



Analysis of the Daniel Oduber Quirós International Airport, Liberia, Guanacaste

Analysis of the role that the Liberia Airport has played on Costa Rica's North Pacific coast, in light of the growing importance of tourism and the sustainability concerns that have emerged from its development

FINAL REPORT

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“The Impact of development associated to tourism along the Pacific coast of Costa Rica”

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ACRONYMS

ACOPROT	Asociación Costarricense de Profesionales en Turismo
ALA	Airline Association in Costa Rica (Asociacion de Lineas Aereas de Costa Rica)
ARESEP	Public Services Regulatory Agency (Autoridad Reguladora de Servicios Públicos)
BCCR	Costa Rican Central Bank (Banco Central de Costa Rica)
BCIE	Central American Bank for Economic Integration (Banco Centroamericano de Integracion Economica)
CANATUR	National Tourism Chamber (Camara Nacional de Turismo)
CCC	Costa Rican Construction chamber
CESD	Center on Ecotourism and Sustainable Development
CFIA	Federated College for Engineers and Architects (Colegio Federado de Ingenieros y Arquitectos)
CIMS	Sustainable Markets Intelligence Center
CINDE	Costa Rican Investment Promotion Agency
CST	Tourism Sustainability Certificate (Certificado de Sostenibilidad Turistica)
CCH	Costa Rican Hotel Chamber (Camara Costarricense de Hoteles)
CCSS	Costa Rican Social Security System (Caja Costarricense del Seguro Social)
COCATRAM	Central American Comission for Maritime Transport (Comisión Centroamericana del Transporte Marítimo)
CNC	National Concession Center (Consejo Nacional de Concesiones CNC)
CTAC	Technical Council for Civil Aviation (Consejo Técnico de Aviación Civil)
DGAC	General Council for Civil Aviation (Direccion General de Aviacion Civil)
FAA	United States Federal Aviation Administration
GDP	Gross Domestic Product
HASDC	Houston Airport System Development Company
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
ICT	Costa Rican Tourism Board (Instituto Costarricense de Turismo)
ILS	Instrument Landing System
INBIO	National Biodiversity Institute (Instituto Nacional de Biodiversidad)
INCOP	National Port Institute of the Pacific (Instituto Nacional de Puertos del Pacífico)
INEC	National Statistics and Census Institute (Instituto Nacional de Estadística y Censos)
LACSA	Costa Rican Airlines (Lineas Aereas de Costa Rica SA)
LIR	Daniel Oduber International Airport in Liberia, Costa Rica
MIDEPLAN	Planning Ministry (Ministerio de Planificacion)
MOPT	Ministry of Public Works and Transportation (Ministerio de Obras Públicas y Transportes)
MREE	Ministry of External Affairs (Ministerio de Relaciones Exteriores)
OACI	International Civil Aviation Organization

OTS	Organization for Tropical Studies
PNDT	Tourism National Development Plan (Plan Nacional de Desarrollo Turistico)
PSP	Private Sector Participation
RECOPE	Costa Rican Oil Refinery (Refinadora Costarricense de Petróleo)
SARS	Severe Acute Respiratory Syndrome
SANSA	National Air Services S.A. (Servicios Aereos Nacionales S.A.)
SJO	Juan Santamaria International Airport in Alajuela, Costa Rica
SMEs	Small and Medium Enterprises
Sofreavia	Société Française d'Études et Réalisations d'Équipements Aéronautiques
UFC	United Fruit Company
VOR/DME	Automatic Navigational Systems
WTTC	World Travel Tourism Council

EXECUTIVE SUMMARY

In light of the growing importance of tourism, and the sustainability concerns that have emerged from its development, this paper analyzes the role that the Liberia Airport has played on the North Pacific coast in Costa Rica. Through an analysis of its history, current and future development patterns and its role in the regional economy, this paper provides a synthesis of how the Daniel Oduber International Airport has influenced this region since its inception, and explores whether its impact on related industries has fostered or constrained sustainable development. Among its key goals, this paper aims to contribute to a better understanding of the relationships between tourism, airport infrastructure, and sustainable development. Specifically, the paper seeks to understand the role the Liberia airport has played in contributing to the recent growth of resort and residential tourism in its area of influence. Further, this study provides information that could help to better predict the outcome if another international airport were to be constructed at Palmar Sur.

The first chapter is a historical account of tourism in Costa Rica, whose total contribution has surpassed traditional agricultural activities and has become one of the country's top two most important source of foreign exchange reserves and export revenue. The second chapter gives an overview of the other three international airports in the country, including Juan Santamaria, Limon and Tobias Bolaños. More importantly, the report describes the history of Liberia Airport, with an account in chapter three of the role that National Development Plans have had in its development, and then, in chapter four, through a detailed account of its history and infrastructure developments. The fifth chapter looks at the evolution of passenger traffic at Liberia, particularly at the marked increase in international visitor arrivals after Delta's first landing in 2002. Future plans at Liberia Airport, including expansion of runways and passenger terminals, a new concession agreement and an updated master plan are the focus of the sixth chapter. This is followed, in chapter seven, by a description of all support and ancillary services at the Airport, from basic services to those provided to airlines and visitors. Chapter eight summarizes a multiplicity of effects that have arisen from the expansion and development of Guanacaste and Liberia in particular, including social, economic and environmental considerations. Finally, chapter nine concludes with key policy recommendations and areas for further research.

