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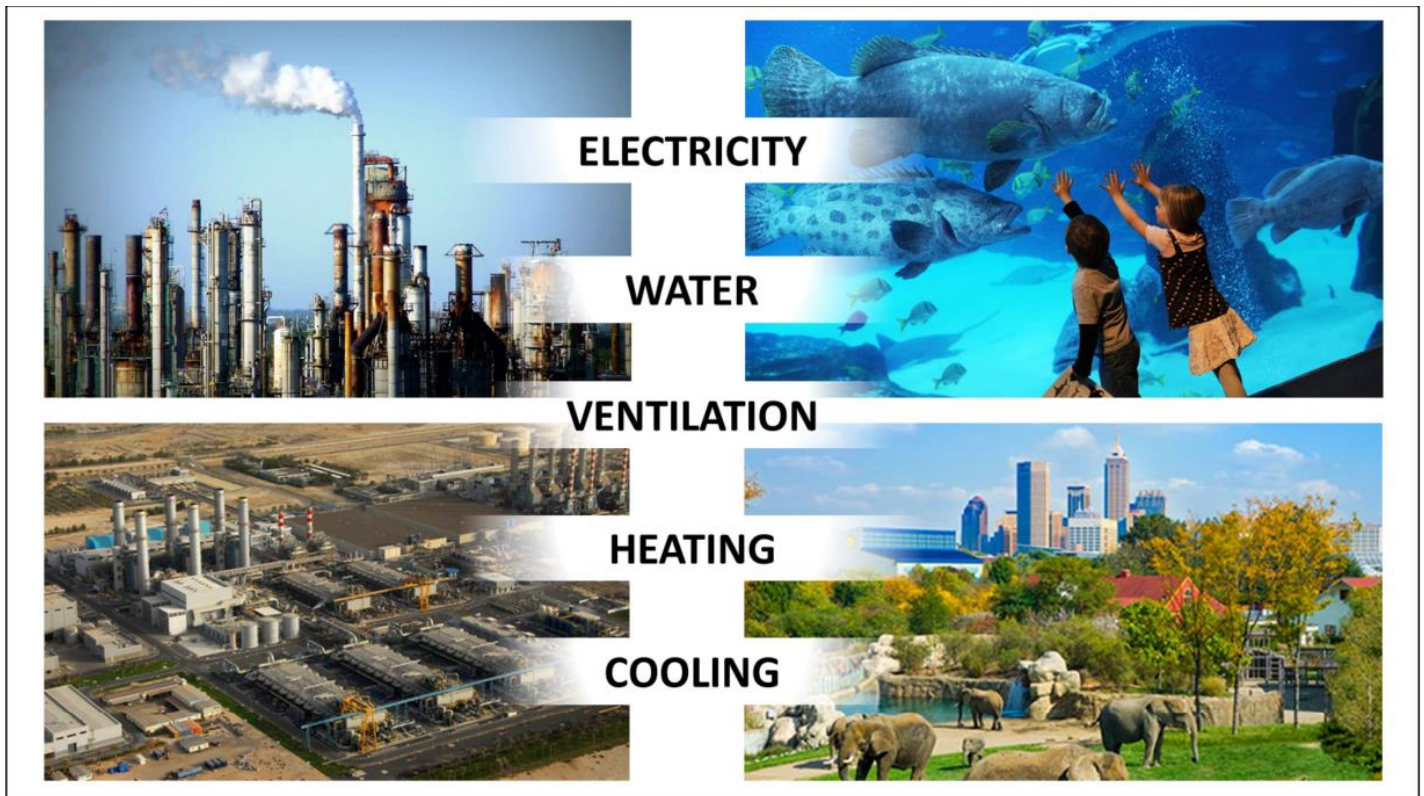
ENERGY



Heavy industry looks quite the opposite of the modern zoos.

But, we also know that most of the zoos have one big similarity with heavy industry.

High energy demand!



To function properly, the zoo needs water, heating, cooling, ventilation, electricity, etc. And that is very similar to heavy industry.

The zoos are institutions that are aiming for preservation of the wild life and nature in general, educating public and raising general awareness about the nature. And, as we all know, this is very challenging task to fulfill.



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It is like saving the whales with an old, diesel powered, steaming and polluting ship.

It's hard to be credible that way.



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It is much easier to tell the story when you are doing that with a clean, sustainable sailing boat.

Evolution of the zoo



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In the beginning the zoos where just the collections of animals in the cages.
Back then, the animal welfare or education of the public wasn't the real goal or need.

Evolution of the zoo

EDUCATION

ANIMAL WELFARE

NATURE PRESERVATION

RESEARCH

VISITOR ATTRACTION



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Luckily, that time is over and we are designing and building the enclosures that are based on the animal welfare and are supporting the education.

So, we build the larger and better enclosures, more facilities for the visitors such as restaurants, toilets, shops, you name it...

