

How not to become a Palm Oil Republic:
Employing lessons from the Malaysian Palm Oil Sector

As demand for biofuel products throughout the world continues to rise, there exists an opportunity for select developing nations to embrace their natural resource endowments and engage in biofuel crop cultivation, and ideally, processing. The Honduran state is one developing nation that is actively seeking ways to expand its palm oil industry for the purposes of processing and exporting biofuels. This would be a critical juncture for Honduras; an opportunity to move beyond the export of basic agricultural commodities and a history of path dependency and weak economic indicators. Although the Honduran government began to forge relationships with producers, investors and palm oil experts in 2005, internal weaknesses threaten to impede the development of the industry and render the country nothing more than a palm oil republic.

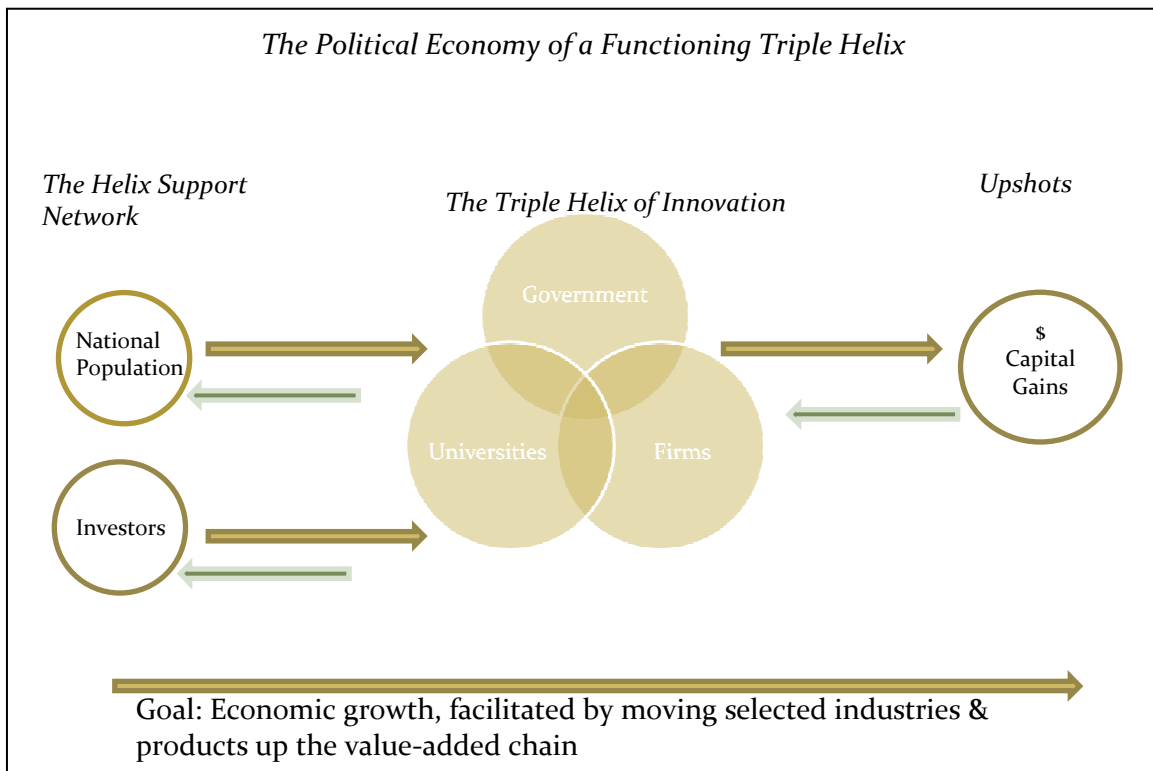
Beyond understanding the Honduran context, it is essential that we look to successful examples in parallel sectors and contexts in order to glean lessons and recommendations on how to approach palm oil expansion in the most effective manner. I will apply an analytical framework, rooted in Nation Innovation Systems (NIS) literature, to extrapolate lessons for Honduras from one of the most effective palm oil expansion initiatives in the world: Malaysia. By carefully examining select aspects of the Malaysian case, we are able to extract and apply lessons for Honduras. This careful examination highlights the need for coordinated, government-led strategies that simultaneously engage with the university/research and business communities. This synergy between governments, universities and firms is extolled in the NIS literature,

sophisticatedly applied in Malaysia, and has the potential to prevent Honduras from becoming simply a palm oil republic.

