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Transportation applications for developing tourist enclaves: Lessons from Koh Lanta, Thailand

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Working Paper 2008-05



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**INSTITUTE OF URBAN AND
REGIONAL DEVELOPMENT**

**TRANSPORTATION
APPLICATIONS FOR
DEVELOPING TOURIST
ENCLAVES:
Lessons From Koh Lanta,
Thailand**

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July 2008

UNIVERSITY OF CALIFORNIA

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TRANSPORTATION APPLICATIONS FOR DEVELOPING TOURIST ENCLAVES: Lessons From Koh Lanta, Thailand

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ABSTRACT

The successful development of island-based tourism is largely dependent on the type of transportation access available to carry people and goods to the island. If transportation access is not planned and managed carefully, it can contribute to the destruction of both the environment and communities that first attracted tourists.

Koh Lanta Yai in Krabi Province, Thailand presents a prime example of the transportation pressures caused by rapid tourism growth. The economic, environmental, and social outcomes of these choices will help determine the type of tourism that Lanta supports. This paper outlines two transportation alternatives, the choice of which will determine the shape and rate of development on Lanta Yai. Key transportation planning lessons can be drawn from the Lanta case, which are applicable not only to tourist islands, but to any growing tourist destination. These include aspects of community need, financial support for alternatives, limited car use, and hotel owner collaboration for transportation initiatives.

BACKGROUND AND MOTIVATION

Tourism is a growing economic force and a major industry in many developing countries, particularly in states with tropical island resources [1]. While the economic benefits of tourism are often needed and welcomed, its transportation, land use, and environmental impacts, if not carefully managed, can be detrimental, even to the point of undermining the very landscapes that initially attracted tourists. Increasing attention is being focused on the need for sustainable tourism, which is economically, environmentally, and socially sound, serving both tourists and the local population. Transportation planning is an essential element of sustainable tourism development.

Context

This paper examines the case of Lanta, a cluster of islands in the Andaman Sea off of the coast of Thailand's Krabi Province. White sand beaches, mangroves, tropical rainforests, and settlements of the Urak Lawoi ("sea people") characterize these islands. Only the two largest islands, Lanta Noi and Lanta Yai, are moderately settled, and a diversity of cultures, including Buddhists, Muslims, and Urak Lawoi can be found on the islands. The population is about 10,400 on Lanta Yai and 4,900 on Lanta Noi [2]. Lanta Yai supports all of the area's tourist accommodations and attractions, while Lanta Noi is sparsely populated and undeveloped.

For many years, Lanta Yai has been a serene, extended-stay, family-focused tourist resort area but has recently experienced a rapid burst of resort development along its western coast. It is at a critical development juncture, where tourist-focused development is occurring at an unprecedented rate. The number of hotel rooms on Lanta Yai has quadrupled in the past five years, from 1000 to 4000, and many more resorts are planned.

Regional and local access presents a host of difficulties for both locals and tourists. Community access to employment, goods, and secondary education on the mainland is a necessity throughout the year. Currently, Lanta Yai is accessed via two ferries: one connecting Lanta Noi to the mainland and a second from Lanta Noi to Lanta Yai. Even at the lowest point of the tourist season, daytime ferry demand often exceeds supply. High season tourist traffic further exacerbates the difficulty of traveling between Lanta Yai and the mainland and causes severe congestion problems on the island's road network. As tourism on Lanta Yai expands, so does the demand for a reliable and safe transportation link to the mainland, as well as an island-wide transportation network on Lanta Yai. Whether tourists making trips from resorts to local restaurants or island children en route to school, everyone faces problems with traffic safety and the inadequacy of pedestrian infrastructure. These issues pose critical choices for the future of Lanta Yai: to become a resort island where tourists travel by car, a modal orientation that would continue to be beyond the means of the majority of the population that cannot afford cars and that would almost certainly create negative safety and environmental externalities, or to develop into a more ecologically oriented tourist center with a greater emphasis lower impact transport, such as walking, biking, and public transport.

This paper outlines the potential impacts of these two alternatives of transport development in the Lanta case. These alternatives were developed to offer concrete advice to local officials and community members on the choices that could be considered, not to recommend a specific course of action, but to empower the community and its leaders with an understanding of the likely

consequences of this decision and provide an incentive for them to more thoroughly evaluate these alternatives. Since many of the issues that Lanta faces are common in the developing world and are intensifying with the rise in global tourism, it is our hope that others can benefit from this study by adapting these concepts to their own locales.

