

Market Entry and Environmental Sustainability of Container Freight Operations in the Crane
Manufacturing/Assembly Industry
(Technical Paper)

Ecotourism in Malaysia: Perspectives of Tourists and Residents
(STS Paper)

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On my honor as a University Student, I have neither given nor received unauthorized aid on this
assignment as defined by the Honor Guidelines for Thesis-Related Assignment.

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Introduction

General Research Problem: Cultivating Global Sustainability through the use of Technology at the Port of Virginia and Ecotourism in Malaysia

How can environmental sustainability be promoted?

How are commercial enterprises pursuing actual and perceived sustainability?

In this day and age, nearly ninety percent of all goods are transported by sea, with seventy percent of those using container ships. In the 1950's, the container shipping industry was transformed as new technologies were invented to make it easier to load and unload ships with large cargo. This completely changed the availability of goods, making the "world smaller and the world economy bigger" (Castonguay, 2018, n.p.). These container ships, however, burn dirty fuel, or what is commonly called 'bunker fuel'. This bunker fuel is composed of the sludgy dregs of the petroleum refining process, making it extremely cheap to ship goods across the world. Burning this dirty fuel has severe negative impacts on the environment. As mandating the use of highly refined fuel or requiring all container ships to be outfitted with scrubbers to clean the dirty fuel emissions is costly and unrealistic, shipping ports around the world are taking it upon themselves to make their other operations as environmentally friendly as possible. This is more important today as concern for the impact humans and their activities have on the environment is drastically increasing. The ever-apparent effects of climate change are beginning to spur changes in people and entities such as the Port of Virginia. The Port of Virginia "is creating a 21st-century port that in parallel to moving cargo, drives a sustainable economy, corporate investment and job creation across Virginia" ("Port of Virginia—Sustainability Report 2018," n.p.). The Port of Virginia, specifically, has made drastic improvements to their current operations, such as increasing the number of electric powered vehicles and helping sustain biodiversity in the surrounding waters, and will continue this sustainability commitment in future ventures.

Environmental sustainability concerns are not just for those in the container shipping industry, but people around the globe. Sustainability has touched world travelers and become of high concern during cross continental vacations. Today, many people are going on vacation to not only have a relaxing and educational experience, but to make a positive environmental impact on the destinations they are visiting. These travelers are concerned with the degree of negative or positive impact their vacation will have on the environment. Many ecotourism sights have implemented green technologies such as solar panels and vertical crop cultivation to cater to this new mindset of a subset of world travelers. This type of travel has been coined with the name Ecotourism. Ecotourists “aim to reduce their impact on their surroundings while partaking in activities that both immerse themselves in nature and promote the conservation of the natural environment they [travel] to enjoy” (Eco-Business, 2018, n.p.). The ecotourists are using tourism as a “viable tool for conservation, protection of biocultural diversity, and sustainable community development” (“TIES Overview,” 2019, n.p.).

Both the Port of Virginia and those participating in ecotourism ventures share a common goal. They are both working towards supporting the global environmental sustainability movement through the use of green technologies. The use of green technology at the Port of Virginia and in Malaysia have direct positive impacts on the environment and boost the local economies, while there are differing implications socially.

Technical Research Problem

Market Entry and Environmental Sustainability of Container Freight Operations in the Crane Manufacturing/Assembly Industry

The Port of Virginia directly impacts millions of people daily due to its global operations. The Port of Virginia has an overall economic impact of \$88.4 billion and employs roughly one out of every nine union workers in the state of Virginia. Due to the Port of Virginia’s high

impact both locally and globally, they must work continuously to improve their operations. This year's capstone team has been tasked with developing an in-depth understanding of the enterprise risk and resilience on several time horizons and analyzing the ports operational efficiencies. Specifically, the capstone team will use this knowledge to develop a model to suggest or deter the Port of Virginia from partaking in the venture of manufacturing or assembling American made maritime cranes in the United States. The only companies who currently manufacture and assemble these maritime cranes are located in Poland and Denmark. This imparts a high cost of purchase per crane for all United States ports as well as large negative environmental impact as they must be shipped across the world before use. The Port of Virginia would be the first United States port to venture into the crane manufacturing and assembly industry.

