Coe, J. C. 1984, *Self-Help Design*, unpublished lecture, some updates made in 2006.

Self-Help Design

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Introduction

As most of you here know from painful experience, small zoos in the northeaster U.S. are having a hard time supporting increasing costs with an urban population that is changing and often shrinking. Cities faced with seriously deteriorated bridges, road and sewers and higher costs for important social services and public safety are unable to fully support their parks, zoos and aquariums. Once-prosperous zoos are becoming marginal operations. Many zoo facilities are fifty years old and many standards of animal care are no longer acceptable by the public, the humane society or zoos themselves. Small zoos may look in despair and perhaps envy at huge projects in New York, Washington DC or Chicago costing sometimes tens of millions of dollars. They may forget that big zoos also have big problems.

What does the future hold for smaller zoos? Some things, at least, are clear:

1. Zoos in the future won't look like zoos in the past.
2. Small zoos are not simply small editions of large zoos.
3. Zoos will become more self-sufficient.
4. Zoos will become more specialized.
5. Zoos will become more professional. Hit or miss approaches will give way to a better integration of efforts and people.
6. Zoos that cannot meet up-to-date humane standards will be forced to close.
7. New facilities will be more labor and energy efficient without losing the "human touch". Life-cycle costs should be considered.
8. Virtually every act will be considered in terms of its effect on promotion, publicity and marketing.
9. Zoos will help themselves by helping each other.
10. One thing will remain the same – the inherent love and need humans have for animals will insure that some zoos will persist, develop and redevelop.

Questions

Now for the bad news: As some of you have discovered, there is no magic formula, no saintly benefactor, no consultant in shining seersucker armour that will solve your problems. You have to do it yourselves. To mix metaphors, you must reach for your bootstraps while up to here in alligators! If you prepare properly, you will get the most from your staff, your support group, your consultants and your patrons. If you are not prepared, they will all have better things to do.

We should ask ourselves the hardest question first: Should our zoo even continue to exist? If community support has plummeted while costs rise, then this is not an idle or facetious question. Another way to ask this question is to compare your performance to the following criteria paraphrased from the AZA brochure entitled *The Purpose of Zoos and Aquariums*:

1. Do you present your animals as "...wonderful creatures...alive and meaningful"?
2. Do you demonstrate, and not just say, that you support world wildlife conservation?
3. Do you produce more animals than you consume especially endangered species?
4. Are you really a learning resource or just a collection of signs?
5. Do you really provide a pleasant experience for your guests?
6. All zoos have some outmoded facilities. It is what you've done with them while awaiting renewal that counts. Are they really, as the brochure suggests, "...a humane home"?
7. Are the facilities you've recently built conceived from the latest proven concepts of animal exhibition and maintenance, or do you look backward, copying and perpetuating the past?

Speaking for myself, I suggest that the following reasons are **not** sufficient to justify a zoo's continued existence:

1. Because it exists.
2. Because the public and politicians, who won't support it, nevertheless demand it.
3. Because disbanding would be too difficult and painful.

Approaches

Now that I've made enemies of some of you, here are twelves positive things you can do:

1. What shape is your zoo or aquarium in? Get a check-up, an unbiased outsider's view. An outside expert may be helpful but also get an appraisal from a sensitive layperson, perhaps someone who generally avoids zoos. Note the peeling paint, pacing or staring animals, the smells, rust, echoing corridors, off flavor hot dogs, crooked signs, and misspelled scientific names. You may have lived with all these for so long that you don't notice them anymore. What does your facility really say about you to the public?
2. Identify and define your ecological niche. Evolution is more than struggle and competition. The science of ecology shows another strategy, avoidance of competition through specialization, commensalism and collaboration. Find the niche you are best able to fill. Take pride and enlarge upon your uniqueness rather than coveting or copying what others are better able to do.