RESEARCH APPROACH

An assessment of the current transport and access conditions on the island was conducted by means of an “environmental assessment”, as referenced by Page [4]. The methodology used was that of a check-list associated with the impacts of transport choices on tourism development. In order to help officials and community members consider the full ramifications of the method of access chosen, the checklist included the following:

- Benefits to local residents and tourists
- Environmental impact
- Transportation-dedicated land use
- Influence on the rate of development
- Community impact
- Cost effectiveness

A study team of graduate students from U.C. Berkeley and Chulalonghorn University visited the island for about two weeks in May 2007 to build on two previous years of planning research. Members conducted a host of meetings and interviews with local and provincial stakeholders and decision-makers. Extensive field research was conducted to assess the current conditions of all island roadways and access to tourist attractions/destinations. Observations of peak transportation problems were limited due to the seasonal timing (low tourist season) of the workshop.

Current Transport Conditions

Key issues in this research can be identified by geography. Regional, or inter-island, access determines how people and goods reach Lanta. Intra-island (local) access affects the way in which residents and tourists reach their daily needs.



FIGURE 1. Aerial view of Lanta Noi and Lanta Yai showing ferry landings [1].

Regional Access

The greatest transportation concern expressed by interviewees is that of regional access (the connection to the mainland and the link between islands). These spans are served by a private ferry operator, whose concession was granted by the district-level government. According to the contract, ferry service should operate on a fixed schedule from 7 AM to 10 PM, regardless of demand; in practice, however, the ferry runs only when the vessels at both docks are at, or very near, capacity. Accounting for loading and unloading as well as on-ferry travel time, the crossing times are 15 minutes from Noi to Yai, 20 minutes from Noi to the mainland. However, delays due to capacity limitations can substantially increase total travel time. We observed delay in boarding of up to 12 minutes during the low tourist season. Queuing is exacerbated because the ferries used are of unequal vehicle capacity (Lanta Noi-Lanta Yai capacity \approx 10 vehicles, Lanta Noi – Mainland capacity \approx 15 vehicles), causing long vehicular queues on Lanta Noi. The smaller Noi-Yai ferry does not have any passenger facilities (pedestrians must squeeze into the spaces between vehicles), and the Noi-Mainland ferry has covered bench seating for about 20 people.

These ferries do not comply with any environmental (air quality) regulations, as they visibly pollute the dock and surroundings. Although there appear to be multiple berths, many are in disrepair, and multi-ferry berthing is not feasible at all locations. In one observation, the inability to simultaneously load one ferry while unloading the other caused a delay of seven minutes.

Crossing fees per passenger are equal for tourist and local alike but are differentiated by vehicle type. Vehicles are charged separately from the passengers they carry, and round trip vehicle fees can be a substantial portion of the average GDP per capita of 71,158 Baht/year [4] in Krabi Province.

TABLE 1. Ferry fare comparison to average GDP per capita per day.

	Noi-Yai	Noi-Mainland	Round Trip	Round Trip % of GDP/capita/day
Vehicle Fee	50 Baht	50 Baht	200 Baht	103 %
Passenger Fee	3 Baht	10 Baht	26 Baht	13 %
Vehicle + 1 Passenger	53 Baht	60 Baht	226 Baht	116 %

Local dissatisfaction with the ferry service is widespread. Construction of bridges for these links has been a ‘hot’ topic of discussion in the community for several years, and a feasibility study is currently underway for both crossings. Based on our interviews with provincial government officials in Krabi City, the decision to build these bridges lies with the local TAOs and central government.

