A cleaner world in 2020?

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If we don't radically change the way we build we'll never reach our goals.

If clean energy and a cleaner world is the future there are at least three things that need to change otherwise we will never reach our goals. First we have to choose consciously and with conviction for clean energy. Second, the government should set different rules and laws for both buildings and production. Finally, the market has to design en produce buildings and products in a different sustainable way.

Dirty energy

On the 22th of April 2010 a gas explosion sank the British Petroleum (BP) oil rig Deep Horizon in the Gulf of Mexico. Eleven people were killed. The valve of the blowout preventer, one mile below sea level, malfunctioned. Since then at least 5000 barrels of oil have poured out into the ocean every day[1]. Assuming 5000 barrels is correct the deep horizon will be, within 52 days a bigger disaster than the 1989 Exxon Valdez oil spill in Alaska[2]. During that disaster 260,000 barrels of oil were spilled into the ocean and 13,000 miles of coastline were smeared with oil.

The worldwide indignation over the Deep Horizon oil pollution is enormous: a new environmental disaster in a vulnerable natural area is on its way, fishing grounds are being destroyed, beaches and vulnerable wetlands will be contaminated and the economy of the Gulf States, including the fishing industry and tourism, is threatened. BP is making frantic efforts to limit the impact this disaster is having both on the environment and on the image of the company. This is not an easy task: the price of BP stocks have already gone down by 16 percent as of may 10th 2010[3]. However, BP is not the only party that is being blamed for this disaster. The President of the United States Barack Obama has been accused of being tardy in his response to the oil spill. In response to this criticism Obama has taken a tough position against BP and has said that he will hold BP responsible for the oil spill and that they will have to pay for the full damage. BP has already indicated they will pay for the damage in a bid to prevent further damage to the company's image.

Normally we don't have problems with oil, gas and coal as sources of energy. We use it daily in large quantities while we all know that today's energy world is a dirty, polluting and toxic industry. And normally we don't see anything of these effects and therefore have an "out of sight is out of mind" attitude towards it. We do not know that such disasters are daily events in countries such as Nigeria[4],

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[1] NRC Handelsblad 6 mei 2010. "uit gezonken boorplatform stroomt veel meer olie dan eerder werd aangenomen; groeiende kritiek op rol staat".

[2]. See: New York Times: http://topics.nytimes.com/topics/reference/timestopics/subjects/e/exxon_valdez_oil_spill_1989/index.html

[3] The Economist. May 8th-14th 2010. P.66. Volgens het artikel vertegenwoordigd dat percentage een waarde van 30 miljard.

[4] Zie voor Nigeria: Ed kashi Curse of Black Gold. 50 Years of Oil in The Niger Delta. Zie: http://www.edkashi.com/ Zie ook Peter Maass in zijn boek "*Crude World*, *the violent Twilight of oil".* 2009. Hoofdstuk 4 Contamination. P 53-80.

Ecuador[5], Equatorial Guinea or Siberia. In these countries there are no environmental regulations and rules like there are in America or Europe. There is no critical journalism or press to prosecute the oil industry. Over there people who oppose pollution and destruction of their environment could end up in jail or be killed. Mostly their own governments protect the interests of the oil companies like Royal Dutch Shell in Nigeria and Exxon and Chevron in Ecuador. But the state owned oil and gas companies in these resource rich countries are doing no better than the western companies. The environmental damage in these countries is proven to be many times greater than that of the Exxon Valdez in Alaska. Protests by residents usually do not reach us. It does not appear in our newspapers and is not within eyeshot. Even with the information sharing capabilities of the internet we usually see nothing of these contaminations, of the oil spills, of the suppression of local inhabitants, or the destruction of their society. Often these are not the countries we choose as a holiday destination. This time it's different. This time the catastrophe is not somewhere in a third world country invisible for our eyes but in the Gulf of Mexico where the oil is washing ashore on the coasts and marshes of Louisiana, Mississippi, Alabama and Florida. The United States are threatened and BP will know it. The clean up and compensation will run in the billions of dollars and according to the US government all costs will de recovered from BP[6].

With continued use of large amounts of dirty energy we call this misery and disaster upon ourselves. Our luxurious life is not a free ride but comes at the expense of large quantities of commodities that are being burnt for energy. It is not a risk-free business to extract, process and transport, either by ship, car or pipeline. Disasters large and small are part of the energy industry. Previously it was easy and cheap to extract these commodities but the largest part of the easy recoverable oil, gas and coal we have been extracted and used. It is becoming increasingly difficult to track down and extract new sources of fossil fuels from the earth's crust. This involves increasing risks to human lives and to the environment. The extraction of oil and gas from the ocean floor in the Mexican Gulf or near the coasts of Brazil is a complex and costly practice because the ocean there is thousands of meters deep. Deep sea drilling for oil and gas are marvels of technology but the oil companies take enormous financial and environmental risks by putting these techniques to practice. The sunken Deepwater Horizon oil rig did cost 1 billion US dollars. In the North Sea gas and oil is being extracted from over 10.000 platforms. It is a miracle that it didn't go wrong more often. The North Sea is a shallow sea when compared to the Mexican Gulf but even drilling in this comparatively shallow sea has not always gone well. For instance Piper Alpha. This oil platform situated in the North Sea exploded in 1988 and 167 people were killed. The financial damage amounted to approximately 1,2 billion US dollars[7].