3. Develop a plan of action. This may be a detailed master plan or a simple policy paper on future development, but be clear about which end of the cart the horse goes on. Consider the following subjects:
    a. Goals and objectives,
    b. Analysis of existing conditions (think in terms of opportunities and constraints, strengths and weaknesses),
        i. Regional context – geographic, demographic, cultural, economic, institutional,
        ii. Physical site – soils, geology, vegetation, orientation and aspect, views and vistas, etc.,
        iii. Physical plant and infrastructure,
        iv. Staff, personnel and support groups,
        v. Animal collection – species, age and sex, breeding record and potential, ISIS and SSP,
        vi. Exhibits – suitability and potential for expansion, enhancement and renovation,
        vii. Educational resources,
        viii. Operations and capital budget, funding sources, cash flow.
    c. Prepare an overall development concept with prioritized programs, actions, responsible parties and deadlines.
    d. It usually pays to involve your staff fully in preparing this plan so that each can say "...this is my plan too" and have a real reason to see it succeed.

Getting Help

1. Somewhere in this process you may want to use consultants. Unfortunately, many small zoos don't know how to identify, select and deal with consultants to get the most for their money. There are professional societies of landscape architects, architects, engineers, etc. that can help you set up a fair consultant selection procedure. Some zoos have found it valuable to hire one consultant to represent them and coordinate other consultants. Also, the AZA screens it commercial members, including planning and design consultants. The best evidence of worth, however, is the satisfied recommendation of a previous client. If you are going to devote substantial resources on the recommendations of consultants, it will pay you to research their successes and their failures thoroughly. Most failures result from mistakes on both sides such as unrealistic expectations, poor communications, inexperience and either lack of vision or lack of a sense of reality. Good advice should save you much more than it costs, even at high professional rate, but the best consultant's answers are only as good as the questions you ask. The better prepared the client is, the more useful the consultant will be.
2. Most zoo projects are too complex for any one professional discipline and call for a collaborative team of consultants and staff. As an unbiased landscape architect, I happen to think that my own profession is best qualified to lead, but in truth no one profession has a monopoly on the required skills of leadership, administration, ability, perspective and innovation. You may wish to pick the prime consultant based upon your zoo exhibition goals. If you see your zoo primarily as a landscape with wild animals, then a landscape architect should take the lead. If you prefer an architectural approach, hire the architect first or if maximum efficiency and utilitarianism guide

your dreams, let an engineer lead the design team. Whoever leads, the consultant team should be truly collaborative, including either consultants or staff representing the following areas:

Consultant Team	**Zoo Team**
Zoo design specialist	Zoo administration
Landscape architect	Zoo society
Architect	Curatorial staff
Engineer	Veterinary staff
Marketing/Finance	Keeper staff
	Education staff
	Horticultural staff

The exact make up of the teams will depend upon the type and size of the project, available expertise and, of course, planning budget.

3. Where do you get information in a field wherein developments usually out race published results? Where do you look for answers to questions like: "How many air changes per hour per rhino do I need?" or "What can I plant that the zebra won't destroy?" A growing network of zoo professionals is sharing this sort of information. Here are some sources (updated 2006):

    a. Animal Resistant Plants, Toxic Plants and Zoo Horticulture: Association of Zoological Horticulture, http://www.azh.org

    b. Animal care standards, area and barrier requirements: *Species Survival Plans (SSP) Husbandry Manual*s, American Zoo and Aquarium Association (AZA), http://www.aza.org

    c. Recent exhibits and conference papers:

        i. *International Zoo Yearbook*, http://www.blackwellpublishing.com

        ii. *Zoo Biology*, http://www3.interscience.wiley.com

        iii. American Zoo and Aquarium Association (AZA), http://www.aza.org

        iv. Australasian Regional Association of Zoos and Aquariums (ARAZPA), http://www.aza.org.au

        v. European Association of Zoos and Aquaria (EASA), http://www.eaza.net

        vi. *Zoolex*, http://www.zoolex.org

        vii. Jon Coe Design P/L website, http://www.joncoedsign.com

        viii. Contact other zoos directly

    A number of consulting firms specializing in zoo design keep detailed files on a wide range of subjects used in their work. This data is obviously the stock-in-trade of the consultants and you should expect to compensate them if you ask for detailed information without hiring them.

4. There are other sources of help. Many zoos are near excellent colleges and universities. Most zoos have contact with some departments but haven't considered others. Fore example:

    d. Veterinary medicine, dentistry.

    e. Pediatrics, psychology, pharmacology

    f. Diet, nutrition.

g. Architecture, landscape architecture.

h. Horticulture, building technology.

i. Engineering, surveying.

j. Education, communication, graphic arts.

k. Business marketing, management, public relations.

