ANALYSING AND CALCULATING THE GREY ENERGY OF BUILDING MATERIALS TO LIMIT THEIR ENVIRONMENTAL IMPACT

INTRODUCTION

The concept of grey energy was developed in the 1970s, in the wake of the HQE (High Environmental Quality).

As the building sector is the most energy-intensive and the second largest producer of greenhouse gases, determining the ecological impact of a material has become a key issue in construction.

CONCEPT

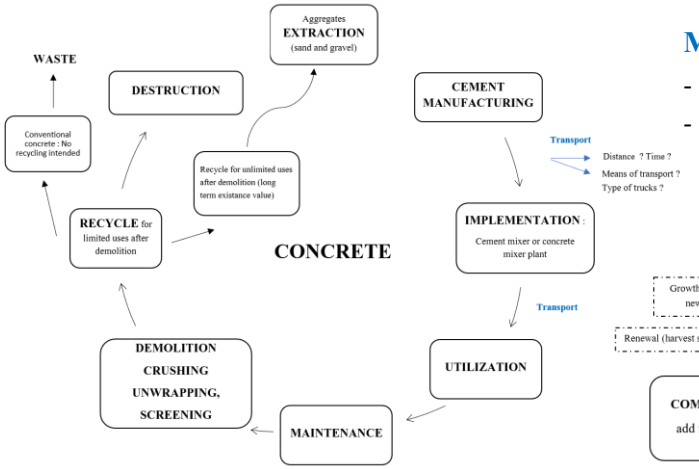
Calculating the grey energy means adding up the primary energy required at each stage of life, taking into account the life of the material.

What is the issue ? The aim is to estimate the energy and environmental cost of a material or structure over its entire life cycle.

After analysing different life cycles, the aim of the research is to determine common indicators, which will be taken into account from the design stage of the project, to limit the environmental impact of constructions.

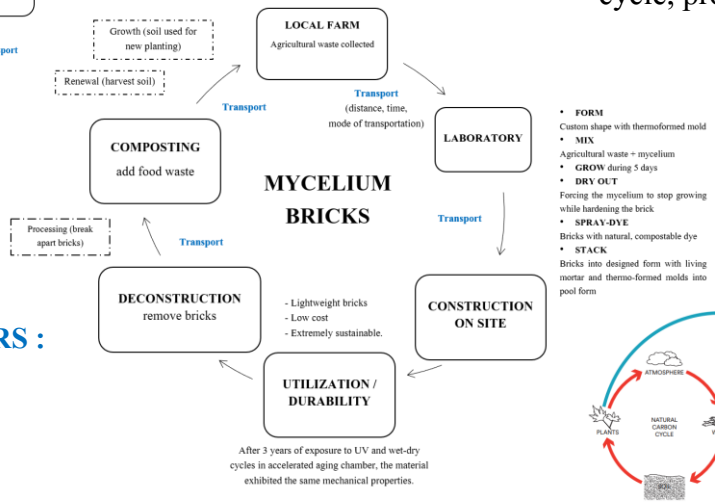
The focus will be on the last phase of the life cycle, producing waste due to destruction.

Taking inspiration from nature, how can we create a circular rather than linear economy in our constructions?



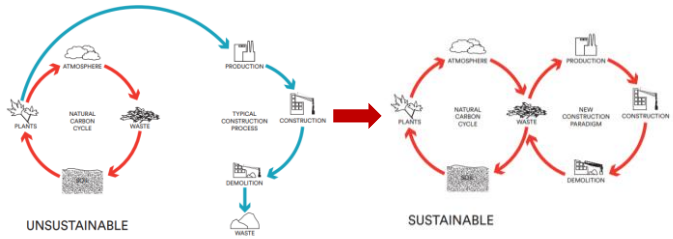
MATERIAL SELECTED

- Common materials : concrete, steel
- Materials compatible with Earth : mycelium, baked clay …



COMMON MEASURABLE INDICATORS :

- Economic cost
- Human and environmental cost
- Waste: solid, liquid, environmental
- Transport
- Selling price ...



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