Many things are improved and taken to a higher level.

Evolution of the zoo

ANIMAL WELFARE

VISITOR ATTRACTION



MODERN ANIMAL ENCLOSURES

+

VARIETY OF VISITOR FACILITIES

=

HIGH ENERGY DEMAND

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Unfortunately, that comes with the price: higher energy- en water usage, increasing of the waste production.

We are helping the animals and improving their welfare by putting more pressure on the environment. That doesn't seem right, does it?

So, what can we do to change that?

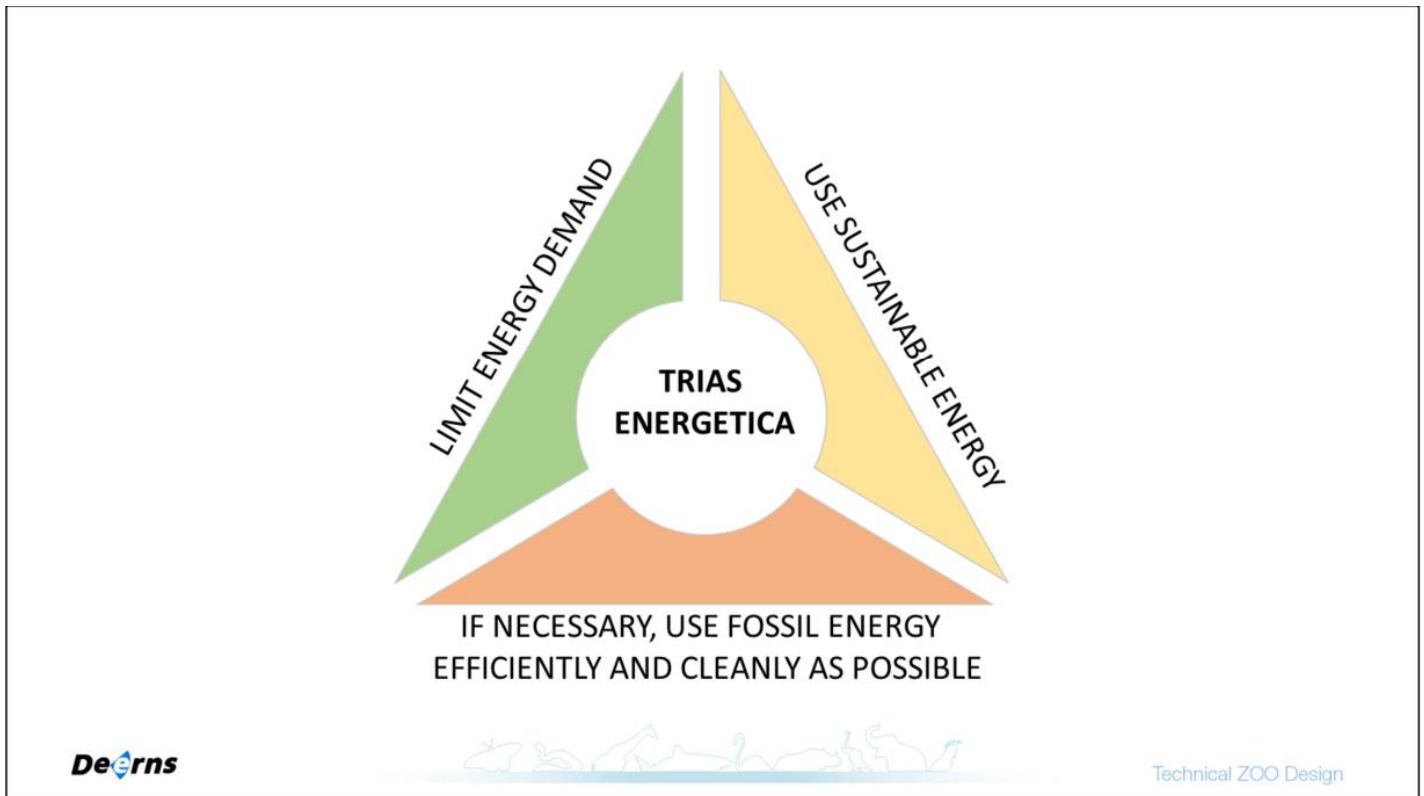
Is there a universal sustainable solution for that?

Or should we ask ourselves the magical question:

Are Zero Energy Zoos Possible?



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In the world of the designers (architects and engineers) is it a quite common thing that we use principle of TRIAS ENERGETICA.