Feasibility studies for the bridge(s) and its location have not yet been disclosed; however, it is unlikely that bridge capacity would have a greater capacity than that of access roads at the ferry landings. Thus, the bridges are anticipated to be two lanes with a capacity of approximately 600 vehicles per lane per hour. All locally elected officials in the Tambon Administrative Organizations (TAOs) are in favor of the bridge connecting Lanta Noi to Lanta Yai, but there is disagreement on the desirability of the bridge from Lanta Noi to the mainland. Lanta Noi TAO officials expressed their belief that the Noi-Yai bridge will result in tourist commerce on Lanta Noi from visitors en-route to Lanta Yai, and also favored it because it would provide free passage to locals, thus lowering residents’ transportation costs. Lanta Yai, whose governments include two rural TAOs, Saladan and Lanta Yai, and one municipality, Siraya, have a split of opinion. Officials in Saladan concur with those in Lanta Noi that only the Noi-Yai connector should be built, but those in Lanta Yai and Siraya are in favor of both bridges. Their argument for construction of these bridges is to speed up emergency medical service. [Krabi City, the provincial capital, has the nearest medical service to Lanta and is about 85 km from the mainland access point.] Additionally, they voiced concerns over the impediment to reaching secondary education caused by lengthy travel time and the safety of the current ferry system.

While all local government representatives fully support at least one of the bridges, island community members have mixed feelings about the bridge proposals. Local organizers report that some residents favor both bridges due to the anticipated improvement in emergency medical access but others are anxious about the traffic externalities that the bridge would bring, including noise pollution, faster traffic speeds, and community disruption.

Local Access

Transportation options on the islands include walking, biking, private motorbikes, private vehicles, and “skylaps” (motorbikes with a side passenger attachment). Families of three-four typically travel on one motorbike or by skylap, but the police are attempting to remove skylaps from Lanta due to their poor safety performance. Tourists travel primarily by hired skylap, resort van, and rented

motorbike. The Lanta Yai TAO included a bicycle system plan in a previous transportation plan, but currently cycling is not promoted on the island. Officials do not believe that there is a large enough market to support public transit.

Physical inspection of the road network revealed road safety hazards, which surfaced as a topic of concern in discussions with residents. We note that during the three years of the Berkeley-Chulalonghorn Workshop, the condition of the road network has substantially improved; major roads have been paved. However, many have unprotected hairpin curves and lack shoulders. Inadequate drainage is a severe issue throughout the island and has already contributed to rapid deterioration of road surfaces.

Motorbikes have the highest mode share on the island, as well as the highest accident rates. According to the police, the top three causes of traffic accidents are: speeding on Lanta Noi to reach the second ferry, road surface conditions, and driver violations. In addition, during the high to tourist season, disoriented or drunk tourists incur many accidents.

Improvements to traffic safety have been recognized as priorities by some communities and elected officials. The Lanta Yai TAO is actively planning traffic safety improvements, such as installation of convex mirrors at blind curves. Residents and officials expressed a need for wayfinding improvements to aid tourists and help prevent accidents caused by confused travelers.

TRANSPORTATION ALTERNATIVES

The quadrupling of the number hotel rooms on Lanta Yai over the past five years pushes the demand for reliable and safe transportation access even higher. Our interviews and observations bring to light the choice that Lanta faces between constructing bridges to the islands, which would reinforce the current trend of auto-centered development, or a lower-impact access alternative. This discussion will examine both alternatives with respect to the research checklist.

The Bridge Alternatives

Community leaders and their constituents believe that the bridges are a pressing need for Lanta's development. A feasibility study is underway; therefore, it is highly probable that some form of investment in transport infrastructure for regional access will be made in the near future. Intra-island improvements, including facilities for pedestrians and cyclists, are not currently on the discussion table as pressing needs for the community. The bridge alternatives (either one bridge, Noi-Yai, or bridges for both connections) are discussed.

Benefits to Local Residents and Tourists

One of the most notable benefits of either of the bridge alternatives is a reduction in crossing travel time. At current traffic levels and bridge design speeds of 40 km/hr., travel times by bridge from Noi to Yai would be one-two minutes, and from Noi to the mainland three-four minutes. This compares to average crossing times by ferry (omitting queuing delay) of 15 minutes and 20 minutes,

respectively. Thus, if both bridges were built, and there were no other changes in vehicle travel times due to e.g. induced demand, the bridges would result in roughly a 25% or higher reduction in travel time. In addition, the bridges would provide 24 hr service for those with access to a vehicle.