Our appetite for energy is satisfied by huge investments but not without risks. Sometimes it comes with great human suffering and sometimes with huge environmental damage. Mostly we see no more than a photo on the front page of our newspaper or at the evening news on television. In our Western world we managed to make energy invisible. Power plants and oil refineries are built outside of towns and away from the areas that we inhabit. The electricity, oil and gas is transported underground through cables and pipes to our houses and our offices. How the coal is mined is invisible to us and the people who die while working in these mines live far away in distant countries like South Africa, Russia, China or Indonesia. We can turn the thermostat up high to warm our houses but we can't see where the gas comes from. We can fill up our cars with gasoline or diesel but we don't have a view of the enormous world beyond the mining, transport and refining. The world of oil is virtually invisible and the accompanying disasters usually even more so. We have tucked away all the filth and we think that we are living in a safe and clean word.

Clean Energy

Lets turn to clean energy in particular solar panels and windmills. As we have seen dirty energy is not a part of our visible life and we find it odd that this would be different with clean and renewable energy. "Please, no solar panels in our city because our buildings and monuments will be destroyed!"

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[5] Zie voor Equador: Peter Maass. *Crude World*. P 81-100 en de film van Joe Berlinger. Crude van Berlinger werd getoond op IDFA 2009. Zie: http://www.idfa.nl/nl/info/film.aspx?id=b6816cee-6220-4776-a268-10deef25636c

[6] Nu al wordt voorspeld dat de rechtszaken over de schade meer dan 10 jaar gaan duren. En dat is niet vreemd. De afhandeling van de schade van de Exxon Valdez in Prince William Sound in Alaska heeft meer dan 20 jaar geduurd. Vertragen en in hoger beroep gaan is voor de oliemaatschappij van groot belang. Exxon wist de claim daarmee met 90% te verlagen. Zie: http://topics.nytimes.com/topics/reference/timestopics/subjects/e/exxon_valdez_oil_spill_1989/index.html

[7] Zie o.a: http://home.versatel.nl/the_sims/rig/i-fatal.htm of http://www.greenpeace.nl/news/grote-olierampen-op-zee-met-pl

"No PV panels on our outer walls, because the beauty of our city will be lost". "No windmills in our countryside because they are so beautiful when empty". “Wind mills pollute my skyline so build them at sea but far , far away and outside of our view”. We want energy to remain invisible!

It's so easy to reason like this if you are not constantly reminded of the damage fossil fuels are causing. It is so easy to reason like this if you have no idea of the enormous amount of energy we use in our wealthy western world. We are actually too cowardly to make a choice. For decades we have known that it is necessary to change our energy consumption but in fact almost nothing has happened so far. Year after year we use more and more energy and BP and Royal Dutch Shell are extracting it for you. The oil spill for instance in the Gulf of Mexico is the result of our energy-hungry lifestyle. If we would build thousand of windmills in the countryside it would be too because our enormous need for energy. We will have to accept that, if we want to work towards a sustainable future. We will have to accept that energy is a part of our lives. We will have to accept that energy is not for free, and that in the future energy production will be part of our visual world.
Solar panels and windmills will be part of buildings, cities, towns and the countryside. Almost everyone agrees that the future must be sustainable but we take no real action towards it.

This NIMBY (Not In My Back Yard) behavior has to stop. As long as we don’t change our behavior there will be no sustainable future. People who keep claiming that their backyard is not the place are just as guilty of the environmental disaster in the Gulf of Mexico as PB. By all means wait until the smudge washes down on your shores and don’t complain when it happens. You might think that a few windmills in the sea and an occasional electric car will fix the problem, but nothing is further from the truth. Even if we build 100.000 windmills in the Netherlands we won’t solve our demand for electrical energy[8]. Even more problematic: our country isn’t even big enough to place all those windmills.

What we must do is totally change the way we shape our towns and cities. We have to change the way we design and build our buildings. We will have to change our vision of the world and adjust it to our sustainable goals. We cannot continue to act in the usual way but we’ll have to switch to a clean and sustainable world by different design and a different attitude.

Towards a clean world

To reach this clean and sustainable world there is a lot that needs to change. Within the boundaries this article I will concentrate on our human behavior and the built environment. But what applies to buildings also applies to products in general. For instance the way we produce cars or televisions. It also applies to how we produce our food and fish the oceans. Firstly, we have to change the way we design our buildings and our cities. In buildings we consume the largest amount of the energy. In Amsterdam for instance only 18% of the energy goes to transport, 38% of the energy goes to housing and 44% goes to commercial buildings and offices. And the energy performance of a building is almost entirely determined by its design. Making a building itself is a huge burden on the environment and the same goes for the city as a whole. But also the year after year performance of a building is determined by its design. As John Thackara in his book "Plan B, Designing in a complex world" explains: "Eighty percent of the environmental impact of products, services and infrastructure around us has its origins in the design[9]". This also applies to refit and renovation of existing buildings. The energy or sustainable performance of a building is specified by its design whether it’s a new building or a refit. So if you ignore this fact while designing you lose the chance to use the building in a sustainable way for the next forty to fifty years.