Do you need help in any of these areas? University professional programs need projects, case studies and research topics. Remember, however, that students, like all volunteers need and deserve good direction and supervision and they should be compensated for out-of-pocket expenses. Also, students and often faculty as well may have good ideas but lack experience. Keep this in mind.

5. Professional and hobbyist societies may also be of help. For example, local branches of the American Nurserymen's Association, the National Association of Garden Clubs, the National Wildlife Federation or even Ducks Unlimited may be helpful. Also, consider seeking "in-kind" help from trade unions, contractors' associations and building materials trade associations, producers and outlets. Some established breeders of birds, reptiles, amphibians and fish, for example, have considerable knowledge and experience in the management of these species.

6. What kinds of exhibits can small zoos do well? The quality versus quantity approach means larger exhibits with fewer species, so pick animals that you can afford to exhibit and breed properly in the long run. Work from the strength of your existing collection and the expertise of your staff, but above all, be realistic. Some small zoos persist in keeping animals like elephants, ignoring the fact they can never satisfy the animals' social and exercise needs. Also, if you have a great collection of one species but they are hopelessly inbred or parasitized, think again. In general, think "small is beautiful". An active large troop of squirrel monkeys can make a terrific exhibit as could a playful band of mongoose. Reptile houses are among the most popular zoo exhibits and few zoos have even begun to present the incredible world of insects. When you do need to exhibit larger, dramatic mammal species, pick one that is naturally semi-solitary and hardy so that it won't suffer from social isolation or be expensive to house in winter. Where possible, design exhibits that don't require large amounts of costly rockwork but rather hide fences in ditches or underwater or behind plantings. Mixed species exhibits save space but are not necessarily less expensive to build or maintain.

7. Some small zoos have developed excellent displays of native animals, which are already well adapted to the local climate. But remember, good native animal displays are much more than deer paddocks.

8. The "family farm" approach to children's zoos deserves mention. A first-rate facility can be built inexpensively using agricultural technology and local rural motifs. It will entertain the entire family longer than most exhibits and offers many marketing opportunities. Simply hugging a lamb can mean more to an urban child (and its parents) than anything else in the zoo. Consider using suitable exotic domestic breeds like water buffalo, llama and rare or endangered heritage breeds with support and demonstrations from local breed enthusiasts. Keep the design simple and functional, as a farm should be, and save some money for exciting programs and demonstrations. A well-managed farm zoo can be largely staffed by volunteers.

9. Many zoos have excellent volunteer programs which are very cost effective, but these successes are no accident. Planning, training, coordinating and managing volunteer programs are a very big and important job.

10. A word of praise and a word of warning are necessary about amateurism. The greatest strength and also the greatest weakness of the small zoo is its inevitable tendency towards amateurism. Properly directed this can lead to clever innovation, a willingness to learn and a good deal of valuable community involvement. Misdirected amateurism can lead to a "bandaid and bailing wire" zoo typified by "Charlie can weld it up for me for free" or "Rockwork? I just gunite the chain link fences!" The results can be some of the most ugly, insensitive and unsafe exhibits ever ill-conceived! Before you call Charlie, ask yourself: "What will I think of this five years from now?" and "What if this temporary-repair becomes permanent?"

Conclusion

How do we break the cycle of decline? If you know that you are in trouble, you have taken the first step. The second step is the realization that only you can get things moving. No one above or below you, no pennies from heaven will do it if you don't start moving first. The third step is to make it clear to everyone that good work and high standards will be rewarded and that sloppy work will not be accepted. The fourth step is to show that your facility is ready to move up by putting your house in order, cleaning up, resolving minor problems, marshalling your strengths and doing your homework. The fifth step is to forge or strengthen links to the local media and thus to the community. Good media support not only means thousands of dollars worth of free publicity, but provides a powerful tool for mobilizing popular support behind your programs and pleas. The sixth step is to prepare and circulate a plan of action, development plan or master plan. Prove that you know where you are going. This document must be clearly practical and strong with supporting evidence, but must also show an exciting vision of an achievable and desirable future. The seventh and succeeding steps involve carrying through on your plans through fund raising, design, construction and timely opening of new or renovated facilities at regular intervals.

When you can give your community something they can truly be proud of and you re-earn their support every year, you will have the support, both financial and political, that you need to reach your potential as a great small zoo – or should we say a small great zoo!