Analytical Framework

A neo-structuralist perspective, employing key concepts from the aforementioned NIS literature, advocates a “triple helix” relationship engaging academic, public and private actors collectively for the advancement of technological innovation at the national level. The NIS propositions are most appropriate for this analysis because they help us to understand the ways in which a state can consolidate relationships with other nodes of the triple helix (Firms and Universities). See DIAGRAM 1

DIAGRAM 1



The Triple Helix

The triple helix is the focal point of my analytical framework; the ideal triple helix represents a balanced relationship between Governments, Universities and Firms. It is this synergy that facilitates technological innovation at the domestic level. Without a strong and balanced triple helix, the goal outlined in Diagram 1 would be relatively unattainable.

The helix is comprised of three nodes, represented equally in size, and understood as equal contributors to the functioning of the helix. Although this is correct, in most cases (as we will see with the Malaysian case), the relative size and power of the Firms and Universities must be mitigated by the Government, if a balanced helix is desired.

A Healthy Cycle of Innovation, Investment and Growth

Although it may appear so in the diagram, a balanced triple helix does not function as an atomized unit; it is firmly supported by what I call the 'Helix Support Network'. The Helix Support Network is comprised of the national population and investors. The national population can include the electorate supporting the government, labourers and staff supporting the firms and students and faculty supporting the universities. The investors can include international investors, small scale palm oil farmers, national entrepreneurs, etc. Ideally this support network will eventually reap the benefits of the triple helix upshots.

Indeed the triple helix functions to facilitate technological innovation, moving products up the value-added chain and eventually capital gains; however, the paramount goal is to reinvest in the helix support network. This reinvestment will render a fortified

network, thus leading to a stronger triple helix, and increased capital gains. This healthy cycle of support, synergy and reinvestment is the key to growth in both economic and human capital.

In the subsequent sections of this analysis I will employ this framework to help explain some of the many successes of the Malaysian Palm Oil sector, which embodies the principles of the NIS literature in a highly sophisticated manner. From this successful example lessons can be extrapolated for the emerging palm oil sector in Honduras, which is currently represented by a disjointed version of the analytical framework outlined above.

Honduras: The Former Banana Republic

Rebuilding Honduras following the devastation of Hurricane Mitch in 1998 was a monumental task for the Honduran state, public and business community alike. The destruction caused by one of the most devastating hurricanes of the 20th century represents a critical juncture for the agricultural sector; this sector accounts for roughly 80% of the country's exports. Replanting the extensive banana crops, however, was not the most attractive option for large landholders, notably the Dole Corporation. Many large and small land holders chose to repopulate these lands with low labour African Palm plantations. In 1998 African Palm oil plantations were viewed as a valuable investment not only for their low labour costs (and disassociation with the power banana unions of Honduras), but also for their by-product palm kernel oil, used extensively in local and regional food production (Frank, 2005). As public and private researchers throughout the globe dedicate research to alternative and renewable energy sources, the Honduran government has identified an opportunity to engage in the production of biofuels.

Beginnings

The Honduran state, working in conjunction with local governments and small and large scale palm oil producers, has consolidated a plan to extend palm oil production to nearly 200,000 hectares before the end of the present decade. The Honduran state has moved away from a neoliberal ideology that would stipulate markets alone guide production and the economy, and has taken a much more active role ensuring the expansion of this sector. Within the context of the triple helix framework, the Honduran government has opened up political space for itself to take a leading role. A notable example of this state-centered industrialization initiative is the agreement that the Honduran state brokered with the Malaysian government to purchase 1.5 million hybrid seeds, in part with a 140 million lempira (Approximately 1 million USD) loan from the IADB (El Tiempo, 10/May/2005).

The central actor in the triple helix, the Honduran government, is beginning forge relationships with the small and large scale producers, the firms, in the palm oil sector. Measurable successes, including increasing hectares of palm plantations and the passing of key laws (including the ‘Ley de biocombustibles’) are the fruits of these partnerships. However, if the Honduran state and investors wish to move beyond traditional agricultural exports to a more sophisticated basket of export products, they must work with academic resources internally. Increased technological innovation, retention of skilled workers and the creation of higher paying jobs are some of the potential benefits of this relationship.