The model provided by the capstone team will discuss the impacts of a variety of markets, which the port influences and is influenced by, as well as many environmental sustainability concerns. This venture would change the Port of Virginia's role as a global entity. The port would not only continue to be a fully functioning port for importing and exporting goods, but also play a critical role in United States container shipping port operations. The Port of Virginia would have the opportunity to enter this market and save billions of dollars and billions of tons of carbon, from the transport of these cranes across the ocean for American port use. The environmental impact of this venture would be considered by the port. It is evident that this venture would help reduce the negative environmental impact of transporting the cranes to the United States from Europe, however, daily operational efficiencies would also be considered. Operating a full manufacturing or assembly facility can be environmentally taxing if not built with this in mind.

These goals, however, are heavily influenced by current operational procedures, as the Port of Virginia is a public entity, controlled by the state of Virginia. Due to the state control, all data and information privy to the capstone group will be provided by this entity. We will use independent research, an existing comparable report, and data provided to us by the Port of Virginia to create a model. The existing report was conducted and published by BVG associates and will be used by the capstone team as a basis for our maritime crane model analysis. This existing report analyzed ten of Virginia's ports based on their readiness to support a manufacturing or assembly facility for off shore wind turbines. Due to the similarity in goal of analysis and size of machinery, the capstone team has deemed maritime crane manufacturing and assembly as a comparable venture. All data used for this analysis will be provided by the off-shore wind turbine report as well as by the Port of Virginia. At a high level, the maritime crane manufacturing and assembly model will include, definition of the appropriate metrics, definition of requirements for all types of maritime cranes, metrics for required facilities, costs, the economic and environmental impact. When the capstone team completes all analysis, a comprehensive model will be presented, backed by data, to recommend a future venture to the Port of Virginia. This analysis will aim to shed light on the maritime crane industry and the feasibility of market entrance by the Port of Virginia, with consideration for environmental sustainability.

STS Research Problem

Ecotourism in Malaysia: Perspective of Tourists and Residents

Today, simply traveling to a secluded destination for vacation, for some, is not enough. Environmental sustainability has touched many world travelers and has become of high concern during cross continental vacations. These travelers, ecotourists, want to have a positive impact on

the environment by exploring its ecological beauty and feeling connected to nature. Malaysia is one of the top countries in the world for this type of travel. Malaysia has adapted to this type of tourism through the development of ecotourism attractions such as wooden bridge trails through the jungles as well as snorkeling boat tours in the ocean to swim with endangered sea turtles (“25 Best Ecotourism Experiences in Malaysia,” 2019). Many ecotourism destinations have also begun to use environmentally friendly technologies such as solar panels and mini-hydropower facilities on streams and rivers nearby to attract this type of tourism. As small communities in Malaysia develop attractions such as those mentioned above, ecotourists become likely to travel to their destinations as it appeals to their personal travel goals. This has prompted concern for community and culture sustainability. The use of green technologies, specifically solar panels, and an increase in tourism has the potential to positively or negatively affect the culture of the local populations in Malaysia. It leaves many concerns for how these local communities have changed socially and economically due to this influx of people and the technology they are now using.