Among the main policy recommendations is that there needs to be more cooperation among interested sectors, governmental institutions and local individuals in shaping tourism policy and decisions, so that these strategies guide the development of infrastructure, and not lag behind it. This will necessarily include a role for public private partnerships (PPPs), including joint efforts between the government, private developers, tourism chambers, related NGOs, academia and other interested parties. So far, the development in the North Pacific coast of Costa Rica has exceeded all previous forecasts in the National Development Plans, Airport Master Plans and Tourism Strategies in terms of

visitor arrivals and tourism-related foreign direct investment. Better and more informed policies will only occur with better data and well-structured economic models that will permit measuring the real value of tourism to the region, and further understand its implications. In addition, more educational investments are necessary to allocate the high skilled jobs to the local population. Greening the airport, in terms of fostering nature based tourism through its "No artificial ingredients" campaign, and lowering greenhouse gas emissions and its carbon footprint would be a good addition to the Airport's development plan. Under its new management, by the private concessionary Coriport, new investments and infrastructure must be carried out in an efficient and coordinated manner, in compliance with the contract and avoiding the delays and complications that have plagued Juan Santamaria. The Airport can also serve a key source of information to study differences between visitors who arrive on domestic airlines and those who fly through international charters and scheduled flights, and also the difference between those who visit several locations vs those who stay in all-inclusive hotels. It would also be useful for national tourism policy to study the implications of residential tourism developments in Guanacaste, in order to manage it and make it compatible with Costa Rica's vision of sustainable tourism as conceived in the National Development Plans.

All in all, Liberia's impact on its local and neighboring communities has shown that infrastructure can, in a very short time, facilitate access, reduce transport times and attract very significant FDI flows, in the knowledge that many real estate developers seek closeness to international airports as a key variable for financial sustainability. The growth of Liberia's Airport and the launch of regularly scheduled international flights gave a clear signal to national and international investors that Guanacaste was a mature (investment-grade) touristic destination^a. The local and national government institutions were unprepared for the level of growth that ensued. Understanding the effects of this growth will help other regions in Costa Rica and Central America to better manage the possible impacts. Valuable insights can be gained by comparing the original design of the Airport and the actual outcome. The evidence presented in this paper suggests that opening a major airport project in a region with few rules, limited government resources, no planning or control, lack of response capacity in basic services could reasonably expected to have the results we see in Guanacaste. In retrospect, and for future projects, securing a number of those variables more comprehensively, and understanding both their negative and positive impacts prior to fostering its expansion and growth will make more sense, in terms of securing a sustainable tourism strategy.

^a From the mid-1970s onwards, Liberia airport was largely a domestic airport, until it took off in 2002 with the arrival of Delta Airlines. Private sector intervention, particularly real estate developers as well as increased investment in airport infrastructure were key to this development.

ASSIGNMENT

Tourism has become an increasingly important source of income, employment and foreign direct investment in Costa Rica. Its impressive growth, particularly in the Northern province of Guanacaste, has generated concern from both supporters and adversaries. Although most stakeholders appreciate the vital contribution that the tourism industry makes to the local economy, they also recognize the challenges that the industry is currently facing. Of greatest concern is the rapid, and seemingly uncontrolled, hotel, real estate and commercial development that could have detrimental economic, environmental and socio-cultural impacts in the long run.

In light of the growing importance of tourism, and the sustainability concerns that have emerged from its development, this paper analyzes the role that the Liberia Airport has played on the North Pacific coast. Through an analysis of its history, current and future development patterns and its role in the regional economy, this paper provides a synthesis of how the Daniel Oduber International Airport has influenced this region since its inception, and explores whether its impact on related industries has fostered or constrained sustainable development. Among its key goals, this paper aims to contribute to a better understanding of the relationships between tourism, airport infrastructure and sustainable development. Specifically, the paper will seek to understand the role the Liberia airport has played in contributing to the current situation in its area of influence.

More specifically, this report summarizes, in a comprehensive manner, the history of the airport and its planned goals as part of Costa Rica's national development strategy and Guanacaste's development in particular; it seeks to understand the airport's development and use patterns in relation to the evolution of demand from tourism, real estate, and other business in Guanacaste; it analyzes how the airport is currently used and the role it is playing in the regional economy; includes proposals or plans for expansion or changes to the airport including whether it conforms to international airport requirements, and, finally includes recommendations and further research areas that could help guide future regional airport development.

This paper will stimulate new thinking and debate on tourism and real estate issues and the role airport infrastructure decisions play. By focusing on sustainability, defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs," decision makers will have better information to direct the development of tourism and related infrastructure.

METHODOLOGY

This report is part of the study “The Impact of development associated to tourism along the Pacific coast of Costa Rica”, developed jointly by the Center for Ecotourism and Sustainable Development (CESD) and the Sustainable Markets Intelligence Center (CIMS) at INCAE Business School. All research was conducted in accordance with Stanford University’s Human Subjects Protocol, reviewing relevant publicly available information, interviewing key stakeholders (including government, civil society, private sector actors), and conducting field trips to Liberia and other airports. Specifically, this paper draws on input from key tourism, industry and government officials, as well as chamber representatives of related business sectors carried out from April 2008 to February 2009.

Interviews were held in the General Aviation Civil Authority (Dirección General de Aviación Civil DGAC) at both its central offices and the Liberia unit, the Guanacaste Chamber for Tourism (Cámara de Turismo de Guanacaste, CATURGUA), personnel at the Ministry of Transportation and Public Works (Ministerio de Obras Públicas y Transportes), commercial aviation pilots, ADS Aviation Dispatch Services at Liberia Airport, as well as leading real estate consultants, and construction and architectural firms. Their collaboration has permitted this document to incorporate their concerns, recommendations and historical background into the document, which proved extremely valuable because much of this information does not exist in written form. The basic premise is to provide additional information to the discussion in formulating policies to protect Costa Rica’s natural and human capital and create sustainable tourism policies, by analyzing the role Liberia Airport has played in the development of Guanacaste.