Honduras currently has four entities producing small amounts of biodiesel (The Dinant and Haremar corporations, small scale independent producers, and one public

plant in coastal city of Tocoa, Colon). With such small production levels, the price of biodiesel remains relatively high (close to the price of regular diesel), and is not yet ready for export. Increasing technological investments and innovations, via engagement with all three members of the NIS ‘triple helix’ may allow for a full shift towards the production of a competitive and sophisticated export product, biodiesel (diesel being a commodity in high demand at the regional level.)

Biodiesel production is being touted in the Honduran media, business and political circles as the desired end product of these African Palm plantation initiatives. The country now possesses sufficient land, labour and 1.5 million high performing hybrid seeds to expand palm oil cultivation. It is here that we reach a critical juncture. As plantations expand and interest grows Honduras requires decisive, coordinated action to ensure that their palm oil reaches its full potential within the national context. As we see in the triple helix framework, capital gains must work in the interest of the nation, and the support network of the helix, if it is to produce a healthy cycle of advancement up the value-added chain.

Although the Honduran example exhibits limited linkages within the triple helix framework, there exist countless opportunities for the Honduran government to further engage with the University and Firm nodes of the helix. To ascertain how a government can and should engage with these nodes, we turn to a successful example from the same sector: Malaysia.

Malaysia: Global Leader in the Palm Oil Sector

The Malaysian palm oil industry continues to dominate the global supply of palm oil; Malaysia has maintained its position as the global leader for more than three decades and has regularly strengthened the industry by producing value added palm oil products. The most recent manifestation of this national commitment to the fortification of the palm oil sector has been the domestic production of biofuels, primarily for export. Today the palm oil sector accounts for nearly 7% of Malaysia's GDP and provides more than 1.4 million jobs. The successes of the Malaysian palm oil industry are often credited to the state, which has played an integral role in spearheading the development of the industry since the 1960s. In recent years the Malaysian palm oil production model has been adopted and applied in a variety of other small (both physically and economically) and tropical nations, including Indonesia. Central American nations are also intrigued by the Malaysian process and palm oil technology, as the market for biofuels continues to expand. This growing market for biofuels may also allow for a certain level of poverty reduction; Niels Fold asserts that "The Malaysian way of organizing poor and landless people in [palm oil] production ... [is] an ideal model to deal with rural poverty." (2000, 473)

Beginnings

Oil palms were introduced to Malaysian in the late 19th century, but it wasn't until the 1960s that the government intervened to strengthen and expand this sector for agricultural exports. In 1968, when the Malaysian state wasn't much more than a decade

Post-independence, the government launched a comprehensive strategy to establish the foundations necessary for a productive palm oil sector.

Although the early set of strategies facilitated the expansion of an export industry centered on basic commodities, the Malaysian state was not complacent. Subsequent initiatives were focused on developing, producing and exporting value added products; these palm oil products have become increasingly sophisticated over the years.

Moving palm oil products up the value added chain required an integral, state-led plan; in the Malaysian case these are known as the Industrial Master Plans 1 and 2 (IMP 1 & IMP 2). IMP 1 was introduced in 1986 and set specific targets and provided institutional support for the improvement of refinery technology, to stimulate palm oil R&D and for the development of complimentary domestic industries. As the industrial capacity to process palm oil products within Malaysia increased, the country in fact had to begin importing crude palm oil (CPO) from neighbouring Indonesia. The industrial and economic ability to process imported CPO indicates a notably shift in the Malaysian palm oil industry; their ability to process these products is a direct result of key technological developments domestically.