For now truly sustainable solutions or production of renewable energy on site is not a prerequisite in building codes or city design. And there are no environmental requirements. Normally external costs don’t play a role in the design and construction of cities, buildings and products. External costs, I mean for example air pollution from coal fired power plants and diseases such as asthma that people can get from it. Or carbon dioxide emissions that change the climate. Or the pollution of rivers by the discharge of wastewater in China for the production of our computers, telephones or televisions. Or the destruction of tropical forest for timber and biofuels we use. The damage to nature and the

[8] David MacKay. 2009. P32-37 en P.60-67.
[9] John Thackara. Plan B, Ontwerpen in een complexe wereld. 2010. P. 7 ev. En P. 84 e.v.

economy of the Gulf of Mexico and other oil-gas and coal disasters are no part of the price of fuel. Externalities are in all our products but it's not part of the price and we don't pay for it. At least not with the product. Braungart and McDonnough show us the way through their work and the book "Cradle to Cradle; the road to truly environmentally friendly designs"[10]. And although the book does not have ready-made solutions for a city or a building their approach to design and manufacturing is inspirational. We can learn a lot from them. If we don't follow the road and drastically change our way of production, we continue to destroy and pollute our world.

Dutch homes, offices and other buildings are made by real estate developers and housing associations. They design and build without considering your energy bill. All Dutch buildings are made according to the minimum requirements of the building code, which takes no account of real sustainable construction and sustainable use. The Dutch "Bouwbesluit" has only minor requirements on energy efficiency. And the building code set no requirements at all for the production of energy on your building or on site. For refit there are no energy efficiency requirements at all. And here is where the problem begins. If a building is finished, the quality of the energy performance is set for the next forty of fifty years. If this quality is bad the influence you have using the building energy efficient is nil. The only thing you can do is turn off the heating or stop showering.

The government is engaged in energy related matters such as subsidies on renewable energy and incentives for better building. But she does not address the bottom line issues. And to make matters worse she creates rules over rules. I was surprised by an article in the NRC-Handelsblad of Saturday the 8th of May about clean energy. The Minister noted that as from June 1st 2010 the "welstand[11]" will have to judge the visual effect of solar panels on façade of buildings. This rule is a good example of a new barrier to renewable energy. This rule has particular impact in the urban environment. Solar panels on roofs can still be build without a permit, but high rise and office buildings have more façade space than roof. Often the roofs of tall buildings are already filled with installations, elevators and façade cleaning machines. There is ample space to generate renewable energy. It seems the government throws up new barriers for renewable energy and not opting for change, innovation and a bright future.

Action!

As I wrote in the introduction, I am convinced that we first have to be aware of the risks of dirty fuels and secondly convinced to introduce clean energy. So far nobody makes a real choice. And without choice there will be no action. The minister who is not making real choices for solar panels. I will never say it is easy, but as long as we try the save "the cabbage and the goat[12]" we will never reach the goal of a sustainable, clean world. And if we don't make a firm choice we also bear the blame for all the oil spills in the world.

The government could do better by changing the "bottom line" rules for instance with firm new building codes. And the market could change their design and production methods for both buildings and all other products. But consumers like you and me have a responsibility too. We can demand better buildings and buy only real sustainable products. Maybe it is not very easy now to see the difference between right and wrong. But if we start asking for the sound products and energy efficient buildings we will learn to see the difference[13]. The Minister could make a first step by changing the building codes. Tighten the energy efficiency requirements of new buildings, introducing energy efficiency for refit and very important introducing sustainable rules and the mandatory introduction of renewable energy for all new construction, refit and restoration. After that the "Welstand" can judge these new designs. I am convinced that architects and designers will create perfect solutions. Solutions for better buildings and better products that meet the requirements of the future. And I am convinced that we get great solutions for solar panels on the facade, for solar panels on the roof and windmills in the city. If eighty percent of the environmental impact is foreseen in the design each project from now on should be constructed with the maximum sustainable solutions, maximum energy efficiency and

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[10] Michael Braungart & William McDonough. *Cradle to Cradle, Remaking Te Way We make Things.* 2007.

[11] "Welstand". Is a Dutch institution that advises the municipal counsel on building permits for new buildings, refit and monuments. The Commission is composed of independent experts in the field of urban planning, architecture, architectural history and visual arts

[12] "De kool en de geit sparen" is a Dutch expression meaning: saving the interest of both parties.

[13] Daniel Coleman. Groene Intelligentie. Het belang van ecologie voor een eerlijke markt. 2009.

maximum energy production on site. Only then we will be on track to a real sustainable world within fifty years from now.

We will now have to choose with conviction for clean energy, we will have to change design fundamentally to make better buildings and we have to change the way we live. Otherwise we will never reach our clean and sustainable future and by 2020 nothing will be changed.

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May 2010