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Hydropower, Oil Palm, and Sustainability

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Cover Page Footnote

Fernando Salud is a Harvey Mudd College graduate with a degree in Engineering. He was born in Manila, Philippines and grew up and studied in Hong Kong, Switzerland, Singapore and the US. Having been exposed to countries with different levels of development, Fernando became particularly aware of the varying relationships between societies and their environments and how that affects natural resource use and standards of living. Thus was born his passion for the environment, specifically in the areas of environmental justice and renewable energy. Fernando plans to combine his technical education with an MBA to figure out how to accelerate the adoption of green technologies in developing nations. In particular, his dream is to bring renewable energy to underserved communities in developing countries in cost-effective ways.

Hydropower, Oil Palm, and Sustainability

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Abstract: This reflection touches on the writer's experiences during the EnviroLab Asia Clinic trip in early 2016 to Borneo, Malaysia and Singapore. The reflection involves two events: a visit to a blockade protesting the construction of a hydroelectric dam and a meeting with the sustainability department of Wilmar, one of the world's leading palm oil producers. The first event comments on the tension between the need for renewable energy and the destruction of the natural environment and communities due to the particular energy generation technology chosen. This event highlighted the importance of understanding the societal constraints a technology is being installed in. Moreover, this event made clear the opportunity developing countries have to leapfrog the problems developed countries have encountered in their energy infrastructure and define their own energy future. The second event comments on Wilmar's improving but still lacking sustainability policy. The writer noticed a myopic focus on the origin of plantations but an ignorance of the other impacts of the palm oil industry (input resource flows, effluents etc.). This event highlighted the need to consider the product's creation, use and disposal to construct a more lifecycle minded sustainability policy.

After landing in Miri, Borneo, the first place we visited was the Long Lama blockade set up by Save Rivers Network. This blockade's purpose was to block an access road to the proposed building site of the Baram River Megadam. It was populated by women and men of all ages. I saw hammocks hanging from the sides; there was a toilet, a kitchen and several tanks of water. These people lived at the blockade. All of them were crammed in this open-air structure. All of them were there to protest the dam.

My initial reaction to this blockade was one of surprise. As a person who thinks that climate change is the greatest threat to humanity's future, as well as coming from an engineering background, I was shocked to learn that this whole community of people were protesting against a hydroelectric dam. A dam that produces hydroelectricity, renewable energy, clean energy! But of course, the situation was not that simple. As we ate, our guides Philip and Charles spoke about the reasons for their campaign. They emphasized the following statistic: the dam would end up flooding almost 400 square km, displacing 20,000 people and wreaking havoc on the local

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ecosystem. It would also cut off the water supply villages downstream rely on. Additionally, tons of biomass would end up in the reservoir, rotting, releasing noxious gases and souring the water. The relocation of the displaced people was also a contentious issue. There has been a history of broken promises between the Malaysian government and people being relocated as a result of earlier dam projects: relocations were never as easy or efficient as advertised and, often times, the displaced people were simply forgotten about. Despite the benefit of clean energy, there were palpable cons to the building of this dam.

As it turns out, this Mega dam is part of the Malaysian government's plan to vault the country forward. It is part of the Sarawak Corridor of Renewable Energy (SCORE): Malaysia's plan to use the energy flowing in rivers to power the entire nation. As such, it became abundantly clear that this dam, as well as the possible installation of at least a dozen more dams, is central to Malaysia's plan for development – it is what they think is necessary to elevate their status in the global community and to elevate their standard of living and technological capability.

This plan actually sounds extremely familiar. It is one that was employed by the US in the 20th century. It is one that the US used to build up their renewable energy supply in the '60s. And it is one that is actually now in decline. The US is currently in the process of decommissioning many of their dams. As it turns out, the building of a hydroelectric dam is never as clean as it seems. There are many harmful effects on the animal population – preventing fish from migrating. Dams also completely disrupt rivers' ability to carry sediment, changing landscapes in unanticipated and potentially dangerous ways. Lastly, and most dishearteningly, the lifecycle GHG emissions of hydroelectric dams are not negligible, especially if it floods a densely forested area.

I respect Malaysia's desire for progress. I also respect their plan of energy expansion through renewable energy. However, I have now come to realize that while their plan for development will yield results they will likely be fond of initially, it is nonetheless a woefully outdated plan. The US and the rest of the developed world have already installed their dams and importantly, they have also already done away with them. The ill effects of hydroelectric dams are well-documented – yet the Malaysian government still wants to pursue them to gain a sense of modernity.

As such, this is the most important thing I have learned: the blind pursuit of development is dangerous. Developing nations are currently adopting policies, especially in the energy sector, to expand and modernize – and they are faced with a choice. They can either blindly follow the footsteps of developed nations, following the paths carved out by them in the 20th century. Or, they can, smartly, learn from the mistakes developed nations have already made and leapfrog directly into the cutting edge. India is on the way to achieving this, with their ardent support of solar energy. Certain African nations have beat the world in their adoption of mobile payment systems. Malaysia and the rest of South-East Asia also have this opportunity. Importantly, nations can learn from other nations, examining which policies worked for them and which didn't. In particular, developing nations should not be fixated on developing linearly, copying and catching up to developed countries. They have the chance to jump over known pitfalls and fast-track to technology that is actually new, modern and progressive. Developing nations have

the chance to beat developed nations in the adoption of the cutting edge. Developing nations have the chance to pioneer their own definition of modernity.

During our time in Southeast Asia, the most memorable meeting was the one with Wilmar's Sustainability Division. Wilmar, one of the largest oil palm plantation owners in Indonesia and Malaysia, is headquartered in Singapore. Its representatives gave a well-polished presentation delineating their commitment to sustainability in the form of No Deforestation, No Peat and No Exploitation. They introduced their preliminary efforts to track the origin of their palm oil. They also presented their grievance process to find and deal with offenders. Overall, I was impressed by their openness and humility. They owned up to their historically bad reputation. They also owned up to the fact that their sustainability policy is currently very young and consequently, not yet nearly as effective as it could be. As such, leaving the meeting, I had an overall feeling of hope. It was encouraging to see the world's largest palm oil producer devoting resources to sustainability.

Yet, as I had more time to analyze the meeting and pick apart Wilmar's policies, my general feeling of hope turned to a feeling of dissatisfaction and ultimately, frustration. If you look closely at Wilmar's definition of sustainability, the environmental aspects that Wilmar really only cares about is origin: where their plantation land originally comes from. Obviously, this is an important component of sustainability as cutting down virgin rainforests or draining peatland to erect plantations is unfathomably unsustainable. However, this is just one component of sustainability. Markedly missing here is a concern for the lifecycle impacts of a plantation. Wilmar does not include daily input and output flows from their plantations in their consideration of sustainability. Nowhere in their presentation did they speak about the energy needs that go into their processes, the fertilizers and pesticides used, the effluents and GHGs that come out of their operations, and the waste generated by the system. Essentially, underpinning the slick and smooth-talking presentation given to us was an incomplete and short-sighted definition of sustainability. Consequently, while I was encouraged to see Wilmar's current commitment to sustainability, I am now worried that it is not yet comprehensive enough to truly transform the palm oil industry.