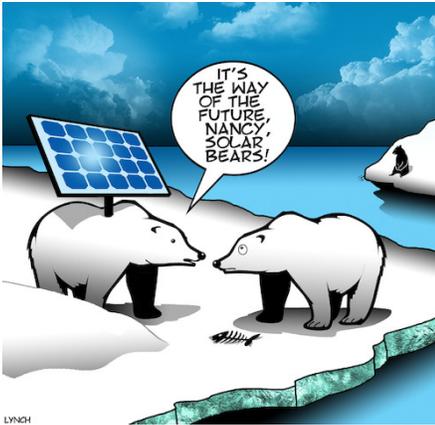


What does the World need to decrease GHG emissions in order to stop or revert climate change? Some personal considerations.



Rogelio Calderón, December 18th 2019.

“ Electricity and fuels are not required for human survival. However, they do make life easier and more comfortable. Water, food, shelter, air and clothing are human beings basic needs.”



For many years, I have come across this question, I have also read about many (NB: when I say many, it means MANY) meetings, agreements, press releases, hand-shakes, summits, round tables, etc... being held in every corner of the world, but as of today, it seems to be having very little effect. In fact, it looks like pollution, waste production, GHG and CO2 emissions are not decreasing but rather increasing. Maybe actions speak louder than words. **I have no doubt we can save the planet and ourselves** but not by repeating the same mistakes and expecting different results.

Although it might be “politically incorrect” saying or writing that existing Renewable - Clean energy technologies alone, shall not be the Panacea, I will take my chances presenting some arguments to the 21st century “Holy Inquisition”.

Before that, I will quote my father: 1.- *“We should not forget that nature and human beings interact in a symbiotic relationship and that mother nature can survive alone but NOT the other way around.”* 2.- *“When you only can afford to buy commonly branded beers and suddenly you can afford to drink Blue Label, the change is easy, but when you are accustomed to drinking Blue Label **and** suddenly you “degrade” to beers, the change becomes a titanic task”*

My personal opinion is that the World needs at least 4 things:

- 1.- An International **binding** agreement -you name it: Kyoto, Paris, Laura, Jorch, Timbuktu, Atlantis or else-
- 2.- Such an aforementioned binding agreement **must** be **proportionally, equally** and **symmetrically** applied and enforced. (190+ countries, 7.5+ billion people and 1 planet) **There´s no such thing as a free ride.**
- 3.- Planting more trees and restoring as many ecosystems as possible. Because if I see a “climate” summit lacking proposals or a strong interest in regenerating the planet, well, it sounds as an incomplete, a political or a sales summit. The trees´ purpose on earth is not only turning Co2 into oxygen. Will human existence -one day- depend on the underground fossil water reservoirs?
- 4.- Understanding what a transition means and the “prisoner´s dilemma” of the world´s population.

My rationale for # 1

a).- If the agreement is not binding, it is complicated to enforce -such as an imperfect law- because maybe it is convenient for some regions or countries to comply with, but not for others. We have already experienced the results from “commitments” to implement mechanisms such as the Renewable Energy Certificates, Carbon Credits, Etc.

b).- One big problem to solve in a situation where the World can reach a binding agreement will be in investigating how achievable it would be to equally enforce it across all nations and who would be in charge of enforcing the agreement, because we have had many disappointing experiences and examples throughout history, and even today.

c).- Maybe the proponents of the non-existence of an International Rule of Law might find this difficult to materialize. It is well known that scholars and experts have not yet reached a consensus about its existence.

My rationale for # 2

a).- It is important to understand that we live on **one planet**, not separated by atmospheres or regions, and political divisions are just political. Each region or country has a certain amount of natural resources (renewable and/or not), ecosystems, wildlife and **people** living in them; each one of them influence Planet Earth, **whether** for good or bad.

b).- In this regard, I would propose focusing more in waste production, GHG or CO2 emissions **per-capita** (produced, imported and exported), although some people are skeptical on how such parameters could be calculated. However, I would tell them not to fret, since we also know that perfect information is either very expensive or impossible to attain. Also, imposing an idea that only **some** countries make the calculations correctly without any political sways or interests involved, well, it sounds dubious to me. The likelihood of incorrect data is akin to “grading exams” with different parameters, but if we read history it will come up that this situation might not be “unthinkable” or “impossible”.

c).- I will illustrate an example between **Mexico** and **Australia**, Australia per capita produce around 4 times more CO2 than Mexico, excluding exported CO2. Resultantly, which country should be compelled to reduce their emissions more? If both countries agree to reduce, let’s say 20% of its CO2 emissions for 2021, Is it a proportional goal? Maybe it is, because otherwise the “development <-> CO2 emissions” correlation would be at risk. Additional comparisons can be made, there’s a lot of data in the world and it has 190+ countries after all.

d).- For decades, we have witnessed the asymmetric application of agreements or consensus reached in various events such as climate events, forums and presentations. The same behaviours have occurred with “efforts” to implement carbon trading related mechanisms or the metrics used to “evaluate” progress.

e).- One size does not fit all, meaning that the same “solution” does not apply to all countries, especially as they have different economic activities, needs, territory, consumption habits, resources and above all, money. E.g. If there was -today- a hypothetical possibility of developing -anywhere in the world- an aluminum smelting plant that could power efficiently with use of solar panels/batteries at reasonable costs, then perhaps this idea could come to fruition. Otherwise it would be like comparing Mexico -125 million inhabitants- with Iceland -360,000- or Norway -5.3 million-.