A New Era: Biofuels

The advent of biofuel production in Malaysia is another critical juncture in the development of this sector; here we see the full shift away from basic agricultural commodities and a decisive move towards a sophisticated and valuable product. The Malaysian government began experimenting with biofuel production in 1982; however it wasn't until 2006 that the Ministry of Plantation Industries and Commodities launched

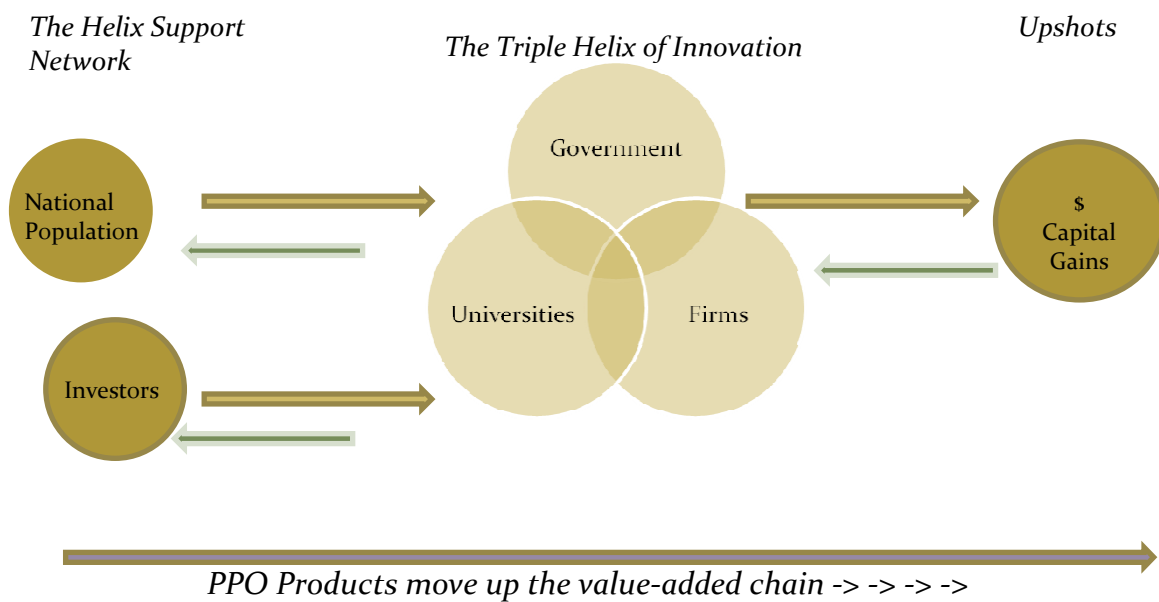
The National Biofuel Policy. This policy aims to continue the expansion of Malaysian biofuel exports. Currently the majority of these biofuels are destined for the European market; the estimated demand for biofuels in the EU is estimated to jump from 3 million tonnes in 2005 to 10 million tonnes by 2010.

This brief outline of the Malaysian case demonstrates the far-reaching and highly coordinated efforts of the government to not only develop an industry, but also to push their products up the value-added chain. This upward mobility on the chain is the product of a functioning triple helix. Here we turn to a more in depth look at some of the key linkages of the helix, from which lessons for other nations may be gleaned.

Malaysia's Functioning Triple Helix

DIAGRAM 2

A functioning triple helix: The Industrialization of Malaysian Palm Oil



While the parameters of this paper do not allow for a full analysis of all aspects of the Malaysian triple helix, focusing on specific linkages between the Government and the Firm and University nodes will allow us to extrapolate specific lessons for application in the equally unique Honduran context. Today the Malaysian Palm Oil Board, a branch of the Ministry of Plantation Industries and Commodities, is the embodiment of a balanced and highly functioning triple helix. This is the product of decades of experience, trial and error. However, for Honduran specific lessons we need to focus on the linkages between the nodes that predated the MPOB, which was created in 2000.

Government-Firm Linkages

From the onset of the Malaysian industrialization of the palm sector, the government has worked closely with firms to encourage investment and technological improvements.

One of the initial concerns was motivating national entrepreneurs and firms to move beyond the production of basic commodities. The Pioneer Industries Ordinance of 1958 provided tariff protection and shelter from income tax for both domestic and foreign firms in the manufacturing sector, including those processing palm oil. Depending on the level of investment, these incentives were available for two to five years. Within ten years firms with ‘pioneer status’ increased from 18 to 148. (Silvalingam, 1994) The Investment Incentives Act of 1968 followed, allowing firms similar provisions. Although both of these legislations proved viable, the Malaysian electorate demanded more jobs in these growing sectors. To facilitate job and industry expansion the government also

subsidized factory/processing plant space, and established free trade zones/export processing zones (EPZs) near major freeways and ports. Specific provisions for palm oil products were also introduced in this period. Processed palm oil products (PPOs) were exempt from export duties and taxes, while export duties for crude palm oils products (CPOs) were increased. These types of export policies, argues Rashia, encouraged PPO production and helped the Malaysian palm oil industry move up the value-added chain at a critical point (2006).