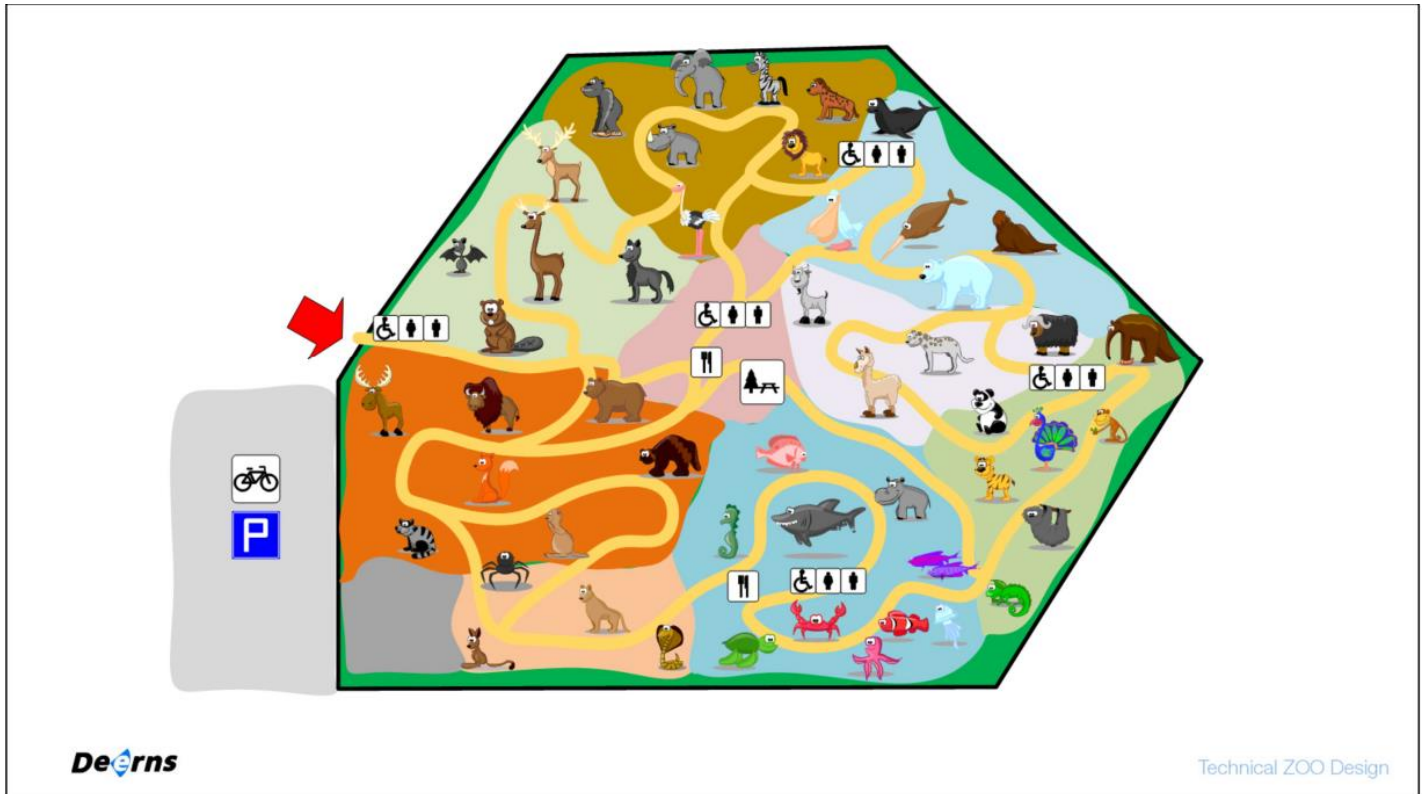
1. LIMIT ENERGY DEMAND: Reduce the demand for energy by avoiding waste and implementing energy saving measures.
2. USE SUSTAINABLE ENERGY: Use sustainable sources of energy instead of finite fossil fuels.
3. IF NECESSARY, USE FOSSIL ENERGY EFFICIENTLY AND CLEANLY AS POSSIBLE



But, TRIAS ENERGETICA is limited to one specific project or enclosure. Within the zoo we need to think further and more holistic.