Despite the potential for shortening travel times, the construction of the bridges would not necessarily solve the emergency medical service problem. There are several reasons for this. Firstly, the trip to Krabi City from Lanta Yai is a lengthy trip, regardless of the ferry. The travel time to the nearest emergency medical facility would still be at least 1.5 hours, which is significant in a life-or-death case. Secondly, using the bridges for emergency medical access requires vehicle ownership or access, which is significantly out of the purchasing power ability of most of the islanders. Thus, this access would really only be serving those resort owners or residents within the upper income brackets. Building the bridges without a comprehensive emergency medical service plan will not provide equitable access.

Environmental Impact

Analysis of the environmental impact of the bridges will presumably be provided as a component of the engineering analysis. Bridge construction would require intricate staging and environmental precautions to protect the fragile mangrove ecosystem that lines the shores of Lanta Noi and Lanta Yai. Runoff and an increase in emissions after construction could endanger this precious natural resource.

Among community members, the most popular bridge alternative seems to be that of one bridge between Lanta Noi and Lanta Yai. However, the likelihood of environmental damage to Lanta Noi after the construction of this bridge is considerable. If only the bridge between the two islands is built and the auto-oriented culture continues to evolve, queuing delay for the ferry-only connection would cause substantial problems. Based on the capacity of the current mainland-Noi ferry (approximately 60 vehicles/hour), if only *one half* of the projected (year 2012) visitors to Lanta in the peak season drive (assuming three tourists/vehicle), the morning peak hour ferry queue would be 29 vehicles long and take almost nine hours to clear. [Visitor projections based on a straight-line approximation of the growth in hotel rooms over the past five years.] Queuing for the Noi-mainland ferry would not only affect residents in the mainland village near the ferry berth, but would also cause congestion and environmental damage on Lanta Noi.

TABLE 2. Queuing analysis for the mainland to Noi ferry, based on growth trends of the past five years. This case considers 50% of the tourists driving.

	50% Drive Projection
Peak Hour Arrival Rate (vehicles/hour)	89
Non-Peak Hour Arrival Rate (vehicles/hour)	57
Maximum Queue Length (vehicles)	29
Time for Queue to Clear	8.7 hours

Transportation-Dedicated Land Use

In addition to the environmental effects in the immediate vicinity of the bridge, a larger automobile population would result in land use and related environmental impacts, both direct and indirect. The most immediate direct impact would be the need for more parking spaces to accommodate the additional cars likely to use the bridge. Parking lots (transportation-dedicated land use) would not only create new runoff and drainage problems, but would also be constructed at the expense of Lanta’s rainforests. One parking space (including access) is only slightly smaller than the size of one resort bungalow (30 square meters), so design with visitor parking in mind could potentially consume twice the amount of land currently needed for resorts. This does not include the number of parking spaces that would be needed for popular tourist destinations, such as beaches and rainforest trekking sites.

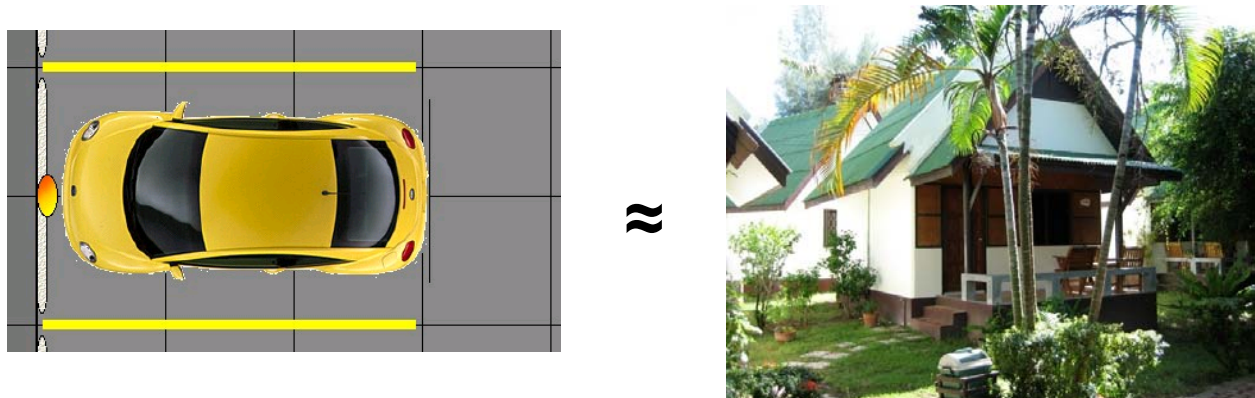


FIGURE 2. Comparison of parking space size to Southern Lanta Resort bungalow [6].