Although in the 1960 and 1970s foreign direct investment (FDI) was relatively low in the palm oil sector, the 1986 Promotion of Investment Act is credited with attracting the necessary foreign capital required for key technological investments. Although FDI increased dramatically following the 1986 Act, consistent with many of the South East Asian ‘Tigers’, the Malaysian government was capable of guiding the FDI to ensure sufficient technology transfer and domestic benefit (Silvalingam, 1994). As Hira points out, “FDI is subject in part to the conditions that the host government sets up for it.” (2007) The Malaysian government was able to guide FDI, via state sanctioned restrictions, to export-oriented sectors, including palm oil. Furthermore, increasing levels of FDI throughout the 1960s to 1990s corresponded to increased domestic investments. Domestic investment as a percentage of GDP doubled, from 14% to 28%, in roughly the same period (Wade, 1990). The Malaysian government was able to tailor these acts and strategies to simultaneously meet the needs of both national and foreign investors; this political dexterity is the result of a balanced triple helix, capable of mitigating its relationships with a variety of firms.

The aforementioned series of government policies created fiscal incentives that facilitated the growth and expansion of firms capable of processing crude palm oil into higher value processed palm oil products. However, fiscal incentives would have rendered little results without readily available and increasingly sophisticated palm oil processing technology. Of the 50 palm oil processing firms interviewed by Rasiah, more than 35 credit their success to government-led investments in palm oil research and development (2006, 166). Again, the Malaysian case highlights the need for a balanced triple helix, one in which the government develops not only its relationship with firms, but also with universities and research institutes.

Government-University/Research Linkages

Complimentary to the relationships forged with firms, the Malaysian state also began to actively invest in palm oil research and development in the mid 1970s. Of particular note is the creation of PORIM, the Palm Oil Research Institute of Malaysia, in 1979. PORIM was further fortified under the auspices of the 1986 and 1996 Industrial Master Plans (IMP 1 & 2) It is in this period that the institute expanded to include R&D and technician training in a variety of palm oil products, including oleochemicals, specialty fats, processed palm kernel oil and biofuels. In both IMPs financial incentives for firms remained relatively similar to the acts and policies of previous decades (See Rashia, 2006, 181). It was the research and development arena that underwent notable changes in this period.

During the IMP periods 1 & 2 PORIM, the Malaysian Agricultural Research and Development Institute and Universities received significantly increased funds for palm

oil R&D, which domestic firms had open access to. In 1991 the Intensification of Research Priority Areas (IRPA) established a palm oil research fund of more than 1 billion RM (Malaysian Ringgit) for universities and research institutes. The IRPA was extended for an additional 5 years (until 2001) given its proven successes in this initial period (Rasiah, 2006).

As of 2000 the PORIM was incorporated into the Malaysian Palm Oil Board (MPOB). The current organizational structure of the MPOB demonstrates the efficacy of the IMP university investments; more than half of the MPOB managers and leaders have obtained their PhD (MPOB, 2008). The sophisticated function today of the MPOB is a direct result of the key investments the state made in previous decades. The long term benefits of investment in the research/university node, and human capital, is one of the most important lessons to be gleaned from the Malaysian case.

Both Fold (2000) and Rasiah (2006) acknowledge that the Malaysian case has several implicit lessons for other developing nations (they both mention African nations); however, these authors both fail to extract key lessons and specific recommendations for their reader. This information is assumed to be easily transferable to a variety of settings with relatively little context specific analysis. Here I challenge this notion. In this section I have outlined select Government-Firm and Government-University linkages specifically because of their applicability to the specificities of the Honduran case.