HISTORY OF TOURISM IN COSTA RICA

Costa Rica's tourism boom began more than twenty years ago, and this sector has now become one of the top generators of foreign revenue. Tourism's economic contribution exceeds traditional activities like coffee, bananas and pineapples, becoming the second most important source of foreign exchange reserves and export revenue, only surpassed by the export of microelectronic products (INTEL)^b. Tourism generates almost 20% of export earnings, and has maintained average growth rates of 7% per year since 1997, reaching 7.4% of the GDP in 2006.¹ The importance of tourism is now a worldwide phenomenon. It is considered the world's largest economic sector, accounting for 8.4% of total employment and 9.9% of world GDP.² International tourist arrivals worldwide grew at an extraordinary rate of 7% in the last three years (2004 to 2007), well above the long-term trend of 4%, fueled by a buoyant world economy³. However, the scenario for 2009 will most likely change dramatically. In the face of the global economic downturn, the World Tourism Organization estimates international tourism will experience less and probably negative growth in the first three quarters of 2009, alongside all major economic sectors⁴. Costa Rica will also be exposed to this economic turbulence.

TABLE 1
Export Earnings for Tourism and Other Key Products 2001-2007
(Millions of US\$)

Category	2001	2002	2003	2004	2005	2006	2007
Export of Traditional Products	738.8	691.1	793.8	800.7	758.0	926.6	1,0005.5
Coffee	161.8	165.1	193.6	197.6	232.7	227.8	254.9
Bananas	516.0	477.5	553.1	543.3	481.8	629.5	673.7
Pineapples	133.8	156.2	197.4	255.9	325.7	433.3	485.7
Pharmaceutical products	81.0	90.1	103.0	110.0	103.2	114.1	120.2
Microchip Electronic Components (INTEL)*	913	927	1,401	1,208	1,444	1,785	2,075
Tourism	1,095.5	1,078.0	1,199.4	1,358.5	1,569.9	1,629.3	1,894.7
International Tourist Arrivals	1,131,406	1,113,359	1,238,692	1,452,926	1,679,051	1,725,261	1,979,789
% Increase in arrivals	4.0	-1.6	11.3	17.3	15.6	2.8	14.8
Total Exports	5,021.4	5,263.5	6,102.2	6,301.5	7,021.0	8,207.3	9,352.7
GDP	16,403.4	16,844.2	17,514.4	18,557.2	19,813.7	22,147.3	25,932.0
Tourism/GDP (%)	6.7	6.4	6.8	7.3	7.9	7.4	7.3
Tourism/Exports (%)	21.8	20.5	19.7	21.6	22.4	19.9	20.3

Source: ICT Annual Statistics 2008 based on Costa Rican Central Bank (BCCR)

* INCAE 2008 based on INTEL data

Source: ICT Annual Statistics 2008 based on Costa Rican Central Bank (BCCR)

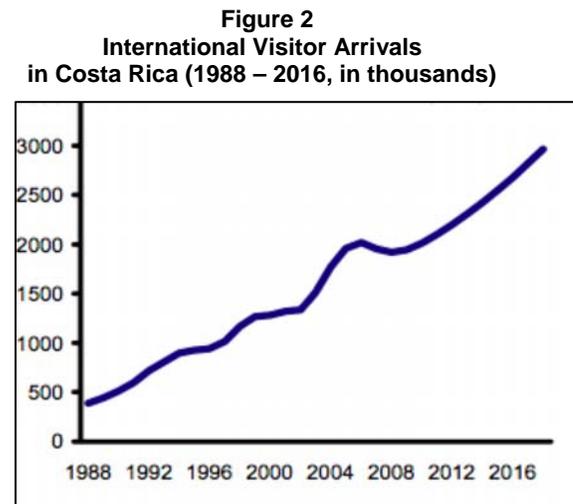
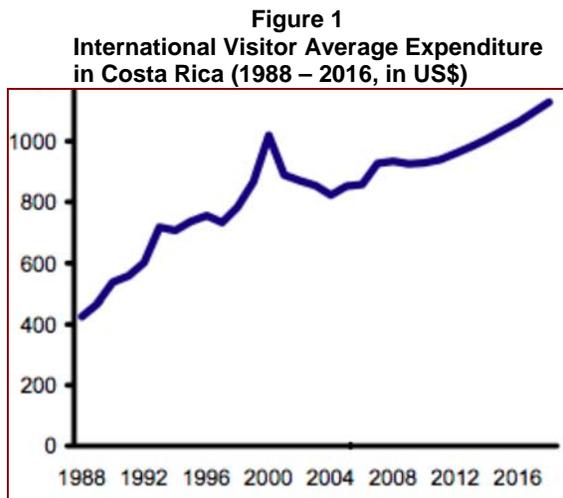
* INCAE 2008 based on INTEL data

^b Table 1 shows tourism's export earnings reached US \$1,894.7 million in 2007, very close to INTEL's US\$ 2,075 million for the same year. Microchips are still the top export, amounting to 34% share of total exports (PROCOMER 2008).

In the last twenty-five years, Costa Rica's commitment to an export-oriented economy, combined with a number of fortuitous events, has served to launch tourism as a leading economic sector. The success has made tourism a national priority for development. Its success rests on key factors including its rich natural capital endowment including beaches, waterfalls, national parks and abundant biodiversity, in a very small geographic area, all of which are major attractions for ecotourism. Secondly, the country enjoys a clear competitive advantage, reflected in its country-branding strategy of "No artificial ingredients." This brand has associated values like democracy, peace, friendliness towards foreigners and conservation as generally accepted norms of society, which together support the sustainable use of its natural resources. Thirdly, tourism accounts for a significant share of the country's GDP, generating jobs in rural areas, attracting investment and earning foreign exchange reserves. In addition, the presence of institutions like the National Protected Areas System, the Organization for Tropical Studies (OTS) and the Institute for Biodiversity (INBIO) helped to consolidate Costa Rica's image abroad and have served as keys in positioning Costa Rica as a nature-oriented tourism destination.