Rate of Development and Community Impact

If there is one rallying cry that surfaced throughout interviews among almost all of the communities on Lanta, it is “we do not want to become Phuket”. Nearly every community group voiced this sentiment, but the model of development on Thailand’s most popular island (Phuket) is strongly

correlated with its regional transportation connections. Following the erection of a bridge connection Phuket to the mainland, development activity exploded on the island. Travel by car is now the primary form of transport on Phuket, and the island has some of the highest traffic accident rates in the country [7]. Phuket is an island *of* tourists and *for* tourists. Such intense development has forced natives to relocate due to the high cost of living and the virtual elimination of locally-owned enterprises. The precedent set by this internationally-known Thai tourist island does not bode well for Lanta, which has similar natural resources but is adamantly opposed to the nature (party-centric) and quantity of tourists that Phuket attracts. Communities on Lanta strongly wish to retain their cultural heritage, even though the dramatic increase in tourism has already begun to transform lifestyles of peoples such as the Urak Lawoi [8].



FIGURE 3. Comparison of the most developed area on Lanta Yai to Phuket at the same scale [1].

Cost Effectiveness

Construction costs in such an environmentally sensitive area are likely to be high. However, residents of the island anticipate that the bridges would be entirely financed by the central government and that passage would be free and unlimited (like the bridge to Phuket). Locals thus would directly benefit from the central government's high capital investment.

However, they would be expected to maintain the bridges, even as they maintain the roads on the island that were constructed by the central government. Maintenance costs have not yet been estimated, but are likely to be substantial. Currently the local TAOs do not even have the fiscal capability to upkeep existing low-cost infrastructure like sidewalks. Establishment of a locally-funded operation and maintenance scheme would be necessary to keep the bridges in good working order.

Although users currently bear the burden of the ferry's crossing fee, operation of the service that connects Lanta's islands to the mainland is borne by tourists and freight carriers as well as residents. If bridge access is free and unlimited (as perceived by communities), all costs of operation will be transferred to the island's residents, resulting in tourists (who have the largest ability to pay for crossing) receiving the majority of benefits but shouldering none of the costs, unless some other financing mechanism, such as a hotel access fee can be established.

Lower Impact Access Alternative

Transportation access to Lanta can either be viewed as a reaction to external transportation pressures or as method of controlling the influence that transportation has on the island. The people of Lanta have the opportunity to mold a different future for their vibrant islands by investing in a regional transportation alternative that has less impact on the community and ecosystem, as well as dramatically shifting the auto-oriented development trend to modes of transport that will help preserve natural and cultural resources.

Alternative Description

Regional Access The main suggestion to improve regional access to Lanta Yai is by enhancing the current ferry service. The existing ferry is slow, unreliable, uncomfortable, environmentally unsound, and unsafe. But this does not have to be the case. According to a local resort owner, the ferry operator makes a large profit through the concession, but does not follow contractual agreements. Enforcement of existing service standards (such as schedule and frequency) should therefore be the first step in improving the crossing. This should be followed by introducing equally-sized vessels to facilitate balanced flows between the islands and adding multiple-ferry docking capacity to reduce delay from boarding and alighting. Finally, new ferries should be purchased. These vehicles can better designed (with different areas for pedestrians, motorbikes, and vehicles) and less polluting.

There is a possibility that political support for the bridges will result in their construction, regardless of the dramatic changes that this decision will impose on the community. If this is the case, policies that limit tourist traffic should be implemented to prevent the spread of auto-related externalities throughout the island. For example, very high, behavior-affecting bridge tolls for tourists can reduce the number of vehicles on the island. Parking policies such as space freezes and high fees have been successful in other locations [9], and if these tactics were implemented on the island, they would encourage resort owners to help their customers access Lanta Yai without bringing their personal vehicles.