My rationale for # 3

a).- I think that our duty to Earth and to our future generations should not be only about filling the planet with technology but also building a sustainable coexistence model between the human race and the planet.

- b).- At least in social media, everyone seems worried about the quick reduction in numbers even extinction of many wild animals but we still don't understand that they -different from domesticated animals- cannot and are not intended to live between panels or wind turbine "forests" and that their habitats are in danger due to a whole host of reasons.
- c).- Although many studies suggest that a combination of reforestation policies and shifting to cleaner energy generation and consumption technologies would be more efficient, some people still think or promote that clean energy is the **only** thing our planet needs. Why? **Planet Earth also needs to be restored.**
- d).- The human race became aware of the destruction of the planet only when it threatened its own survival and comfort but how have people and countries contributed to reach this situation?
- e).- We could also pose the idea that companies, projects, green loans or stocks... include more metrics beyond electricity sources, technology, energy efficiency, etc. Perhaps we could implement an international binding legislation or order such as a "Planet earth's regeneration" commitment or obligation.



My rationale for # 4 Transition

"It is the process or a period of changing from one state or condition to another."

- a).- What's the **optimal CO2 emissions amount** per person which will allow a sustainable life on earth **for all humankind**?
- b).- Is Zero CO2 emissions the only target? Is it reducing GHG emissions? Offsetting emissions? Or else?
- c).- In order to achieve a goal, in this case an energy transition, shall we put all "our eggs in one basket", as it was?
- d).- In order for this to work, all nations, governments and populations must equally **contribute** with a grain of sand.
- e).- Do we ask respective regions to clean the planet according to how much they pollute or have polluted?
- f).- How can the world equally "allocate" such rights and obligations? What's the breakeven point?
- g).- Transition fuels such as natural gas will play an important role, renewables and fuels such as natural gas, or refined products are not yet substitutes *per se*, crude oil -for example- is not only processed for producing products such as gasoline, petrochemicals or plastics, also natural Gas is not only intended to produce electricity. Magic doesn't exist.
- h).- Every single human interaction in the planet has an environmental footprint, but not all humans have or have had the same footprint. Will they in the future? Can human progress restore its footprint and coexist with the environment?

Prisoner's Dilemma

Analyzing some numbers and available data can help us realize that out of the 190+ countries and 7.5+ Billion people in the World, a minority of them are those who produce a higher percentage of the world's GHG, pollution, trash/waste generation... Are we **ALL** doing as much as we "can" or only as long as it doesn't affect one's country or its politics? Is my country's population willing to sacrifice "some" convenience and comfort?

Not long ago, I decided to conduct an empirical experiment when visiting a grocery store near my home:

- 1.- I bought groceries which would last for 2 weeks, once at home I compared the amount of plastic coming from the carrying bags and the one coming from the plastic wraps of the food I got.
- 2.- Needless to say that the amount of trash resulting from the plastic wraps and disposable plastic containers was by far larger than the plastic from the carrying bags.

3.- It is also important to note that plastic carrying bags could be reused for disposing garbage, but plastic wraps and containers are mostly for single usage. Not only food products are usually wrapped with plastic.

What I am trying to picture here is that more often than not, it is easier to ban something than confronting the issue at hand. I think that other possible biases in “green planning” are:

- a).- Is garbage/waste production itself the real problem? **What about hazardous and radioactive waste?** And the risks?
- b).- Is it the handling or recycling of such garbage or trash? Exporting it? Costly?
- c).- Is facing a and b “problems” mutually exclusive? What is easier, cheaper, better or more sustainable?
- d).- Is it easier to ban plastic bags or really enforcing recycling taxes, obligations, policies or programs?
- e).- When considering the implementation of renewable/clean energy projects and installation of such technology, shall the world enforce a recycling or decommissioning obligation, tariff or cost? Because we can assume that **all non-biodegradable*** products and goods are indeed potential trash in the future?

What’s the real and full cost (not only money) of a solution or product? Considering the whole lifecycle, including the value chain from production through its useful and efficient life to decommissioning, disposing, recycling or upgrading.

Is it only about complaining about certain situations **or** about finding a -legal, sustainable and feasible- way to do it?

Considering the current and historic tensions and the geopolitical situation, **can the World leaders set aside their rivalries and work together for the mankind’s greater good?** Or only when it is “convenient” for them?

The “cheaper” solutions should not -only- be measured in terms of money: perhaps we could start talking in terms of Net Future Value in order to find a way to save us and the planet with as less “pain” as possible?

Fighting climate change is not only about technologies or modeling tariffs, as trade is not only about trade.

The first dilemma could be: Is the **world’s goal** to prioritize and guarantee the lifestyle or comfort (as it is today) of / for some people or countries only **or** is it about the future of planet Earth with its 7.5+ billion human beings, 190+ countries and the environment? Additional dilemmas come to my mind. There are many variables we need to take into account, more than the ones we are constantly reminded of in the media realm.

And remember, **not** all 7.5+ billion humans living on planet Earth have the same footprint, because they/we don’t live in one single-unique reality: for instance, my reality and history is most certainly not the same as my neighbors.

If you have any comment, please don’t hesitate to contact me: rogelio@huastecaventures.com

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Ref.: * And/or products with relative degradation rates of decades or centuries, whether through a natural or artificial process.

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