

Towards a Hangover Architecture: Sustainable Design in the Post- Consumerist Future

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*This is the full lecture text, with one paragraph per PowerPoint slide.
The complete Power Point presentation -including illustrations- can be
viewed as PDF file at www.oikotekton.net/ndu07/HangArch.pdf
[size 8 MB]*

The party

We are having a party; it's in a dancing hall called 'The Blue Marble' -I'm sure you know the place.

fun

And we're having fun; we have nice decoration and music and lots of booze and snacks -much more than we really need actually.

crazy things

And we do crazy things that amuse us: We pour beer into the fish bowl; we throw our leftovers all over the floor; we throw cigarette butts in the flower pot; we paint the cat pink to fit the décor; and we let the water in the loo running just for fun.

infighting

Some of us quarrel about who will get a bigger piece of cake; some others fight over a bottle of whiskey; and some others just watch quietly with a silly smile on their face, happy with a few bits of pop-corn.

children

And there are some children around; they are watching, learning to do the same when they grow up; some others, the younger ones, are just puzzled by what is going on.

heat

The room is stuffy, filled with all that smoke, warm with all that action. So we turn the air conditioning on.

crowds

It starts getting really crowded in here; more and more guests queue at the bar, waiting with empty glasses at hand. And more newcomers arrive -boy, how fast and how many of them!

equity

We squeeze most of them in the servants' quarters; we don't want them to spoil our fun in the main hall. They too ask for snacks and drinks; we cannot refuse because this is supposed to be a party open to everybody. So the bottles run low faster and faster now.

more heat

Less booze, but more smoke and noise... And heat, more heat in the air; the ice cubes melt fast now. The air conditioning runs full speed; a fuse blows, then another; apparently too much load for all those lights and hi-fi's and coolers... But we're too drunk to notice.

Cassandra's whining

It's a really messy party, with trash piling up all around; it's a costly party too, with lots of treats and waste. Some of us -a bit more sober- murmur nonsense: 'how many more guests the party can take?', or 'who is going to clean the mess?', or 'who is going to pay for all that?'

forget domani

We are too cheerful to pay attention -we don't want to spoil the party. We are absolutely confident that somebody will fix the mess, sometime later; and we'll just charge everything on our credit card -we'll pay 'later' of course. Let's just have fun now, tomorrow is another day!

what a party!

Let's stop the metaphor. So what do you think? Isn't it a consumerist 'wild party' that we are having on our 'Blue Marble' these days? A party celebrating eternal growth, advertising nonsense consumption, with blind faith on profit, plundering the planet in the process?

daydreams

'Shop till drop' is the dictum for many. Following that, we will drop in deed. Who can claim that the 'Blue Marble' is big enough for so many thirsty, hungry, messy, greedy guests for ever? Or that the consumerist ball will always continue, without eventually coming to a standstill?

hangover signs

We have started to comprehend that reality: the 'hangover' signs are already too many and too obvious to ignore.

the dawn of awareness

And 'sustainability' has become a catchword, jumping from dim scientific studies to loud headlines.

Sustainability

'Sustainability': i.e. to act today thinking about tomorrow too. Most likely, you bump onto that term every day now.

1 > 2

In fact, we talk about 3 kinds of sustainability, ecological, economical and social. Obviously, if you don't have the first, then the other two are meaningless. So, let's focus on the ecological aspects of our big party.

1 - 1 = 0

Environmental Sustainability is a simple idea: When resources are consumed faster than they are produced or renewed, the resource is depleted and eventually used up. In a sustainable society, the demand on nature is in balance with nature's capacity to meet that demand.

an inconvenient truth

A growing number of researchers claim that we eat up resources as if we had 2 or more Earths to live on. Many facts support that 'whining'; it is "an inconvenient truth" that we cannot throw under the carpet any longer.

avoiding reality

So we have started trying to fit our consumerist gala into environmental reality. We already make certain tactical adjustments, mainly on a voluntary basis; but we avoid a radical review of our strategies that could really make sense in the long run. We simply try to gain some more time.

contradictions

Yet, in our half-hearted efforts to balance desires with reality, we contradict ourselves. For instance: We lower fuel consumption and emissions per car and kilometre – that's fine; but at the same time we increase our car fleet; and -as our cities sprawl and our activities multiply- we drive those cars much longer than before.