Part of the success of Costa Rica's tourism strategy so far has been its evolution into upper-end, semi adventure and ecotourism operations and offerings. This has resulted in average tourist expenditures that are well above the international average, accounting for \$170 per day⁵ and averaging over \$800 per visitor per trip⁶. Most importantly, it is estimated that the country keeps much closer to half of the already high value added earnings from tourism in the local economy, according to an empirical investigation of the effects of alternative tourism models by Inman in 1998⁷. (Since then very little research has been conducted on this important topic of leakage.) This relatively low level of leakage is, in part, a result of the large number of small and medium scale enterprises (SMEs) that are typically owned by nationals or long term foreign residents and that work alongside larger hotels and other tourism related ventures. In fact, 80% of companies involved in tourism are small and medium sized operators owned by Costa Ricans⁸.

Since tourism touches all sectors of the economy, its aggregated impact is estimated for 2008 to be 13.1% of total employment (direct and indirect jobs), 13.5% of total GDP and 15.1% of total investment in Costa Rica. These indicators are all comparatively higher than the worldwide averages (8.4%, 9.9% and 9.4% respectively⁹). The share of government expenditure allocated to travel and tourism in Costa Rica for 2008 is expected to be 6.2% of total expenditures, higher than the worldwide average of 3.8%¹⁰. As can be observed in the following graphs, the tourism industry has had an impressive growth in the last 20 years that is expected to continue (once economic turbulence is overcome) into the foreseeable future, both in gross arrivals and average expenditure patterns, which makes managing this growth an vital element of the country's national strategy.



Source: Travel and Tourism Satellite Accounts WTTC 2008

Institutional factors, including its long and established history of democracy, have helped portray Costa Rica as a safe haven, even during the Central American crisis in the 1980s. President Arias winning the Noble Peace Prize in 1987 consolidated this image. As part of its international branding strategy, one of the elements of its cohesive national strategy, Costa Rica has successfully marketed its high levels of safety and security, helping create an environment where US visitors feel both welcome and safe. According to CINDE, the Costa Rican investment-promotion agency, around 40,000 US and 15,000 Canadian retirees currently reside in the country¹¹. Costa Rica's investment in human capital reflects itself in its skilled and motivated workforce, which is particularly important in tourism, with its strong emphasis on service. In addition, this relatively high level of education has helped instill a sense of awareness for nature and conservation, in the understanding that its protection is in the country's best interest. All of these factors have contributed to increasing amounts of seasonal visitors, many of which are returning customers.

Despite all of its successes, Costa Rica's tourism sector now faces a number of concerns. According to industry leaders, there has been a recent increase of vertically integrated corporations, which have set up resorts and other services that favor mass tourism. This has been accompanied by the takeover of many nationally owned hotels by international chains. Relative to the type of tourism Costa Rica had developed organically, mass tourism -- all inclusive resorts, chain hotels, and cruise ships -- is associated with greater leakage of tourist spending (smaller contribution per tourist to the local economy), need for greater taxpayer investment in infrastructure (airports, ports, roads, sewer, electricity) and greater expenditures for supporting services (police, fire, medical, etc). Mass tourism can also potentially lead to congestion and the deterioration of the sites that attracted

high value ecotourists in the first place¹². Similar concerns have evolved from the rise in real estate development in the same coastal areas (referred to by some in the industry as “residential tourism”). While residential tourism in Costa Rica has become an important source of FDI in the last three years, its impacts have not, until this current research and a recent report by the Central Bank, been studied¹³.

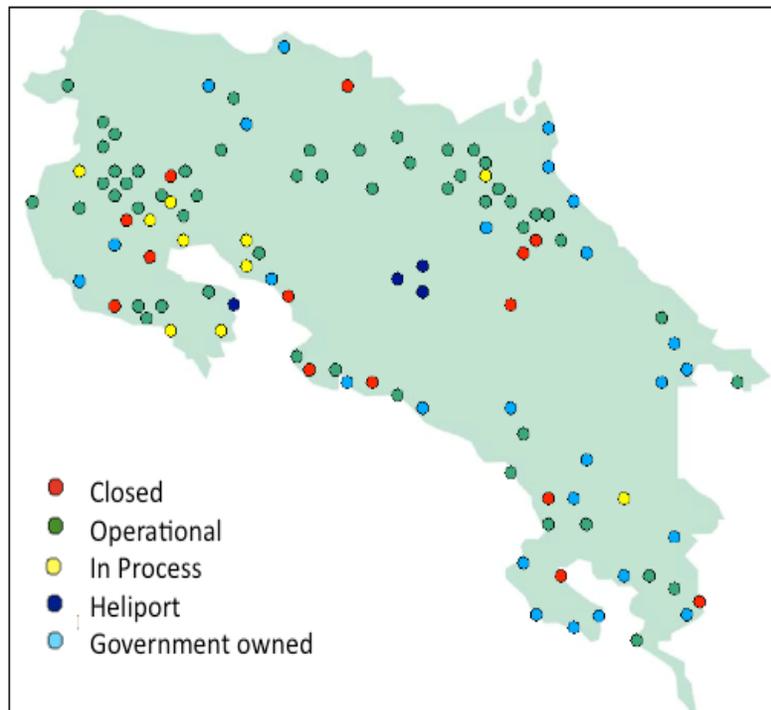
The notion that all forms of tourism should be encouraged at all costs is now being reconsidered. Since the Tourism Board (ICT) announced a decrease in tourist arrivals in 2005, a national debate began to identify underlying causes and pay attention to ever-toughening international competition¹⁴. This has led to a reappraisal of the tourism strategy and increased scrutiny on behalf of NGOs and public institutions. The emerging consensus seems to indicate that an unclear strategy and unmanaged growth could put at risk Costa Rica’s niche market for high quality and differentiated tourism services. Public concern is on the rise as the economic, social and environmental costs of mass tourism become more evident, particularly in coastal areas where fragile and remote ecosystems are visited. Some have referred to this problem as the “next hot-spot syndrome”¹⁵. Since the natural and cultural heritage and relative safety and hospitality are the basis the Costa Rica’s tourism boom and high-value market position, a sound balance between protection and development must ensue if sustainable coastal tourism is to be achieved.

