

Local Resources: Leveraging Regional Skills and Metabolism

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Construction is an artificial process to displace, transform and excite material into a new composition in order to create spaces with different indoor conditions in contrast to the outdoor condition. After completion, construction faces two different types of degradations: the first is the result of the natural degradation or corrosion and the second being the result of our constantly evolving pretences or culture.

There is a constant flow of energy and material from the “high order system” of the building into the “low order system” of the environment. The creation and maintenance of any artificial physical system (e.g. a building) has to be attained by a constant effort in the form of energy, material or immaterial means (e.g. set up an social organisation) to compensate the drain-off flow that is driven by a potential difference. The flow stops when the system is in equilibrium with its environment. There is no reverse process in nature to restore the original state; it requires input of high quality energy. To explain this process, *entropy* has been introduced as a virtual state condition for a system by R. Clausius. As the entropy of a system increases, the more dispersed it becomes; its potential is reduced relative to its environment. Entropy becomes fully dispersed when no further flow is possible. If one intends for the state conditions of a system to be increased while entropy must be reduced, then high quality energy (exergy) has to be introduced into the system. In nature, solar radiation is the dominant primary high quality energy flux being converted into different forms of energy fluxes or transformed into energy reservoirs by different processes like photosynthesis, evaporation of water, etc.

Mankind has invented new transformation processes such as combustion, nuclear fission, photovoltaics etc. to produce technical work. To control these processes, new materials like steel, monocrystalline silicon, carbon reinforced composites, concrete and many others had to be invented. With the help of technical work, mankind constructs buildings using the same materials. Man created a socio-economic system, or “machine”, to organise the man- and brainpower necessary to create the technical material flow. This socio-economic “machine” produces a product called money and the flow of money follows the same rules as the flow of material. It can be distributed equally or concentrated and stored individually. Wealth is a kind of a state condition in the socio-economic system and there are different ways to run the socio-economic “machine”. In the capitalistic way, the maximisation of wealth is the driving idea. There is a competition to control more money and therefore more man- and brainpower (knowledge). Only by controlling manpower and knowledge can material stocks and their transformation processes be controlled. Without human manipulation the material would remain in its natural flow, compositions and forms.

The molecules of a material can't be blamed for harming the environment. The harming process is provoked and controlled by human individuals, who have a choice how, where and when human labour and human knowledge should be coordinated to “build” something whether it be a mine, transportation system, industrial plant, bar, plane or a building. This process includes the correspondent, necessary immaterial constructions as well.

Due to gravity, no material is lost into space. Inside the Earth system, the composition and the form of material is constantly changing due to natural forces that have been present for billions of years. Some thousand years ago, our species started to change the natural flow by creating new compositions and forms. The manmade interventions harm the natural system in a way that creates a new environment that is unfriendly for man and his environment. Mankind is poisoning its own surrounding and the harm has become too great.

Reducing harm means influencing the economic process, or more precisely the decisions of those individuals who control the “production machine” and the coordinated man- and brainpower.

The Yellow Workshop will investigate the mechanism of different construction processes in different regions and on different scales. We want to distillate the driving forces and rules of these processes and the harm caused by them. We know that there will be no single solution, no final result. We will try to look at processes in a more differentiated manner in order to increase consciousness. Hopefully there will be a different mood, a different attitude, a different point of view, a new outlook.