...more contradictions...

We make buildings that require less energy per square metre –that's also good; only now we construct them bigger than we used to, both in numbers and size. And we use energy-saving light bulbs; but we multiple them by millions to glitter our cities. As with cars, the increase of efficiency per unit is offset by the increase of total demand.

...even more contradictions...

We make more efficient heating equipment; but our sense of comfort is higher now, so we raise the thermostat. And we are not content with simple fans anymore: air-conditioning has become essential as the easy answer to global warming; so we install many more units every day. Of course that means more power stations that add to global warming -and to our need for cooling.

...yet more contradictions

Of course, we can make far better buildings now, more efficient and functional than before. But we use more and more fancy materials, often brought from faraway places. And those nice buildings are meant to last a few decades only, and then to be demolished and replaced by new ones, requiring even more materials.

a bitter truth

So all the statistics on the consumption of energy and other resources keep rising -perhaps slower, but still going up, making the 'growth gurus' happy. But you can't expand on a round planet forever, because soon you'll run onto yourself...

green trends

What is really good news is that the 'green' label is becoming more appealing. So we see more and more buildings advertised as 'bioclimatic', 'energy efficient', 'ecological' or 'sustainable'.

lonely islands

Some may not be exactly what they say, but even that indicates the green tag is catching on. But so far, these examples –true or fake- glow like lonely islands on the rough 'Unsustainable Sea', overshadowed by countless 'conventional' buildings.

green education

And we also see more and more design schools adding such topics in their curriculum. That's great; we'll acquire more experts! But is that enough to override

the glamorous iconolatric prototypes that guide architects and clients nowadays?

a grim question

No matter what, here is an important question: How much longer is the consumerist party to continue, and what will come after it's over?

towards a hangover architecture

In our case as architects and builders, we can rephrase this question as this: How much longer we'll be able to build our buildings and plan our cities like we do now, and how we should do it when the music is over?

ignoring the future

Modernism was based on social and technical visions about the future. Today though, the future is impressively missing from the main architectural discourse. Perhaps that absence implies that we should just refine and polish what we do now, playing with trivial 'linguistics' of harmless artistic kind. Architecture, as well as society, look like a ship with no rudder.

show business

Today we design buildings following the 'growth' attitude: more big, more numerous, more flashy. And the related catchphrases are 'fast growth', 'rapid expansion', 'quick paybacks'. In such context buildings are money –as well as show business.

bizarre affections

We just adore tropical wood for our swimming pools in the desert. We are fascinated by ski slopes in Dubai or Venice canals in Nevada. We marvel at glazed towers with massive coolers in Berlin or Shanghai.

indoctrinated to desire

We expand our posh suburbs to all directions, then drive our SUVs to go shopping for imported organic food. We enjoy flying to faraway places for holidays, filling the air with fumes (we don't smoke of course). And we are after many things that we don't really need, but have been indoctrinated to desire.

doomed examples

That is what we actually do everyday, and that is what the impoverished billions strive to imitate. Of course, that attitude is reflected on architecture too. But will our students be able –or should I say 'allowed'- to continue our reckless lavishness?

leftovers for the future

I honestly doubt: They will inherit a looted and polluted world, where our materialistic lifestyle will be totally inappropriate. So a very different, new approach should shape future design, as much as future society. Let me share some thoughts with you on that.

besides energy crisis...

First, we should notice that the emphasis on energy crisis and more recently on climate change are part of the story: Even if we suddenly find a abundant energy source, that alone will not cure deforestation or urban congestion. And even if we manage to get rid of CO₂ completely, our fresh water or mineral supplies will not increase.