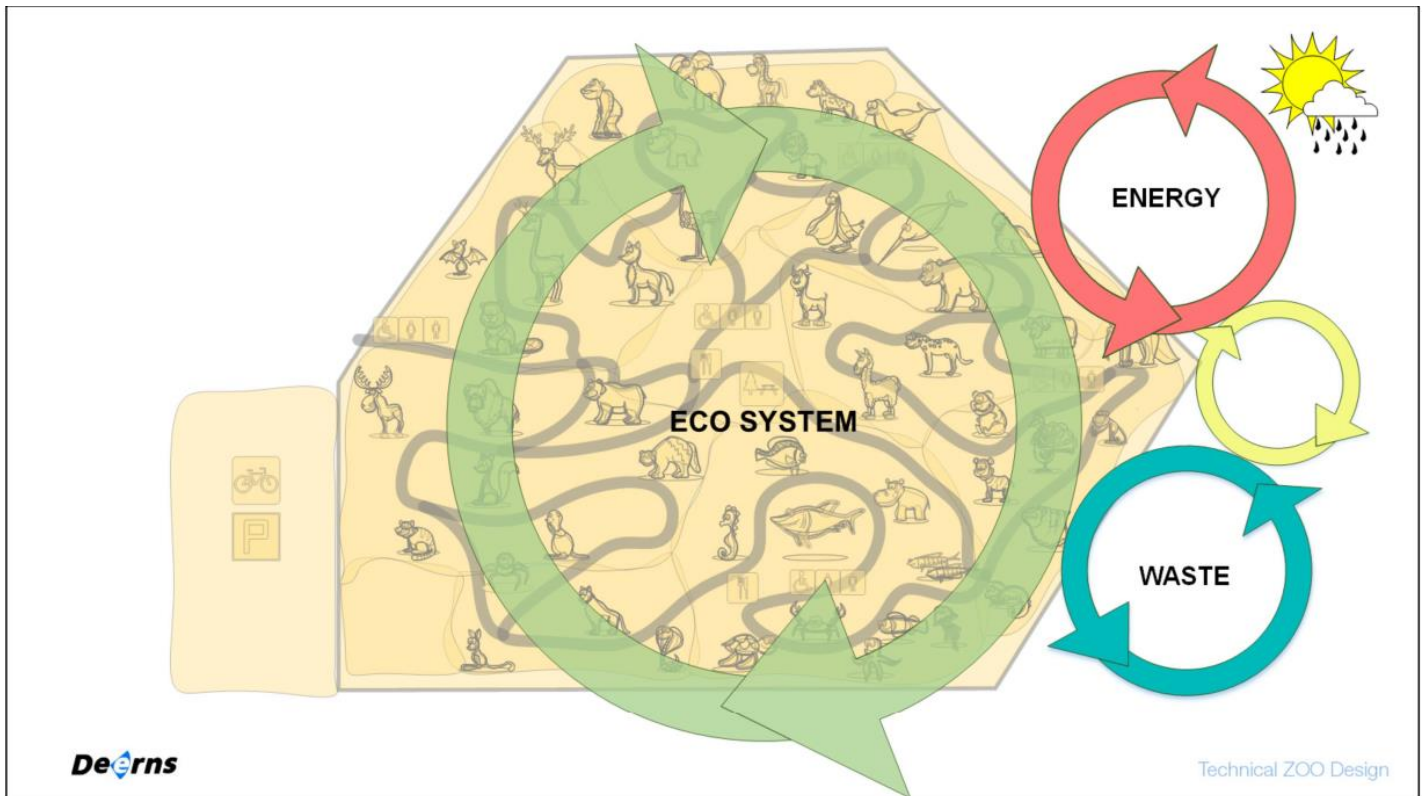
That's why we need to introduce something I call TRIAS ZOO-LOGICA

- First of all, we must understand what the animals really need, not what we think they need. *Do we really need the constant temperature, humidity and ventilation constantly in whole enclosure?* We should ask ourselves those questions before we even start designing the enclosure and making the first drawings.
- Second step of TRIAS ZOO-LOGICA is to look further than the enclosure we are designing. This is because of the fact that the building services and facilities usually don't start and end within boundaries of one enclosure. The water, electricity and gas probably come from elsewhere in the zoo and the sewage will, hopefully end up somewhere far from the enclosure and the zoo itself. You should not only look further to see how you will connect this to the main infrastructure. You should also need to investigate the possibilities of combining some facilities with other surrounding enclosures and buildings.
- Last step of the TRIAS ZOO-LOGICA is to start with the first step of the TRIAS ENERGETICA.