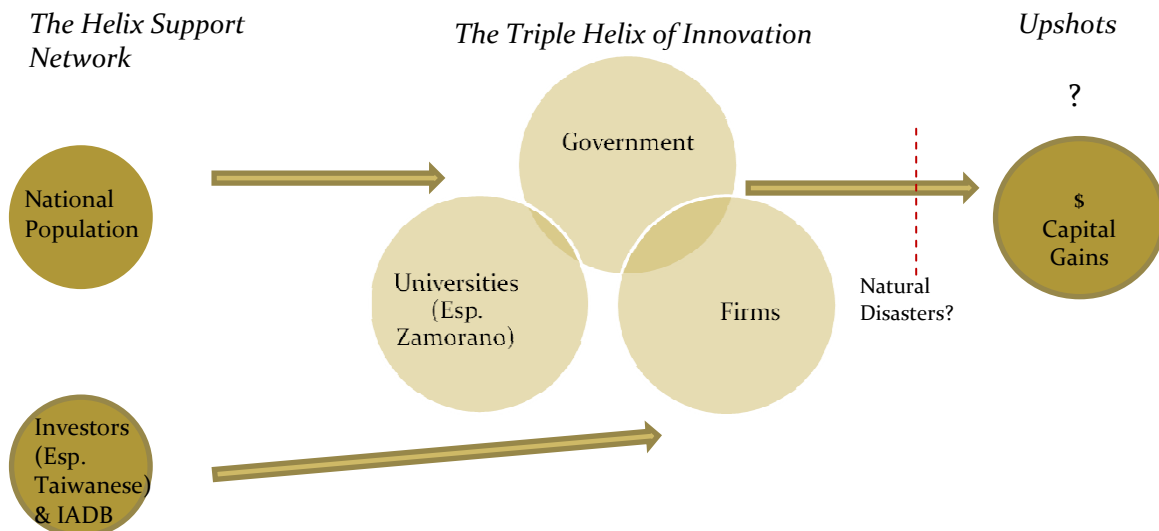
Lessons Gleaned from the Malaysian Experience

As Diagram 3 demonstrates, when we apply the triple helix framework to the Honduran case, the result is a much more disjointed representation. Although the

overarching goal is to produce a healthy cycle in which Honduran palm oil moves up the value added chain, the first order of business is to fortify the triple helix. The following recommendations, gleaned from the Malaysian case, are designed to: 1.) fortify the University and Firm nodes themselves and 2.) fortify the government/university and government/firm linkages.

DIAGRAM 3

The Honduran Triple Helix- Problems & Potentials for the Palm Oil Sector



Government-University Nodes

As we see in the Malaysian case, key investments made in the universities, research institutes and individual researchers were essential for a thriving triple helix, and industry. Fortunately, Honduras is home to one of the foremost agricultural research universities in Latin America, El Zamorano. The Zamorano is a technologically advanced university undoubtedly capable of undertaking palm oil/biofuel research.

Although it is not currently undertaking any biofuel/palm oil research of note, the schools 5 year Strategic Plan indicates a desire to do so (Zamorano Board of Trustees, 2005).

The Zamorano has a very limited relationship with the Honduran state, in part because it is a non-profit university funded primarily by USAID and the German government. The real issue here is not lack of interest or potential, but a lack of available financial capital for university/research investments. Fortunately for Honduras, there does appear to be international and NGO interest in investing in biofuel R&D in developing countries; an example of this would be the IADB loan that the Honduran government secured for the purchase of hybrid seeds. Now the issue become securing funds for investments that will allow those seeds and their fruits move up the value-added chain for Honduran benefit. Guiding incoming capital from investors, loans and NGOs is another important issue that the Honduran government is going to have to address in the immediate future.

Government-Firms Nodes

Latin America in general does not have a good history of guiding incoming capital, FDI in particular (Hira, 2007). As with all of Latin America, Honduras runs the risks of MNCs usurping their power, as well as economic and technological benefits, in the palm oil sector. Much can be learned from the Malaysian example, which simultaneously guided FDI while supporting domestic firms and entrepreneurs. As in Malaysia, is it essential to grant income tax exemption schemes, pioneering status, and create export processing zones for industry expansion. These policies can be applied to foreign firms, as they may be useful in garnering capital in the initial phases; however,

this must be accompanied by policies that support and encourage local producers (for example, subsidized processing plants and granting even greater financial incentives).