...there is a greed epidemic

And certainly, poverty or famines are not endemic just because of the recent 'energy crisis' or 'climate change'. The real culprit is the growth-oriented and ego-based model of frantic consumerism, which is linked to many other issues besides energy: water, raw materials, waste, ecosystems, GMO's, etc. etc.

the consumerist virus

What makes things worse is the billions that aspire to adopt that model through 'globalization'. Just imagine China and India having the same living standards with California...

vital questions

Such observations lead to certain vital questions: Can our consumerist lifestyle coexist together with true democratic equity for all, or it is impossible to have both? In other words, can the planet sustain such a lifestyle for all human beings, or -in the lifeboat ethics- some should be excluded from the 'party' leaving room for the others? Here we face a critical dilemma:

option #1: grabbing

We may be convinced that our consumerist addiction is a major 'freedom' which should be unrestrained. But early warnings suggest that only a shrinking minority will actually be able to enjoy that 'freedom' in "islands of prosperity surrounded by an ocean of poverty and despair".* Welcome to the Hi-Tech Dark Ages.

option #2: sharing

Alternatively, we manage to escape from the delusion of 'eternal growth', we do the necessary 'housecleaning after the party', and we share our planet more wisely, since we cannot order one extra.

symbolism

To use an architectural metaphor, it is a choice between a city with a few skyscrapers surrounded by a vast shantytown on one hand, or a web of green towns with modest low rise on the other.

vanity vs. reality

In the first option, the architectural 'haute couture' will continue just fine to inflate the vanity of the privileged few like today –and I don't have much to say about it. In the second, we will definitely need novel architectural concepts, visions, and priorities –and that's what I'll try to share with you.

imagine sanity

So, let's imagine a sustainable world where environmental sanity has prevailed; where basic resources are allocated sensibly; where designers cater for the community rather than for a few 'egos'.

the sustainable think-kit

Let me present certain principles that should guide the pencil and mouse of a 'sustainable' designer in such a world. They are a kind of 'sustainable toolkit' -but do not expect practical rules or recipes. My toolkit refers to an underlying mentality that should guide the architect's spirit on the drawing board and the worksite, so let's call it 'sustainable think-kit' .

old truths

To tell the truth, many of those principles are old. In fact, when you talk about 'sustainable' design or architecture, it's somehow like re-inventing the wheel: vernacular architecture and settlements had to be sustainable, simply in order to survive nature and time.

learning from the past

In deed, if you look carefully at old buildings or forgotten villages, you may detect many fascinating features, very illuminating in their wisdom and simplicity.

forgotten skills

Intelligent features that allowed our species not just to survive and prosper for millennia, but also to create comfort in harmony with nature, in balance with the available resources, even without the advanced technology of our era.

Low-Tech, High-Sense

Little 'tricks' that are nothing more than a blend of basic physics, common sense, cool realism, with simplicity as a guide, plus a different awareness of matter and time. I would label them as 'Low-Tech, High-Sense'; that's our starting point to what comes next.

Scale

Let's elaborate on that, especially the 'High-Sense' part, starting with the fundamental concept of Scale. We often refer to scale in its visual sense, but of course it goes far beyond that.

a balancing act

The dictionary interprets 'scale' as "*a way to assign a magnitude onto something*" -yet I would put it more generally: Scale is a comparative adjustment to a particular context, aiming at balance: our wishes versus our assets, desires vs. needs, ideas vs. matter, imagination vs. reality.

qualitative scale

It certainly refers to appropriate sizing, but it also has a qualitative dimension: You cannot build a shopping mall on a small plot or a lagoon in the desert; and I wouldn't say that a family of 4 needs a 10-bedroom house, or that 'economy of scale' justifies one huge power station for an entire country.

from minimum...

Scale encompasses the entire range of architecture, from urban design to detailing. It's nothing more than managing the triangular relation between requests, needs, and resources. It is a balancing process where the only objective rule is a certain minimum due to ergonomics or physical restrictions, like in the case of beds, fire exit routes, spacecrafts, or material scarcity.