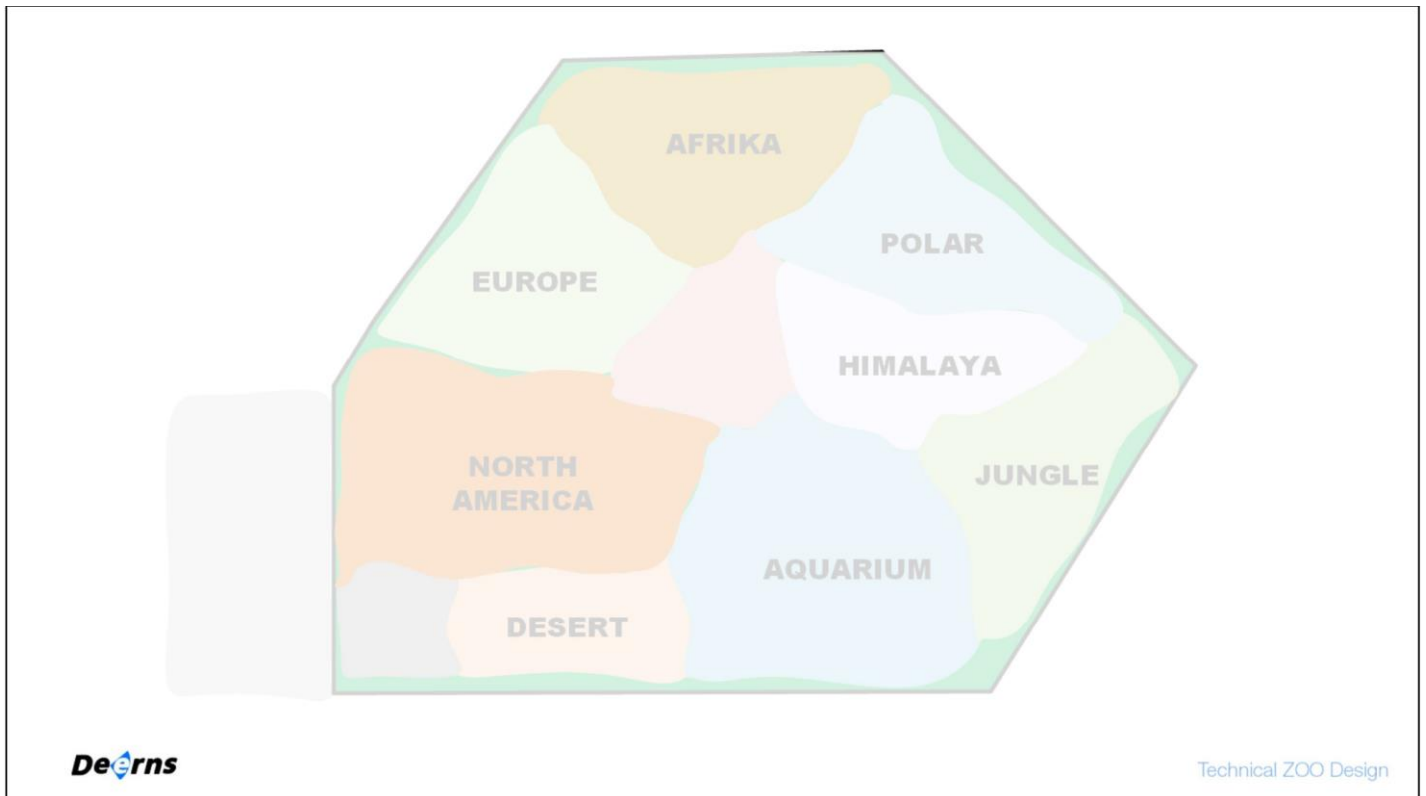
How can we lead the zoos toward zero energy zoo? How can we approach the zoo on a holistic way from a sustainability point of view?

Let's say that we have typical zoo somewhere in central Europe....