The incorporation of the Liberia Airport into the tourism picture in Guanacaste—one of the most heavily visited areas in the country—has contributed to this rapid and continued growth in visitor arrivals, but has not been subjected to analysis of its implied costs and benefits. Inadvertently, the growing use of the Liberia Airport could contribute to an uncontrolled and eventually very costly development path. Before analyzing the impact of Liberia Airport in its area of influence, it is important to understand how it has been conceived within the country’s general tourism strategy.

OVERVIEW OF INTERNATIONAL AIRPORTS IN COSTA RICA

Costa Rica lists 151 air strips in its territory, of which 36 have paved runways and only 3 are international airports¹⁶. International installations include *Juan Santamaria* near San Jose, *Daniel Oduber* in the North Pacific town of Liberia in Guanacaste province, *Limón* on the Caribbean coast. Tobias Bolaños is also an international airfield in Pavas that serves private flights and small charters. According to the World Bank, in Costa Rica there are 20 firms providing passenger, freight and regular mail services; 8 firms carrying passengers, freight and non-regular mail; 7 firms providing regular freight services; and 10 firms carrying non-regular freight¹⁷. One company has the status of national carrier on international routes, Líneas Aéreas Costarricenses S.A. (LACSA), which is part of the TACA group. Domestic air services in Costa Rica are mainly managed by Nature Air and SANSA (Servicios Aereos Nacionales S.A. - National Air Services S.A.). Prior to Liberia's growth, Costa Rica had basically one international airport (Juan Santamaria) and outside the capital a patchwork of regional public airports and private landing strips on farms and ranches. Following is a brief overview of the main international airports in use today.

Figure 3
Airports (including paved and unpaved runways) in Costa Rica



Source: DGAC 2008

Juan Santamaria International Airport

Juan Santamaria is located 17 km from downtown San José. The airport is an FAA Category 1 installation and handles the majority of all domestic passengers, international passenger traffic, and air freight cargo. International passenger traffic grew from 568,000 tourists in 1997 to over 1,159,720 passengers in 2007, doubling its capacity in a decade¹⁸. This airport handles 86.6% of international tourist arrivals, followed by Daniel Oduber in Liberia with a share of 13.1%¹⁹. Approximately 50% of arrivals come from the United States²⁰. At maximum capacity, its runway can handle 22 movements per hour, and this can theoretically increase up to 30 with slight modifications, which should be sufficient to accommodate demand until 2012²¹. However, most traffic occurs at peak hours, due to connectivity and climatic reasons, saturating the terminal. A major problem is the small space between the terminal building and the runway, which creates bottlenecks when handling larger aircraft, such as Iberia's A340-600 (ibid). Of the seven passenger terminals, five have telescopic gated access and two are for remote access.

Currently, airport infrastructure development and modernization have been outsourced under concession, to Houston Airport System Development Company (HASDC), previously Alterra Partners, a private consortium that is responsible for the administration and operation airport services. It is also responsible for the construction of the capital improvement works for 20 years, starting in 2001; in late 2008, this was extended to twenty-five years, ending until 2026²². These improvements are being conducted in four stages, in accordance with the 1997 General Plan of Development for the Costa Rican Government developed by the TAMS Consulting Company²³. The Master Plan consists of development and expansion of airside services (including new taxiway, aircraft holding area and expansion of the ramp to 16 aircraft positions); expansion of the passenger terminal building and the waiting areas; development and expansion of the landside area, including access roads and parking lots²⁴.

Limon International Airport

Located 2 km southwest of Limon City, next to the Caribbean coast, this airport was inaugurated in 1954 and has a runway measuring 1.8 kilometers²⁵. Its primary use is domestic, but it has been used less intensely since a new road was built to connect San Jose and Limon in 1987, crossing the Braulio Carrillo National Park. The 1991 earthquake damaged 800 meters of its runway, after which there have been reparations made both to the runway and the existing terminal building. Nevertheless, overall international traffic is practically non-existent, and is not even listed in Ministry of Tourism Annual Statistics for international travelers. Nature Air and SANSA offer flights to Bocas del Toro in Panama and other regional destinations from Limon.

Tobias Bolaños International Airport

This small airport is located in Pavas, 8 km northeast of San Jose, and serves as the base for private charters, training and domestic and some regional tourism operations. Despite its small size (43 hectares), 80% of registered aircraft in the country use this airport²⁶. It was built in 1969 and has been used mainly for regional flights since 1975. Its 1.4 km. runway has been recently extended, and its main terminal remodeled (ibid). It registered in 2007 the arrival of 2,422 international passengers²⁷. As can be seen from the following table, Tobias Bolaños has almost doubled its local passenger traffic in the last four years, reaching over 116,000 passengers in 2007²⁸.