...to maximum

At the maximum end, it is human vanity that sets the limit, like in beds (again), palaces, automobiles, or in what we vaguely describe as 'comfort'.

what exactly is comfort?

This last word –comfort- is an interesting perception, as it has a major value in design. And it is a flexible one too; just consider examples like these: People leave

their spacious houses to enjoy holidays crammed in small yachts, little cottages or camping tents. Others, that habitually prefer the elevator than the stair, sweat regularly at fitness centres.

relativity

And we now consider 20 or even 22°C as 'set-temperature' in heating systems instead of the 18°C standard that we had a few decades ago. Clearly, our sense of 'comfort' is influenced by physical necessities no more than by social habits, which drive us to adapt.

Adaptation

Here we have reached another basic concept, Adaptation. This is the core of sustainability, as it basically implies an adaptation of human goals to natural reality rather than to our self-indulgence. Proper scaling is a form of adaptation, but the latter goes beyond sizing:

adaptation = intelligence

Adapting to a plot's features, to a set budget, or to available know-how and materials, is certainly essential. Even more so, adapting to ecological constraints or taking advantage of environmental assets is a way to show that we are an intelligent species.

machines vs. nature

In the previous century, we learned to alter our environment instead of adjusting ourselves to it. With the help of machines, we expanded our biotope to remote hostile corners of the Earth –even to space. Mechanical transport, heating, cooling, or farming removed all obstacles in conquering the planet.

hubris

By now, we have realized the side-effects of our over-dependence on technology in order to 'tame' nature: energy thirst, pollution, mental and physical atrophy, chaos when machines disobey.

comprehend, adapt, utilize nature

Undoubtedly, the 'sustainable' designer should have nature as a precious ally, not a foe. And that means to be able to comprehend natural laws, to adapt to them, and to utilize them, instead of resorting to man-made medications, which have the nasty habit of breaking down easily, leaving you in the cold, or in the dark, or...

Ecological Footprint

Adaptation leads to site-specific design proposals; and 'site' starts from our small plot, extending up to the entire planet. This brings another topic: the Ecological Footprint; a very important concept, that deserves to say a few things more.

the size of life

The Ecological Footprint answers one simple question: how much of the regenerative capacity of the biosphere is occupied by our activities? In other words, it measures the biosphere area that is needed to provide the resources we consume and to absorb the waste we generate, using our technology and ecosystem management.

global plots

In that sense, the real plot of every building extends beyond its fence: To the forest in Sumatra where the teak floor will come from; to the oil refinery in Singapore producing oil for the cargo ship bringing the teak over the Indian Ocean; to the Saudi desert producing the petrol of the truck bringing the teak on site, etc., etc.

invisible sponsors

In fact, if you contemplate on the parts of the Earth which have somehow contributed to making this lecture hall, you'll be astonished. And remember, it's not only about making, but also using this room or this building: The electricity for the lights and the water in the toilets, the fresh air to breath or the detergents to clean the floor, they all come from somewhere else, outside the campus, nearby or far away.

invisible spaces

Similarly, the emissions from the ventilation system, the sewage from the toilets or the litter from the little reception, they will all end up somewhere else, outside the campus, nearby or far away. So, what we see here as a lecture room of 'x' square meters, is in fact much larger if we consider its material origins and the effects of its use.

the true size of buildings

This is exactly the same for all buildings that we design or use: Every square meter we add or remove from the design, every calorie slipping through the window joints or being blocked by insulation, they all add up and are transformed into various environmental 'externalities'. And that is nothing else than a certain amount of 'bio-space' which is allocated to this room, beyond its perimeter.

minimize externalities

Needless to say, any 'sustainable' design should minimize its environmental cost. Which means that the designer should be fully aware of the wider implications by each decision he/she makes. And that applies to the amount and quality of the materials, the building methods, and the functional consequences of the design.

lebensraum

So, this is the 'Ecological Footprint', the area required to supply materials and absorb waste. It is obvious that, as our buildings become more sophisticated, more numerous, and more quickly erected, we keep calling for more and more precious 'lebensraum' –or living space.

fast wounds...