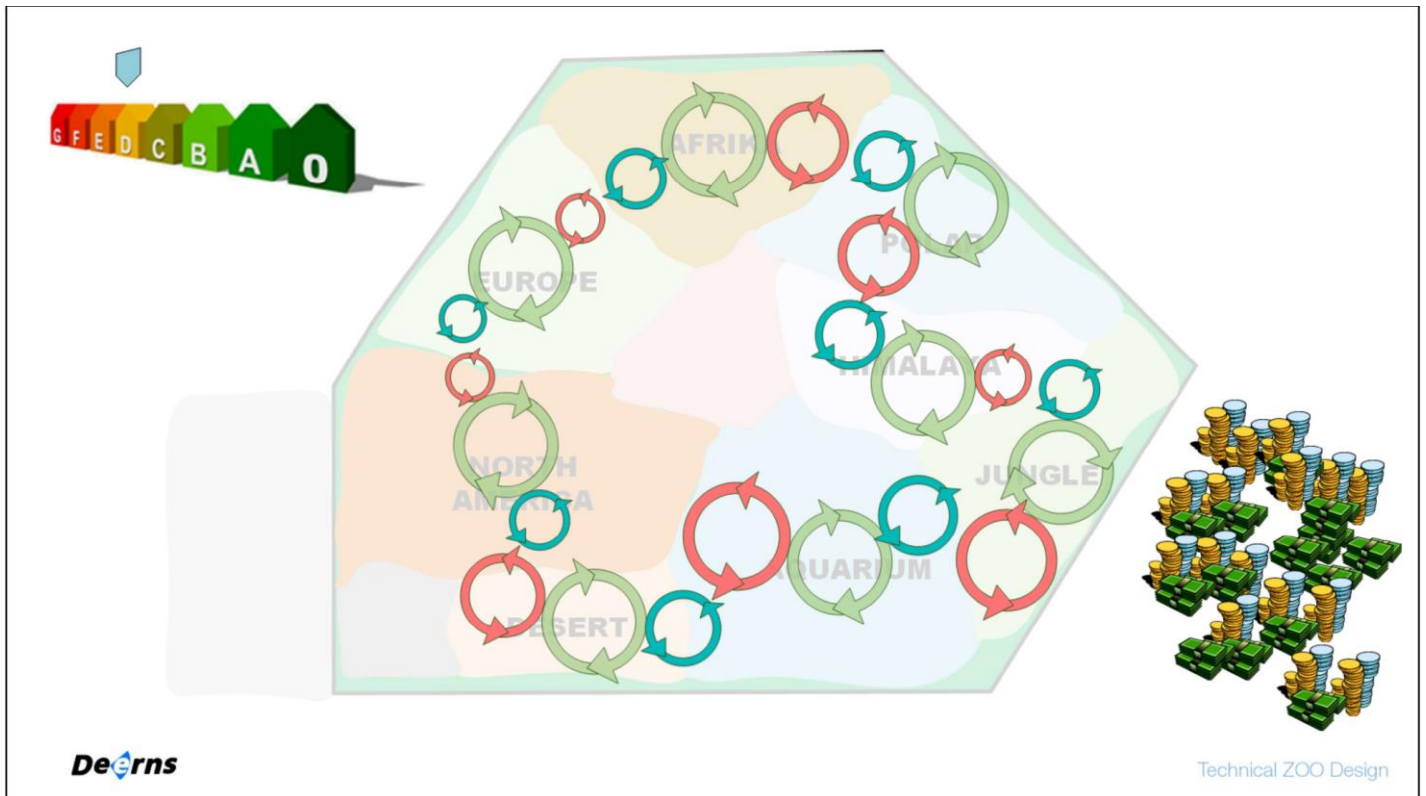


This zoo is a part of large eco system and climate of the surrounding area. If the animal collection is based only on the local species and the animals that easily can survive in that climate, you will probably have a zoo that is near zero energy zoo. You will only need some electricity, water and sewage. No heating, cooling or mechanical ventilation should be needed. For your visitor and staff you will probably need more energy than for the animals. With modern techniques is possible to make all those buildings and facilities very sustainable and (near) zero energy.

In other words: For this zoo should be possible to make it a zero energy zoo!