Finally, the Malaysian policy in which PPOs are tax exempt and CPOs are subject to higher export taxes would be useful for Honduras. A policy such as this would directly encourage local entrepreneurs to invest in PPOs production in lieu of CPOs, and prevent the country from slipping into a ‘Palm Oil Republic’ scheme, where palm oil fruits find their way to the old banana ports, to be exported and processed elsewhere. Of course, these local entrepreneurs require government tax incentives, domestic technology and R&D and a certain level of government protection from overbearing FDI. The synergy required between the three nodes is evident. Furthermore, this synergy would help Honduras to overcome some of the major internal weaknesses that challenge the success of this pilot project.

SWOT analysis:

The following SWOT analysis sketches out the strengths, weaknesses, opportunities and threats of the Honduras case in its present state.

		Internal	External
+	Strengths	<ul style="list-style-type: none"> • Available land (200,000 Hectares) • Necessary labour for cultivation • 1.5 million high performing seeds • Public and Private interest in palm oil production • Politically popular (given high diesel prices and job loss upon flight of banana plantations) • Established universities capable of biofuel R&D and producing skilled technicians 	<ul style="list-style-type: none"> • Growing international and regional interest in biofuel production • IADB and other NGOs demonstrate a willingness to fund biofuel initiatives • Expanding international markets (ex- EU) • Improved technologies available for local adaptation
	Weaknesses	<ul style="list-style-type: none"> • Limited government revenues for investment in universities and research initiatives • Limited capital for expanding R&D and training in domestic universities • Economies of Size: Limited production capacity of current plants render high prices for biofuel products, comparable to regular diesel prices 	<ul style="list-style-type: none"> • Natural disasters (annual hurricanes and floods) • Other nations in the region may develop more efficient and/or sustainable biofuels (ex. Sugarcane ethanol) • MNCs investing in Honduran palms may monopolize sector and prevent positive reinvestments domestically (would impede Honduran's ability to move their products up the value added chain)
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The strengths and opportunities are evident, and many of the threats are directly beyond the control of the Honduran state. Of pivot importance at this point is addressing the inherent weaknesses. The recommendations I will make in the final section not only gleaned from the Malaysian case, but also pinpoint feasible actions that the Honduran government can undertake immediately. As mentioned in the ‘threats’ section, timing is important. In a region where several island and countries have the potential for palm oil or other biofuel production, Honduras must establish itself as soon as possible as a regional leader and innovator.

Recommendations: Overcoming Weaknesses and Fortifying the Triple Helix

Recommendations for the Honduran state:

- Work with Zamorano to lobby funding agencies (USAID & German government) for the establishment of a substantial fund specifically for students, researchers and faculty undertaking palm oil/biofuel R&D
- Solicit funds from international financial bodies (IMF, IADB) for loans (with a reasonable amortization period) for investments in palm oil R&D.
- Implement income tax incentives, export taxes and factory subsidization schemes to primarily benefit domestic firms and entrepreneurs.
- Create a government led body (comprised of politicians, economists, palm oil experts and businessmen) to guide FDI. While actively pursuing appropriate levels of FDI, this body should also develop the necessary restrictions to guide FDI and ensure maximum benefit for the Honduran people.

It would be a lofty and impractical to assume that the Honduran government will immediately and effectively implement all of these recommendations extrapolated from the Malaysian example. However, the timeliness of these recommendations is notable. These recommendations are specifically designed for an industry that is nascent, and full of potential. The Honduran government may not be able to control world petroleum and biofuel prices or impending natural disasters, but it does have the tools to pragmatically improve upon its own internal policies and investments. It is imperative that the Honduran government begin to undertake controlled and measurable steps to ensure the longevity and sustainability of this budding industry. Failure to invest in local

technologies, researchers and firms, and failure to protect these actors from the overbearing influences of FDI and MNCs in Latin America would inevitably produce a Palm Oil Republic. Here, by applying the triple helix framework to the Malaysian success story and Honduran beginnings, we are able to identify key recommendations that will prevent this country, full of potential, from becoming a contemporary manifestation of a banana republic.

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How not to become a Palm Oil Republic

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