In fact, we currently use 25% more space than the size of our planet. That means that we exploit the available biocapacity 25% faster than nature can replenish our withdrawals:

...slow healing

The teak we put on our floor requires new trees to grow up; the fisheries need time to replace the fish we ate; the forests should grow more to absorb the CO₂ of our new SUVs; and the landfills need time to digest our

garbage. But the frantic speed of our consumption obstructs the 'healing' ability of nature.

energy: the main cause

Energy is the major cause of the Ecological Footprint rise. That is mainly due to the growing amount of CO₂ that has to be absorbed by nature, in conjunction with advancing deforestation.

lavishness

Rich countries, led by the US, have a much larger footprint per capita than the rest. We should remember here that 50% of total energy consumption comes from the building sector.

foolish banking

The fast shrinking of natural reserves is like having a savings account at the 'Banque de la Nature', but instead of using only the interest to get by, we consume our capital too.

stealing from the future

In other words, we are borrowing from the future generations -or rather 'stealing' from them, since we cannot pay back. We are indeed a society that enjoys living beyond its means...

Time

We just have touched another important item from the 'sustainable think-kit', Time. Time is a notion that relates to architecture in many intricate ways. In fact, time is the 4th dimension of the built environment, a dimension frequently forgotten on the drawing table, in spite of its significance.

cycles

For instance, we have the day & night cycle and the summer & winter one, where our building is put through diverse natural conditions -sunlight, temperatures, humidity or wind- that cause diverse effects onto the structure, the interior or the function of the building.

living buildings

This is because -contrary to the usual misunderstanding- buildings are living organisms that interact with their environment: they inhale & perspire, bend & oscillate, expand & contract, get sick.

nature in action

Several physical phenomena occur each hour and each month: shadows, air currents, condensation, heat transfers, pressure differences. Even if we do not notice, such actions happen all the time, affecting the structure, the inner & outer spaces, and us too.

age

And buildings do change after the ribbon-cutting ceremony: like humans, sooner or later they grow old. Some age nicely, acquiring a mature charm, others age badly, hardly reminiscent of their past glamour.

materials

Yes, all materials deteriorate -but not at the same speed and not in the same manner, especially if their detailing is poor or if they are left unattended. It is human attention that adds a lustre to a building and prolongs its lifespan, just like in garden plants or

human relations. And after the building dies -like all living things do- some materials have a chance for a second life through recycling, while others become just garbage.

flexibility

And building functions change through time:

- the company's HQ use less paper now, more networks, less clerical staff, more executives;
- the young couple with that nice cottage we designed 6 years ago, has 3 kids now to squeeze in. How nice it would be to have room for rearrangement instead of a dedicated layout, that is redundant now...

buildings are alive

To sum all that, we should consider buildings as living organisms that continuously interact with natural forces, age according to their features and human care, might change function, leave remnants that can find a new use, all that happening through time.

Holistic Approach

Speaking of living organisms, we come to another issue, the Holistic Approach. Imagine that you are a tycoon, and you build your holiday retreat on a small deserted island. You have to deal with many more issues than just the rooms of your mansion: water supply, electricity, waste disposal, landscaping, anchorage, maintenance, security, and many others. All of them are required to make your staying first possible, then safe, next comfortable, and finally luxurious, providing also for the next years.

habitat

In other words, you have to create a habitat for you and your guests, by modifying, adding, subtracting, replacing, enhancing the environment of your little island, depending on the desired comfort level.

eco-system

Doing so, you affect the existing ecosystem: some trees should be cut to make room for the villa, birds might be forced to migrate, soil might be contaminated by a leak in the oil tank. The island will change because of you, and you might not like its new face if you are careless.

eco-consciousness

This process -but in much larger scale- happens all the time on our planet; it is a mutual interaction between man, buildings and nature. Every time we add a building, large or small, we add a new actor in the eco-scene to play its particular role with many other actors on the stage, in a complex and continuous dialogue.

think globally

So when we design or build a building, we should be aware not only of the natural forces that will affect it, but also of the wider side effects that our building and its externalities will cause to the environment, nearby or far away.

it's not just about nature

Yet, the holistic approach goes further than the environment: Architecture is a highly social domain as our built space reflects our society.