Many ecotourists believe that their sustainable travels to the small communities in Malaysia have a positive social and economic impact on the local residents. The act of environmental sustainable travel is thought to provide an alternate source of livelihood to a local community which is more stable than their normal practices (Kiper, 2013). The locals in Malaysia have altered their lifestyles to cater towards these tourists. They have done this by providing them accommodations and accepting new green technology, such as solar panels, to continue to attract their business. The locals in most host countries have reaped the benefits of ecotourism through increased income and therefore increased livelihood from the ways their ancestors lived. “If not all, most of the ecotourism sites [in Malaysia] are located in [remote

areas] in which [utilizing] electrical energy from the normal grid is difficult or very costly” (Hajibeigy, Aravind, & Walveka, 2018, n.p.). The use of solar panels has provided many small communities with access to light and power in times when they were previously left without. Many local residents are provided with the opportunity to work within this industry rather than maintaining the traditional way of life, which would have been less financially stable. The tourists believe that their influence on these small communities has improved the livelihood of the local residents both socially and economically.

Not all locals understand the connection between ecotourism and the environment however, and simply view it as a source of income and stability as tourists never stop coming (Jalani, 2012). The quality of experience for ecotourists is found through the degree of immersion and environmentally sustainable technologies used by the host country, which may have not been native to their culture. The use of “conventional nonrenewable energy [would] have negative effects and ruin the ecotourism sites” according to the ecotourists, therefore, many ecotourism sites use Hybrid Photovoltaic Thermal (PVT) systems as an energy source (Hajibeigy, Aravind, & Walveka, 2018, n.p.). They have adapted this technology whether it has a positive impact on their local community or not. There is no ‘one size fits all’ in regards to ecotourism, which can yield problems socially and economically as the methods used to not fit their culture. Every community has slightly different practices and the “Western classical conservationist approach and its apparent universality as a concept” is not apparent in the many ecotourists sights we see today. There is an “uncritical acceptance of Western-constructed ecotourism and a failure to recognize that there is no universal or unique understanding” which has the potential to impart some of the “very inequalities that it may attempt to eliminate” (Cater, 2008, n.p.).

My analysis will focus on understanding the assumptions and conceptions of ecotourism from both the perspective of the people participating in ecotourism and members of the local communities in Malaysia. I will conduct research to investigate the differing perspectives of the ecotourists and the local residents regarding the social and economic impact using online resources and scholarly works. Many of the scholarly works I will use in my analysis are papers which use field surveys, taken by professionals in this field of study, as their basis of evidence. The field surveys provide transcripts of interviews from both eco-tourists as well as the local population regarding their experiences and understanding of influence in regards to ecotourism. I will also use papers written by other scholars who have analyzed similar issues to support my arguments. Content analysis of these scholarly works will be conducted. The scholarly works will be used for understanding of both the perspective of the locals and the eco-tourists economically and socially as well as the influence of Hybrid Photovoltaic Thermal (PVT) green technology in the region.

Conclusion

Malaysia has become one of the most popular ecotourism destinations. The local communities of Malaysia have adapted to the influx of people who travel to see the incredible landscape and be close to nature. This industry has changed the way the local communities operate by offering commodities that they would not normally sustain. The Hybrid Photovoltaic Thermal (PVT) systems provided by the ecotourism industry have given light and power to many local communities which did not have access to this advanced technology before. The local communities have begun to use solar panels in order to attract more people. The influx of the ecotourism industry and the green technology associated with it have impacted the social and economic normality of many local communities in Malaysia. There remains the question if this

type of tourism and the technology which is used is positively or negatively influencing social norms and the economy of the local populations of Malaysia. The social and economic impacts of green technology use is clear in regards to the Port of Virginia and their practices, however, the construction of a manufacturing or assembly facility for maritime cranes will need to be analyzed. The capstone group has been assigned to generate a model to determine if this venture is worthy of the time and resources of the Virginia Port Authority. Many factors such as cost, economic sustainability and environmental factors will be considered by using a similar report published by BVG associates as a resource. The Port of Virginia has the potential to be the first port in the United States to construct a manufacturing and assembly facility on American soil. This will reduce the environmental impact of shipping the cranes across the ocean as well as the economic requirements previously required to obtain these cranes from Europe. This facility will impact the local population of Virginia by providing thousands of jobs and further globalizing the Port of Virginia. Overall both social and economic factors must be considered when altering local practices as it can have positive and negative implications.

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