TABLE 2
Domestic Passenger Traffic From Port of Origin (Base Airport)
2003-2007

Airport	2003	2004	2005	2006	2007
J. Santamaria	116,410	130,301	134,101	167,998	173,110
Tobias Bolaños	62,745	83,854	86,044	91,683	116,215
Other ^c	1,578	1,456	3,312	3,317	4,454
Total	180,733	215,611	223,457	262,998	293,779

Source: DGAC 2008 http://www.dgac.go.cr/transporte_aereo/estadisticas.html

Airport Infrastructure Investments

The government has invested heavily particularly in land acquisitions from 2003 to 2007, totaling US\$ 8.8 million. The government has not invested in Juan Santamaria since the concession agreement was signed in 2001, but Alterra Partners (now HASDC), the private concessionary will invest approximately US\$ 170 million over its 25-year administration. The government invested most heavily in Daniel Oduber during this period, exceeding US\$ 3.8 million. The following table summarizes infrastructure investments between 2003 and 2007, in US dollars:

TABLE 3
Airport Infrastructure Investment by the Costa Rican government (DGAC)
2003 – 2007 in Thousands of US\$

Description	2003	2004	2005	2006	2007

^c Liberia is a significant airport in domestic passenger traffic, but is generally not the base airport, so it appears relatively small in this statistic. According to DGAC 2008 statistics, domestic passenger traffic at Liberia reached 33,522 in 2007, 25,850 in 2006, 23,019 in 2005, and 14,917 in 2004.

Land Acquisitions	391.77	2651.60	2890.91	0	2950.12
Local Airports	128.97	518.79	96.93	398.82	1270.99
Tobias Bolaños	46.29	393.00	48.72	511.68	864.82
Liberia	875.88	89.73	2379.55	376.59	118.49
Central Offices	29.48	178.00	0	177.65	117.71
Limon	675.14	0	0	5.28	0
J. Santamaria	0	0	0	0	0
Total	2147.53	3831.11	5416.12	1470.02	5322.12

Source: DGAC Financial Department 2008, converted to US\$ based on BCCR Average Yearly Exchange Rate

NATIONAL DEVELOPMENT PLANS AND THEIR ROLE IN LIBERIA'S AIRPORT

Whether the growth of Liberia's Airport responds to a planned national development strategy is a matter of great controversy. Government officials who participated in its development during the last 40 years point to three primary factors that fueled its development. Firstly, the North Pacific Coast has constituted a primary tourism destination since the 1960s, when an international study determined Papagayo Gulf was an ideal candidate for the largest resort project in the whole of Central America²⁹. According to our interviews, this study served as the seed of the idea for the Liberia Airport, although it probably would have been built even without the Papagayo project. What is certain is that the Papagayo project created an incentive to build road and airport infrastructure, particularly during Daniel Oduber's administration in 1970-1974. Secondly, the Liberia Airport has optimal geographical and weather conditions permitting it to serve as a backup airport capable of alleviating traffic congestion at Juan Santamaria Airport, particularly when there are bad weather conditions there and air traffic needs to be diverted. Investing in Liberia's airport infrastructure thus formed part of what government officials call a "coherent tourism expansion policy"³⁰. Thirdly, the government concluded that provision of transportation and communication infrastructure was the best way to accelerate local development. Guanacaste has historically suffered from high unemployment and poverty rates. Previous censuses have put the Chorotega region as the second poorest area in the country³¹. Hence, job creation through increased tourism investments was perceived as a panacea for the improvement of the local economy and an effective means to diminish social and economic inequalities. The vision was to eventually make Liberia one of the engines for Guanacaste's economy and one of the main tourism hubs in Central America. Together, these factors stimulated the initial development of facilities in Liberia in Daniel Oduber's administration in 1976, and guaranteed its permanence thereafter within National Development Plans. Lack of funds, however, did not permit the Airport's development to occur with the speed at which government officials would have liked.

Today, government officials see the Liberia Airport as one of the driving forces of Guanacaste's tourism and real estate development, facilitating access to tourists and helping position Liberia as a city center, providing legal, medical and other services to a burgeoning industry. Ever since Delta Airlines arrived at Liberia in 2002, the dramatic increase in commercial aviation and tourist arrivals has fueled the need for accommodation and other tourism related services. The Liberia airport's strategic geographical location has permitted development to occur not just in Guanacaste's capital, but also in the coastal region of the North Pacific. Without Liberia's airport, public authorities contend, high-end tourism resorts would have been "impossible", and the level of development in the coast and Liberia would have been much slower³².

The private sector, however, sees the development of Liberia's Airport under a different light. They believe the success of Liberia Airport is a direct result of the close alliance that exists between the private sector, the airlines, and the airport authorities. They claim the government has never given sufficient importance to the development of infrastructure at the Airport, and has not been able to deal with the rates of growth of 10% to 15% per year in passenger traffic. They concede that the landing of Delta Airlines flight in 2002 led more commercial airlines to be interested in Liberia, which helped launch the impressive level of growth that it has kept to date. Convincing Delta Airlines to come to Liberia was no easy task, and a group of investors, led Alan Kelso with the Four Seasons Hotel in Papagayo, together with Hoover Gordon Patillo from Hacienda Pinilla, and Reserva Conchal, persuaded Delta's CEO, a personal friend, to undertake this operation. The investor group guaranteed the airline's profitability through a trust fund of \$3 million dollars of their own money which Delta could turn to in case not enough tourists were interested in flying to Liberia³³. Soon, both Continental Airlines and American followed, and this destination proved so successful that the trust fund was never used. In essence, these private resort developers underwrote the construction of the airport and gave personal guarantees to a private airline in order to set off the Airport to an ever-increasing rate of growth. The fact is growth at Liberia Airport was practically stagnant for more than 25 years until Delta arrived in 2002. With the most unusual of deals, "We put the region on the map," stated Alan Kelso³⁴.