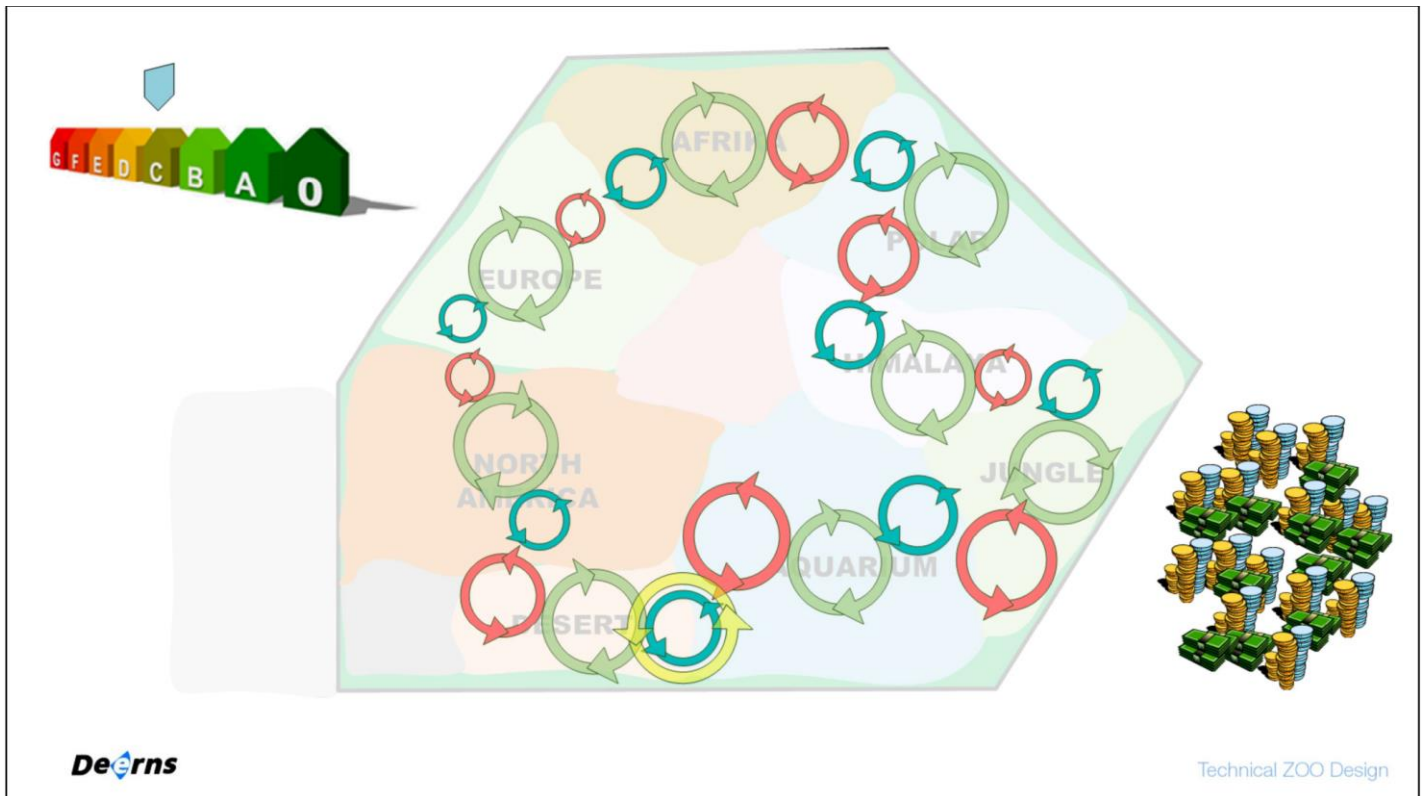


However, most of the zoos have the animal collections from all over the world and from many different habitats and climate zones.

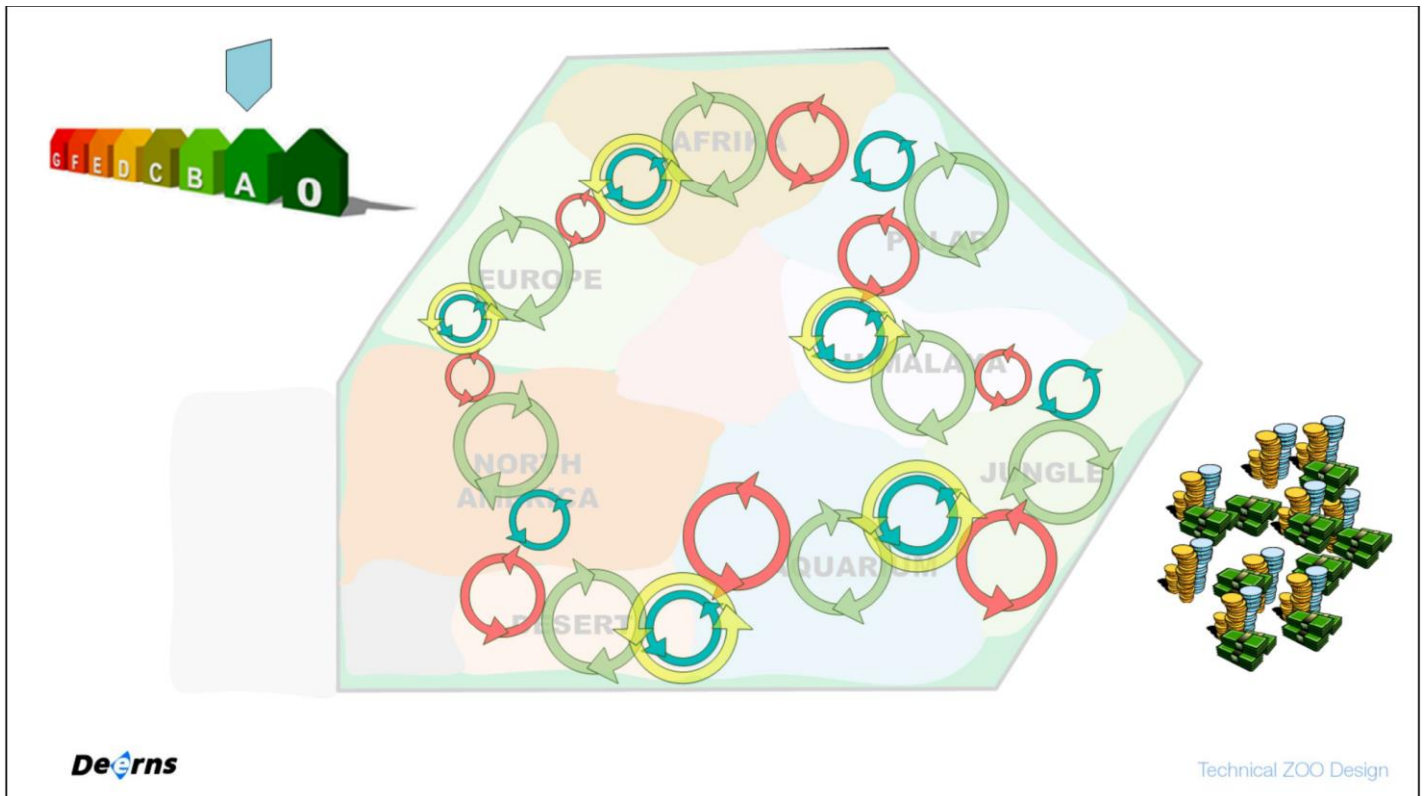


If we look at the typical zoo we will see that we have many different eco systems and climate zones. They are mostly situated in the way that they are telling a story to the visitors. The visitors are taken to the journey across the continents or habitats or any other way. Most of the enclosures are stand-alone buildings with their own facility systems and installations. Although the zoo seems very logical to the visitors, there is a much less logic behind the scenes.

