. Most of these have been organised by zoos or zoo organisations.

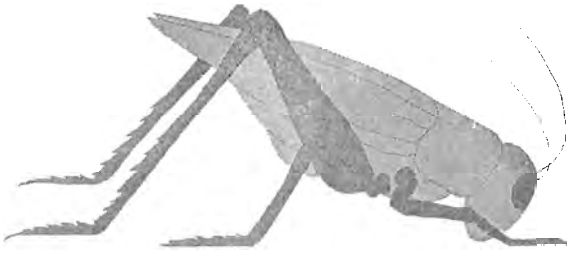
Zoos attract large numbers of people with their living animals. For the greater part, visitors come to zoos to have a good day out rather than to learn or to contribute to conserva-

tion, but once they are inside, they are at our mercy. Zoos can teach powerful lessons by virtue of the drama of a living collection What are some of the lessons in bio-diversity zoos are teaching to the average walk in visitor today ? Here, we mean to focus on the overall message or impact of a zoo visit which may involve subliminal perception and learning. Unfortunately, not enough visitor research has been done on subliminal perception and learning which could account for the most powerful messages visitors assimilate in a zoo.

If an average visitor is to go by the number and importance given the animals in the average good zoo, then he would logically think that the greater percentage of the Earth's biodiversity is made up of rhinos, tigers, elephants, deer and colourful birds. Mammals and birds make up less than 5 per cent of the earth's biodiversity, however. Although much is said about the web of life and the necessity of every component, if we lost tigers and rhinos would those ecosystems really collapse? Of course they may, but probably more for political and social reasons than biological. But what if we lost all the soil invertebrates ? These are the gum which literally hold the earth together, yet, when did you last see a really striking earthworm exhibit. How many Adopt a Worm programmes are there in the world's zoo. In February, my organisation conducted a Conservation Assessment and Management Plan Workshop for Soil Invertebrates of Southern India. Nearly 100 species of soil invertebrates of concern to entomologists were assessed according to the revised IUCN criteria using IUCN guidelines. Of these, 17 were assessed as Critically endangered, 23 as Endangered and 16 as Vulnerable. Fifty-six of the 95 species assessed are threatened, more than 58 % and forty-four are endemic.

How many zoo visitors come away from their visit understanding the importance of invertebrates, or amphibians or even reptiles or small mammals. When 95 per cent of the zoo consists of large mammals and colourful birds, the subliminal message is clear — these are the truly important and endangered ones.

Instead of talking down to our zoo audience, we need to talk up to them — to tell them the actual facts. Visitors will visit zoos no matter what you tell them. The role of government in future zoo education is obvious : government zoos of all the zoos should be in a position to give a true picture and focus on the less aesthetic and dramatic but equally important species, both in education and research. Government supported zoos do not necessarily depend on their gate to survive. Government can use the opportunity of having a captive audience to convey the message that the public needs to hear, although it may not be what it wants to hear.



Colleagues in the United Kingdom have done some interesting research on zoo economics and conservation, including zoo visitors in the last couple of years. Their research indicates that viable zoo conservation programmes for lesser vertebrates and invertebrates are significantly more resource- and time-effective to run and to utilize in field conservation than those for large mammals. It can be assumed that they are also less likely to be contentious. The researchers also studied the popularity of zoo exhibits of these creatures and found that, although people may visit the zoo to see a tiger , this did not affect the frequency with which they visited invertebrate and lesser vertebrate exhibits, even if those exhibits were inconveniently placed in the zoo. Once in the zoo, visitors will visit any attractive exhibit. (Balmford et al, 1996)

In the current zoo scenario, we have got our priorities all mixed up. Zoos spend all their megabucks on charismatic megavertebrates. The most significant conservation result may be that the public is even more fascinated by them than before. When so much of the earth's biodiversity is made up of invertebrates, and creatures like frogs and snails are the best bio-indicators, why are we obcessed with the larger animals to the exclusion of others. It is not believable to use the excuse of the zoo visitor's preference anymore — it is clear that zoos themselves create the preference. We might start asking why.

One reason why may be simply resistance to change. Another is that the world tends to follow the western models, USA, UK and parts of Europe and Australia. The USA and UK zoos are almost all privately owned, or run by municipalities and other local governments which require that their costs are covered by gate fees and donations. Pleasing the crowd has become a necessary habit and the crowds have become accustomed to seeing large animals in elaborate displays. That this is unnecessary has been demonstrated quite successfully by the Jersey Zoo in Channel Islands which does not emphasize either large mammals or elaborate exhibits. People flock to Jersey to see partula snails, pink pigeons and Aruba Island rattlesnakes. They are attracted to the integrity of the zoo which has, admittedly, been promoted quite effectively by the founder, late Dr. Gerald Durrell.

Zoos in tropical countries do not always depend on gate money to survive. In India, the governments — national, state and local — maintain the zoos and they all lose money. The government writes this off as providing educational and entertainment services to the public. In India the zoos don't need to please the public yet they continue to do so because of the western model. Zoo managers think they need to provide what people ask for and people go on asking for more of what they are already getting. If they see lions, they want white lions. If they see pandas they want Giant pandas. There is no end to it and there is no way to please the public. Therefore, such countries should do what makes sense for conservation of biodiversity.

In this regard, Government can a very significant role to play in future zoos and wildlife conservation — in setting trends toward getting priorities straight in exhibition, research and education. This is not to say that zoos just give up on large animals. Concentrating on species that breed well and can be reintroduced easily will make the captive conservation story

and zoos more credible, both in terms of the viability of interactive management and of their sincerity. It can only enhance zoo's ability — both financially and politically and perhaps even technically — to run programmes for large animals successfully. If zoos fill some of their space with such programmes, perhaps this will help insure that more numbers of large mammals already in captivity (or which have to be taken into captivity) can be concentrated in one place closer to the natural habitat, where they should be.

I'd like to review very briefly what my organisation and its affiliates are doing in this regard. We have organised nine CAMP workshops this year, only one of which is for mammals — medicinal plants, soil invertebrates, amphibians, reptiles, mangrove species, and freshwater fishes make up 85% of the species we will have assessed over an eight month period. We have organised 6 workshops in invertebrate exhibition and conservation in the last two years and are supervising projects on the subject in an upcoming zoo which I advise.

This developing zoo has as its theme the Nilgiri Biosphere Reserve in which the zoo site actually is located. The first phase of the zoo will be the Anaikethi Wildlife Park, in which plants, invertebrates, amphibians and reptiles of the actual site will be the sole exhibits. To prepare for this, the three senior staff have conservation projects in endemic plants of the NBR and western ghats, in invertebrates and in amphibians of the zoo and surrounding area. They are in the process of doing surveys of the area and have listed 80 invertebrate (Rathinasabapathy, 1997) and 11 amphibian species in just a few months of surveying occasionally. They are developing educational materials for invertebrates and amphibians in the local language for the people of the area and testing it. They have set up captive breeding facilities and selected a few sturdy species for developing their exhibits and techniques. This will be the first conservation programme for invertebrates and amphibians in India. The Coimbatore Zoo will also have tigers, elephants, Nilgiri tahr, bears, monkeys — all of which inhabit the Nilgiri Biosphere. We are, however, establishing priorities in research, education and exhibition by starting with the smallest, most numerous and possibly the most important organisms.

The Coimbatore Zoological Park is to be the first zoo in India started and supported by private industry as a non-profit institution. If a group of sophisticated industrialists will give up their desire for chimpanzees, giraffes and zebras and take a chance on what a serious conservation zoo ought to be, surely governments can also take the risk.

As a matter of fact, they can't afford NOT to.

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