Other donations from the private sector included the construction of two main terminals for departures and arrivals, the provision of air conditioning in the computer rooms (which used to collapse due to heat and create long lines at customs), etc. In short, the close involvement and financial support of real estate developers, hotels and other investors has permitted the Liberia Airport to handle ever-higher levels of visitors -- tourists and business travelers. A representative of this group of investors says that it has been the development of hotels and tourism along the coast that has driven the growth of the Airport and funded its improvements, not the other way around³⁵. According to the manager of a leading construction company involved in major hotel projects in Guanacaste, "The Four Seasons Hotel gave Guanacaste the necessary credibility to attract other luxury developers to Guanacaste, in the same way that INTEL gave a boost to industry in Costa Rica. This hotel -together with the success in attracting Delta Airlines- were the two essential drivers of the development we see today."³⁶ In addition, many of these developers have invested heavily in basic infrastructure. In Papagayo's tourism project, for example, the Four Seasons Hotel paid for roads, sewers, buses and electricity and even established their own paramedic service and a fire brigade³⁷.

What is certain is that there has been a symbiotic relationship between the Airport's expansion and the development of the coastal areas in the North Pacific. The international airport provides easier access and a high level of comfort to high-end tourist resorts in particular. Liberia made short stays in

Guanacaste feasible, since travel to the beach was shortened to one hour or less. It was no longer necessary to spend time and money on accommodation in San Jose to catch an outgoing flight, usually on the day following arrival. In fact, real estate consultants report that closeness to a major international airport is one of the key variables that are analyzed when considering the feasibility of a major resort operation. They note that luxury developments must ideally be located within one hour or a maximum of two hours from an international airport³⁸. In contrast, adventure travelers and ecotourism enthusiasts are willing to travel more time to reach their final destination.

A multiplicity of national plans regarding airport and tourism development has accompanied Guanacaste's growth, which seem indicative of active government policies to direct tourism development. However, a tourism official claims these plans have generally reacted to changes in demand rather than acted preemptively to direct tourism development and that many of these recommendations are not, in practice, being implemented. Among the most important recent ones is the National Development Plan Jorge Manuel Dengo Obregon (NDP 2006-2010) published in 2007, which lists several goals regarding airport and tourism³⁹. These include:

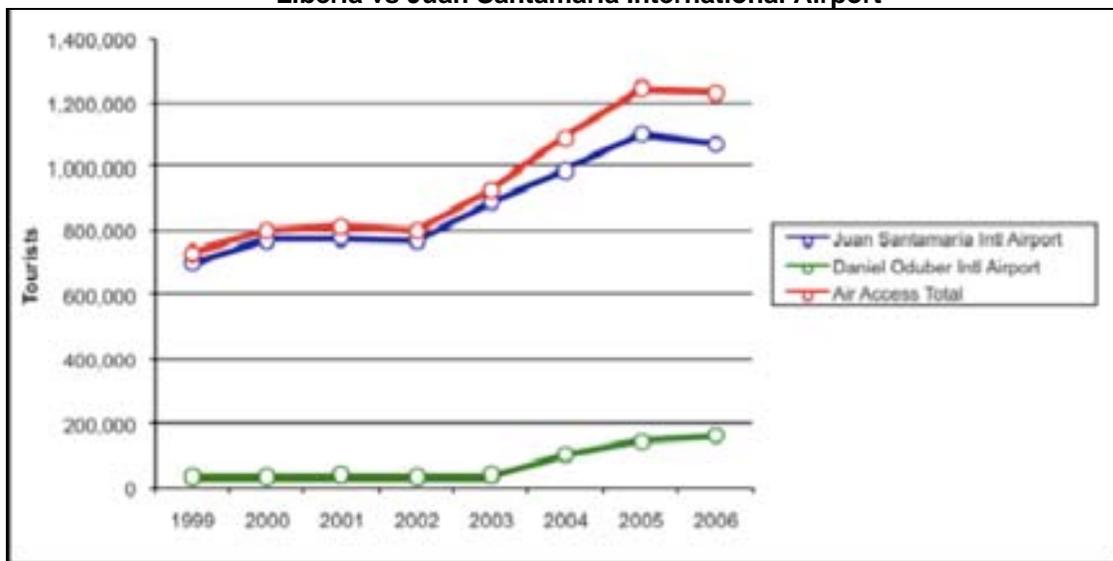
- Average 4% increase per year in international tourism arrivals
- Overall 20% increase in amount of resources invested in international promotion strategies for tourism
- Annual 12% increase in hotel and room availability.
- 40% increase in sustainability certification (Tourism Sustainability Certificate – Certificado de Sostenibilidad Turistica CST)
- Continued growth in airline operations until 2010.

As short-term policies, the NDP 2006-2010 calls for improvements and rehabilitation of infrastructure and services in the Liberia Airport through the granting of a government concession to private investors, and the development of an Airport Master Plan in 2008. The first draft of this document was supposed to be ready by the end of July 2008, but has not yet been presented. In addition, the National Planning Institute (Ministerio de Planificación Nacional y Política Económica MIDEPLAN) is currently holding public consultations for the development of an Action Plan for the Guanacaste Province, covering diverse areas, including poverty alleviation strategies, educational and health improvements, employment generation, managed tourism policies and water management policies⁴⁰.

