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Technology is the answer, but what was the question?

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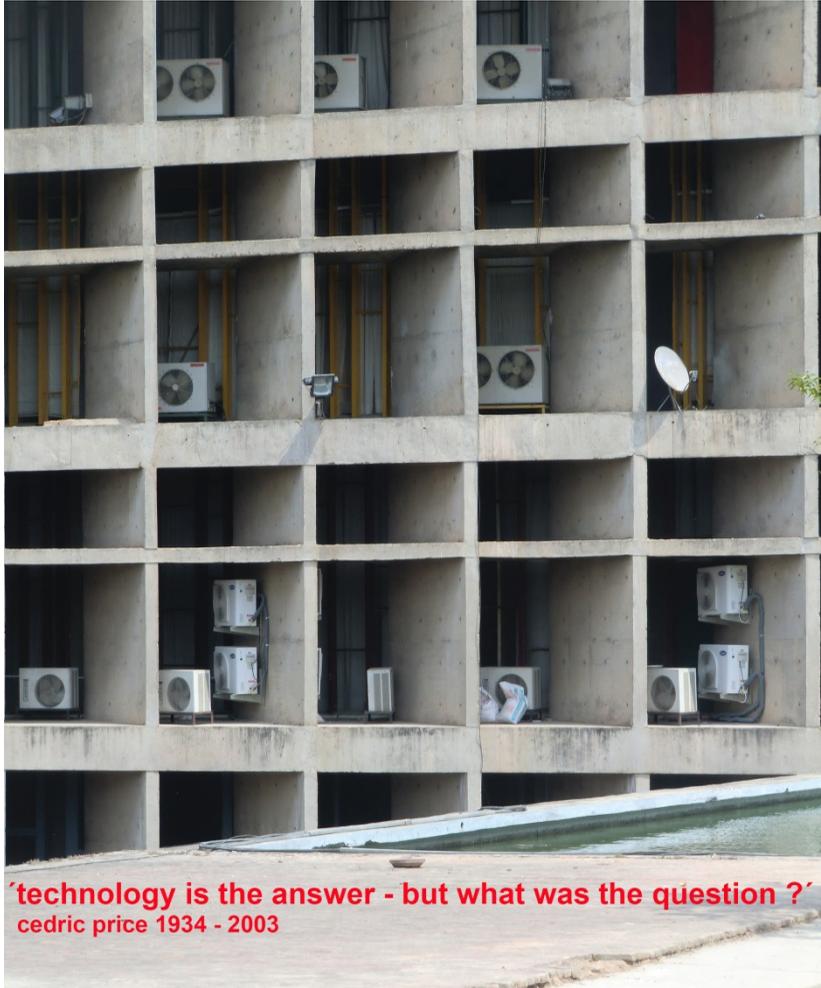
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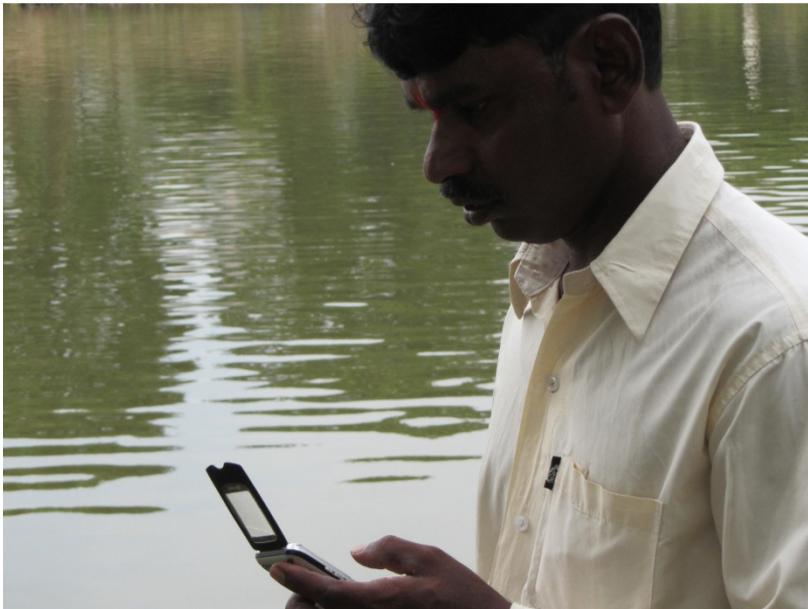
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'technology is the answer - but what was the question ?'
cedric price 1934 - 2003

technology is the answer – but what was the question ?