Local Access Complementary alternative transportation enhancements and policies must accompany the regional access decision, in order to meet the islands' (particularly Lanta Yai's) transport needs. Walkability improvements could dramatically transform the island. Other alternatives that would lessen the impact of transport on the community and environment include bicycle paths and public transit. The terrain on Lanta is not well suited for an island-wide bicycle network, but if planned in conjunction with public transportation that supports bicycle use, accessibility for all would expand. One possibility for this is to retrofit local public transportation modes, such as the songtao (converted pickup trucks), to hold bicycles.

Benefits to Local Residents and Tourists

Pedestrian infrastructure, bicycle facilities, and a public transportation network would benefit tourists and locals alike and reduce the negative impacts of economic development. Local school children now cross and walk alongside Lanta's roads without any sort of protection from traffic. Tourists experience the same difficulties, and roadside shoulders are often mud baths, making it

practically impossible to walk from resorts to locally-owned markets and restaurants. By making it not only possible, but pleasant and convenient, for tourists to visit locally-owned enterprises by foot or cycle, the experience of visitors will be enhanced and local businesses will become more sustainable. A more detailed analysis of strategies for local economic development is outside of the scope of this work; however, providing access to enterprises can be a first step in this process.

The governments and business associations of the island and province also stand to profit from a unique branding of Lanta as an island distinct from other Thai tourist experiences. Part of this uniqueness could very well be its transportation systems. Marketing Lanta as a more “sustainable” tourist destination will help to attract the type of tourists desired by the community and at the same time that it helps preserve the island’s resources.

Environmental Impact and Transportation-Dedicated Land Use

By reversing the current trend toward auto-oriented tourist development, severe environmental damage - primarily oil and gasoline runoff and auto emissions – can be lessened. Simple improvements that enhance the comfort and ease of walking can substantially reduce traffic congestion caused by short trips from resorts to restaurants, tourist destinations, and shops. Bicycle facilities (paths, rental locations, and parking) aimed at short trips for tourists would also ameliorate traffic congestion on Lanta Yai, particularly in the most densely developed areas at the northwestern tip of the island. An integrated bicycle-public transport network would reduce the need for land use devoted to parking.

Influence on the Rate of Development

Currently, ferry service acts as a control valve on the rate of development, limiting the speed of construction and growth, as well as traffic congestion on the island. According to interviews conducted by the community-based-tourism workshop group, Lanta’s residents want long-stay tourists that understand and respect the various cultural groups on the island. The connection to the mainland by ferry is a factor in retaining this type of tourist due to the perception of ‘remoteness’ that accompanies island access via two ferries. In fact, the majority of tourists interviewed on Lanta oppose construction of the bridges, because of their likely development-inducing impact.

Community Impact

Enhancement of both regional and local means of access would decrease the negative externalities imposed by transport on island residents. By operating equally-sized ferry vessels, rush to the second ferry would diminish, since disembarking vehicle queues would be relatively the same size as embarking queues on the second ferry (Lanta Noi is sparsely populated and has no tourist facilities). Slower vehicles on Lanta Noi would, in turn, lessen the degree and probability of traffic accidents on the island. Similarly, facilitating alternative (to the automobile) modes of transport on the island

would, in theory, reduce the number of drivers unfamiliar with local terrain, thereby decreasing the negative impacts of tourist transport on the local safety.

Cost Effectiveness

Differential pricing for ferry crossings could help finance improvements to the ferry and the pedestrian environment, as well as reduce the cost of transportation for locals. Currently, ferry rates for tourists (and tourist vehicles) are the same as those for locals, but the marginal cost that they impose on the system is much greater due to the spikes in demand that occur during the winter. Tourists have the ability to pay more for this service than do Lanta's residents, and higher ferry fares will probably have a negligible effect on their choice to visit the island.

APPLICATIONS

As said in the Thai language, Lanta has *mitsheemitsheewa*, a way of life characterized both by vitality and tranquility. It is a unique and special confluence of natural and cultural resources. Yet, the transport problems it faces are not unique to tourist islands wishing to maintain their cultural landscape or even to mainland tourist destinations that seek to provide a distinctive, environmentally friendly tourist experience. The difficulties of transportation planning are compounded by the development process and the capacity of local governments and organizations to consider the long-term effects of regional transportation access on both the communities they represent and the natural settings that draw tourists to these places. Several key lessons can be drawn from the Lanta case which will be applicable to other locals facing transportation choices that are heavily influenced by tourism.