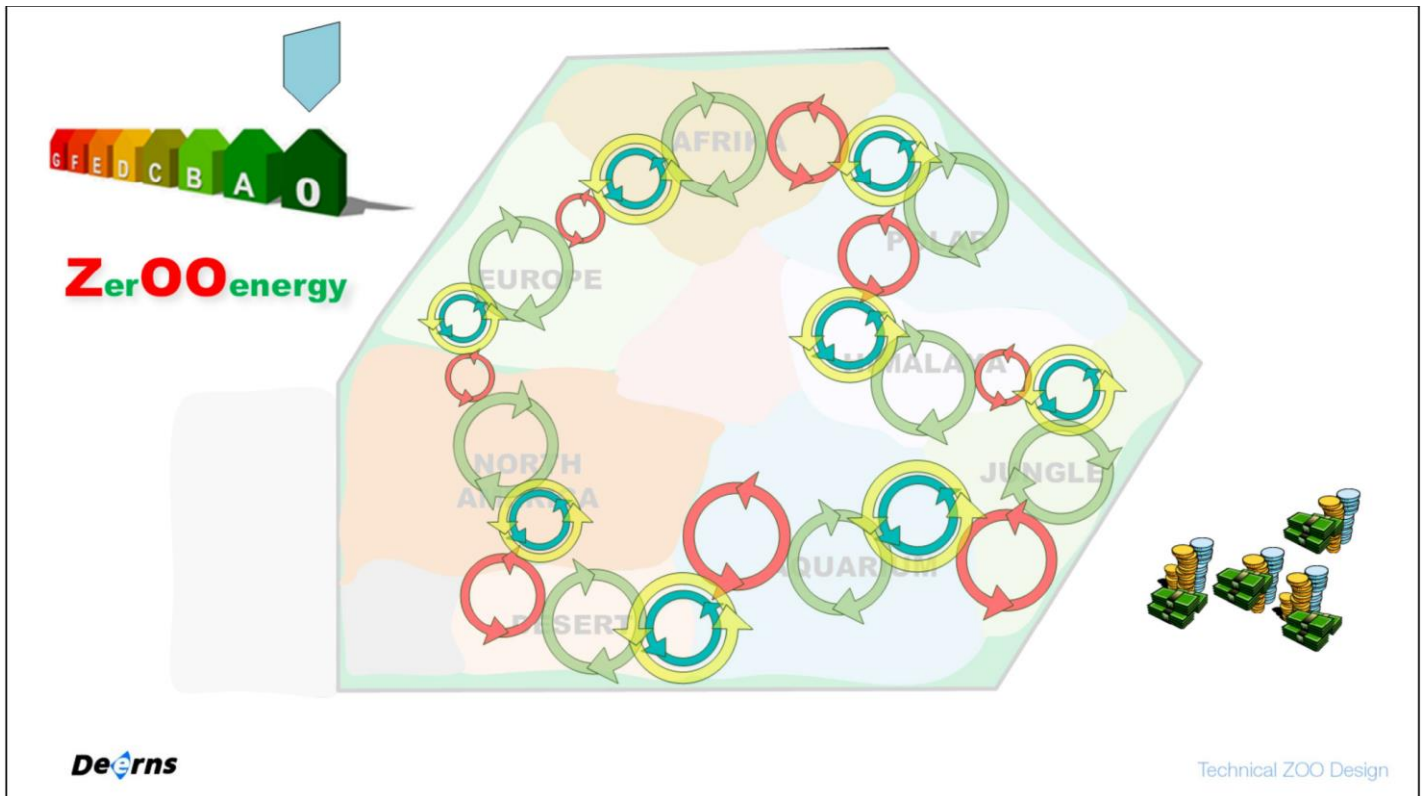
This is causing the zoos to be much less energy efficient and sustainable than they could be. This is also the case when the buildings themselves are designed according to trias energetica and are sustainable. The energy inefficiency is also causing that the exploitation costs are (much) higher than they could be.



But, if we combine some habitats/enclosures/eco systems within the zoo it will result in higher energy efficiency and lower costs.



By combining more systems in the zoo we could drastically increase the energy efficiency and save the money on the energy bills.



The most ideal way of bringing a zoo towards zero energy would be to take in account the following issues during the master planning:

The way of the technical infrastructure (water, sewage, electricity, heating, cooling, water filtration etc.)

Combining the “behind the scenes” systems of different buildings and enclosures.

Anticipating to future developments and possible changes within the zoo in order to stay energy efficient and sustainable as much as possible.

Zero Energy Zoo? Why Not?

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