Whatever we do and wherever we are, we are surrounded by a multiplicity of technologies and the last decades showed an exponential application of 'new technologies'. Who for instance would want to miss our smartphones? It is a bizarre discrepancy: a slum dweller in India does not have access to



Indian farmer writing text message beside the polluted water of a lake
(photo Walter Unterrainer)

proper sanitation and drinking water but he has better communication tools than the president of the USA 20 years ago. With one single tool we enjoy almost unlimited

communication, direct access to the internet, we can find every spot via GPS, take pictures and make movies with better and better cameras and profit of more and more features like for medical checks or even life saving devices. On the other hand and without suffering from paranoia, the potentials for permanent control of our location, of who we are communicating with, what we write and talk, of our shopping behaviour or of other lifestyle habits, need to be mentioned as well as the fact that our direct social contacts decreased in the decade of the smartphone. So are these only minor 'side effects' which might be controllable, but as a whole advanced technologies are great and improve our life?

Without doubt, our generations live longer than any generations before us and medical technologies play an important role. It seems even a more bizarre irony that some technologies like the GPS which originally were developed by the military industrial complex for war and destruction are helping saving life in regions with peace. Does this mean that all technologies have the intrinsic potential 'to be good for everybody'?

A hammer as tool is a technology developed over thousands of years and it still gets improved by diversifying new shapes or combinations of shapes and applying new materials for head and handle. With a hammer, we can at the same time build a shelter and we can destroy it. In that sense, the technology is 'neutral', it is the user who decides. Every child knows how to use a hammer and understands what can be

done with it and in general it will be educated to use the tool productive and not destructive.

That raises the question how neutral are large industrial technologies like nuclear, genetic or in future potential climate engineering technologies? On one hand they all more or less plausibly promise a better life and the survival of more and more humans, on the other hand they are blamed for death, destruction and deprivation. So who to believe, the technophile scientist with his promises of a better world or the technophobe protester in front of a laboratory warning of doomsday?

If one definition of technology is *'the application of practical sciences to industry or commerce'* then it can be said that nuclear or genetic technologies are what I call 'semi-technologies', meaning they are not developed to the end.

Anyone in Europe who opens a sausage stand on a street needs to prove control over the whole process, from location, safety, hygiene, to details of what happens with the garbage and the waste water containing fat. In sharp contrast, in large industrial 'semi-technologies', a lot of aspects of the process are either not solved or the solutions are at least not tested, testing meaning over a longer period and concerning a maximum number of potential risks. To go back to the example with the hammer: only in fairy tales a hammer has its own life, humans have control over it. In semi-technologies, there is neither full knowledge nor full control over the whole process and production cycle, meaning that unwanted

processes can develop out of control with enormous destructive potentials. Knowing that the impact of any uncontrolled event in applying these large technologies is on a gigantic scale (and certainly higher than the destructive potential of all hammers on the planet) turns their technical implementation into an unacceptable risk for generations and therefore into an environmental crime, in many cases crime also in its legal meaning. A short look into history show important lessons of such a 'semi-technology': In 1948, the chemist Paul Hermann Mueller received the Nobel Prize (in Medicine!) for the invention of DDT as an insecticide which was considered to erase diseases and hunger. Only 20 years later – between 1968 and 1972, DDT was banned in most European countries and in USA for its devastating impact on biodiversity and its accumulation in human bodies and breast milk.



Fukushima reactor 3, still burning 8 months after the Tsunami

On the smaller scale of the building industry, every experienced architect can give examples for building materials or building technologies which were introduced to the market with high promises but turned out after only a short period to fail, including some so called 'green technologies', failing with considerable damage. In contrast, there are plenty of examples of technological inventions in the construction sector which offered new possibilities for architecture as well as reducing harm to the environment or even starting to repair environmental damages.

Any discussions between technophile beliefs in an uninterrupted and ideal technological progress on one hand and technophobe rejection of technology as work of the devil

(considering scientists in general to be corrupted) are not productive because they are missing essential questions: In what context scientific knowledge and technological solutions are applied? How were their risks assessed and tested, with what consequences - and what strategies exist to mitigate these risks to a minimum? Who has ownership and control over the technologies? Who is responsible for the whole circle of application, who is liable? Finally: What does all this mean for research and education?

This brochure illustrates the positions and discussion of the open room event 'technology is the answer – but what was the question?' at AAA on May 26th 2015. It is our intention and wish that the brochure helps to promote an ongoing discourse on this essential subject.

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