Community Perception of Transport Needs

Acute needs may be perceived by the community as a being solvable by transport infrastructure, but transportation planners have a responsibility to work with the community to make sure a broad range of alternatives is considered. Sometimes better alternatives may be identified. In the case of Lanta, the top rationale for bridge construction is that of improved access to emergency medical service. Clearly ferry service takes longer than driving, but a 75 km (approximately 1.5 hours in the low season) journey follows. A more expedient emergency transport service might be by speed boat or by establishing emergency medical service on Lanta Yai; however, neither of these options has been explored by local leaders.

Bringing together the stakeholders and leaders necessary to investigate these alternatives involves a high level of institutional capacity, which rural communities may lack. It is the responsibility of those engineers or planners analyzing the need for this type of infrastructure to delve into the root concern of the community and recommend alternative approaches to solving a problem which a large capital expenditure would only partially address.

Financial Support for a Broader Range of Alternatives

Upon mentioning our suggestions of improvements to the pedestrian environment, TAO officials were fully supportive, but they expressed doubt that these sorts of capital investments could be made with already strained TAO budgets. The central government is willing to finance large-scale infrastructure projects, such as bridges connecting the islands, but responsibility for smaller-scale projects like sidewalks and wayfinding is shifted to local communities that cannot even fund these low-cost investments. This issue is not confined to Thailand or developing countries. In fact, federal funding in the United States once provided 80-90% of highway capital costs but only 50% or less of arterial improvements and nothing at all for transit, bikes or pedestrians [10]. When the central government gives preferential backing to large-scale, high-cost, and auto-centered development, this creates incentives for communities to choose the option with the most funding, which is not necessarily the most suitable for local needs. Flexibility in funding programs that can provide support for *all* modes will encourage solutions that match the scale of the particular transport problem.

Tourist and Tourist-Development Fees

Tourism and the development of tourist facilities exert a concentrated impact on the surrounding community, the effects of which are rarely paid for by the tourists. For example, the increase in traffic and road wear-and-tear resulting from tourists that drive are externalities that Lanta communities currently absorb. However, pricing schemes and tourist-development fees are strategies that the TAOs can use to help fund transportation improvements on the island.

As mentioned previously, differential pricing of the ferry service could be one source of revenue generation for transportation purposes. By implementing a developer exaction policy that requires developers to construct sidewalks, improving walkability in the vicinity of resorts would largely be financed without using local funds. In cases such as Lanta, local governments have considerable ability to leverage fees on tourists and tourist-focused development, but these policies are often untapped resources.

Limiting the Car ≠ Losing Tourists

Since the automobile is seen as an international symbol of development, local government officials fear that limiting vehicle usage on the island will diminish the attractiveness of Lanta as a tourist destination. However, Lanta, like so many tourist destinations seeks to brand itself as a unique tourist destination. Creating a different model of tourism that relies on environmentally-friendly transportation modes in a tropical island setting has the potential to have the opposite effect. Environmentally-sensitive tourism (also known as eco-tourism) is a growing international tourist market. Examples such as Mackinac Island, Michigan in the United States show that limiting vehicle use in tourist destinations has a history of success and can be one way that tourist destinations market themselves.

Hotel Owner Collaboration

Finally, collaboration among hotels/resorts to provide specialized tourist transport services, such as transit to the airport or major tourist attractions has the potential to reduce road network congestion and the cost of transport service provision. In areas with a large quantity of small-to-medium-sized resorts, pooling resources and combining transport services could not only reduce provider costs, but may also result in overall benefits for tourists.

CONCLUSION

Similar to many places in the developing world, Lanta's current transportation trajectory encourages automobile use. Its tourism-based economy, however, gives Lanta the opportunity to limit auto-oriented development that is environmentally and socially damaging. By choosing approaches to transportation that promote alternative forms of transportation, Lanta cannot only distinguish itself from among other tourist market competitors, but also preserve its resources.

These concepts are applicable to a wide variety of tourist venues that have the opportunity to leap to the forefront of sustainable tourism practices by incorporating transportation choices that benefit both tourists and locals alike. Given the relative importance of tourism in the economies of many developing countries, addressing the transportation issues associated with tourism has the potential to have a substantial impact on retention of natural and cultural landscapes.

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