...it's about humans too

Besides the artistic or technical attributes we may assign to architecture, it undoubtedly has an essentially social and political dimension too -as we see in the Modernist movement or today's corporate architecture.

social context

A building may have one architect and one owner, but it is linked to everybody, one way or another. Whether it is a loud or a discrete statement, an urban jewel or liability, it reflects not only the technology or the fashion of its era, but also the inherent priorities of its social context.

space doctors

Consequently, each building plays a didactic role being a paradigm to follow or to avoid. This is a powerful tool for architects that acknowledge the social responsibility of their profession: Like doctors that advise on human body health, architects should advise on human space health.

healthy society

In short, holistic design should manifest into its outcome both, the environmental and social aspect, as vital dimensions of sustainability.

Minimalism

Now, we're going to another item from the 'sustainable think-kit': last but not least is Minimalism. If we were to give sustainable design a stylistic 'dress', then most certainly it would be a minimalist one. But let's ignore fashionable 'costumes' -the important things lie beneath.

Least Is Best

The bottom line of sustainability is in the motto "Least Is Best": the least possible size, least materials, resources, waste, maintenance, all aiming at the least environmental cost. So, if we are to evaluate various options, then the winner should be the one requiring the least of all.

Most Is Best, too

Then again, on the other side of the sustainable coin we read "Most Is Best". Puzzled? Don't be, as there are several things that should be maximized in order to achieve a sustainable outcome: flexibility, lifespan, durability, efficiency, self-sufficiency, multiplicity of uses, reuse. Here, in the appraisal of alternatives, the winner should be the one offering the most of all.

what about imagination?

It's not easy to promote a deep minimalist attitude in our glossy era, where design novelty or complexity are self-serving priorities. Many will immediately complain that the quest for less will not leave room for creative imagination -remember the slogan "Less is a Bore"? That is correct only if we attach 'imagination' to nothing more than superfluous geometry, costly materials, or pointless ornaments.

broadband architecture

However, architecture is more than photogenic forms: There is the imaginative use of space; the creative utilization of new materials and technology; and there is always the tremendous potential of colour. Authentic

architecture is a broadband one, going further than just vision, to truth.

visual habits

After all, history shows that the aesthetics of each era and place do change, along with the social and technical developments. It is therefore pointless to appraise the aesthetics of the future with the eyes of today.

the sustainable think-kit in brief

Let's summarize what we saw so far as principal concerns of the sustainable designer:

- Low-tech, High-sense
- Scale
- Adaptation
- Ecological Footprint
- Time
- Holistic Approach
- Minimalism

future-friendly design

Through those concepts, the final outcome of the design process should feature a number of future-friendly qualities:

- simple
- clever
- small
- durable
- flexible
- elegant
- local AND global
- autonomous
- 4-D

it takes two to tango

One last remark: Architects may contemplate, write, lecture, win competitions; but above all, they design real buildings. To do that, they need clients; for that reason, 'sustainably minded' architecture depends on 'sustainably minded' public.

the road to breakdown

But as long as the public is trapped in the huge brain-washing machine of glamorous lifestyle, the consumerist addiction will continue as a handy tool of social engineering. In that case, the messy 'Blue Marble' party will go on -until the 'eco-police' intervenes in its own way to end our contempt...

the future starts now

To avoid such a disastrous outcome, we need two things: First, to promote future-friendly design by adjusting our work as architects, or our demands as clients. Second, to advance public alertness on the dead-end laying ahead, not just with convincing arguments, but with attractive proposals too.

I hope I just added a small contribution to that huge - but vital- task.

Shukran.