There is also ICT's National Plan for Sustainable Tourism (2002-2012) that analyzes the supply and demand determinants of the experienced incremental growth in tourist arrivals, and designs a long term plan for product diversification and differentiation based on the country's natural image, with both sustainability and quality as transversal elements of the strategy. The document is not meant to be a static tool, and thus was updated in 2007 to reflect many of the natural,

social and political changes that have occurred since its first version. The goal was to incorporate recent experiences of periods with high growth rates in world tourism (1995, 1996, 2000, 2004) and others with slow or negative growth (2001, 2002, 2003). After a diagnosis and future vision of the tourism sector, the paper concludes with key actions and a prioritized implementation plan. Most of the recommendations regarding airport infrastructure are centered on the Juan Santamaria International Airport. The Plan sets a goal of four more scheduled flights in Liberia by 2012, establishing new routes that attract more passenger traffic. Although Liberia has shown rapid expansion rates in the last five years, Juan Santamaria continues to handle almost 90% of air traffic demand for international visitors.

FIGURE 4
Total Air Arrivals in Costa Rica
Liberia vs Juan Santamaria International Airport



Source: ICT Anuario Estadístico 2007

In short, numerous development plans and several airport master plans have been made that aim to promote and regulate the development of Liberia's Airport. They share a similar quality: none of them have been able to forecast the impressive growth in yearly visitors that it has been experienced since 2003. Since the master plan was not reviewed or updated to reflect changing circumstances in market trends or demands (in particular the boom in commercial airlines starting with Delta in 2002), the aggregate forecasts were much lower than was actually the case. This has forced the airport authorities and the private sector to act in creative ways to meet this demand. It has also meant that there has been little to no discussion, analysis or consultation about the implications of this growth on regional and national tourism strategies.

HISTORY OF THE LIBERIA AIRPORT

The Daniel Oduber International Airport is located near the small city of Liberia, Guanacaste, which is the largest city in North Pacific Coast, with a total population of 52,794 residents⁴¹. It has traditionally served as a tourist hub, directing traffic to nearby volcanoes (such as Rincon de la Vieja, 35 km.), national parks (such as Santa Rosa, 45 km.) and numerous beaches (from 20 to 100km away), and other prime tourist destinations (including Granada, Nicaragua and some of that country's southern coastal areas). In fact, Liberia airport is located only 70 km. south from the Nicaraguan border. National parks and protected areas cover approximately 105,000 hectares inland and 93,000 hectares at sea in the Guanacaste province.

Liberia Airport has a total surface area of approximately 243 hectares, bought during Daniel Oduber's administration (1974-1978), and which will increase as nearby expropriations eventually take place. The Airport is 13km west of the city center, on the main highway that connects to numerous beaches on the Pacific Coast. Tamarindo, Flamingo, Coco and other major towns and developments are located less than one hour from the Airport. The closest distance to the coast is Playa Panama (12km)⁴². Liberia is located approximately 160 km. away from the Central Valley, where San Jose, the nation's capital is located. It is important to note that due to mountain topography, old roads and highway congestion, this 160 km drive usually requires three to four hours.

The airport has all of the ideal technical and operational qualifications for success, including high visibility, good weather, low altitude (144 meters above sea level) and very few obstacles in the vicinity. Its geographical boundaries include the Guanacaste mountain range to the east of the Airport (33 km) and a set of coastal hills on the southwest border (25 km.). To the North, it borders with the Tempisque River and South to the Liberia River. Unlike the Juan Santamaria Airport in Alajuela, these ideal conditions permit aircraft to leave with fully loaded, not just in terms of passengers but also total cargo weight, which maximizes airline profitability. In addition, this airport can remain open 365 days a year, 24 hours, a condition few airports in Latin America can claim. Evidence of the ideal conditions is that in the last twenty years, airport officials have no record of a cancelled flight due to bad weather conditions.

In contrast to most global industries, tourism involves the transportation and hosting of the consumer at his/her final destination, as opposed to delivering the product to the consumer. This has put infrastructure developments at the heart of Costa Rica's tourism strategies ever since the 1960s. However, it was not until the 1970s that plans were initiated for both the Papagayo peninsula resort development project and a local airport in

the Northern region^d. At this time, the government was expanding its highway infrastructure into northern territory^e. The Central American Bank for Economic Integration (Banco Centroamericano de Integración Económica – BCIE) financed a study to evaluate available resources and potential for tourism in the region. Its conclusion was that Bahía Culebra, which is in the Gulf of Papagayo, was the first priority for tourism development in all of Central America, located just 12 kilometers in a straight line from the Airport. This helped get a grant to study the feasibility and design a regulatory plan for the airport in 1974. At that time, the Tomas Guardia Airport, which was the original name of the Liberia Airport, was inaugurated in 1975, with a runway measuring 1,216 meters by 30 meters, with two hangarage areas and a small terminal⁴³. It was constructed primarily for internal flights.

In 1975, President Daniel Oduber Quiros undertook studies to develop a new master plan for the Tomas Guardia Airport. Dixon Speas Company, a leading international consultancy for airport design, was hired to develop the plan that would bring the Airport up to international standards. Construction work began in 1976, under the supervision and financing of the Ministry of Public Works and Transportation (Ministerio de Obras Públicas y Transportes MOPT) and the General Council for Civil Aviation (Dirección General de Aviación Civil - DGAC). The runway for small and medium aircraft, together with the construction of a prefabricated passenger terminal was concluded by 1977. The Tomas Guardia Airport opened for business and was capable of serving both national and international transit, but only during the daytime. However, its use was limited mostly to small, local flights^f. Its primary users were LACSA (the national airline) and small fumigation aircraft. The cargo terminal was never constructed due to limited funds and the high cost of land acquisitions.

By 1978 government invested in illumination systems and the airport was capable of handling night flights, used mostly by emergency hospital procedures and air ambulances. Besides a small renovation of the terminal building in 1986, the airport did not undergo any further investments during these years^g.

To a certain extent, development of Liberia airport was tied from the outset to the development of Papagayo. The government conceived of and financed these twin projects in the 1970s, but both were stalled during the Central American crisis of the 1980s; they gradually took off in the 1990s, and especially after the year 2000.

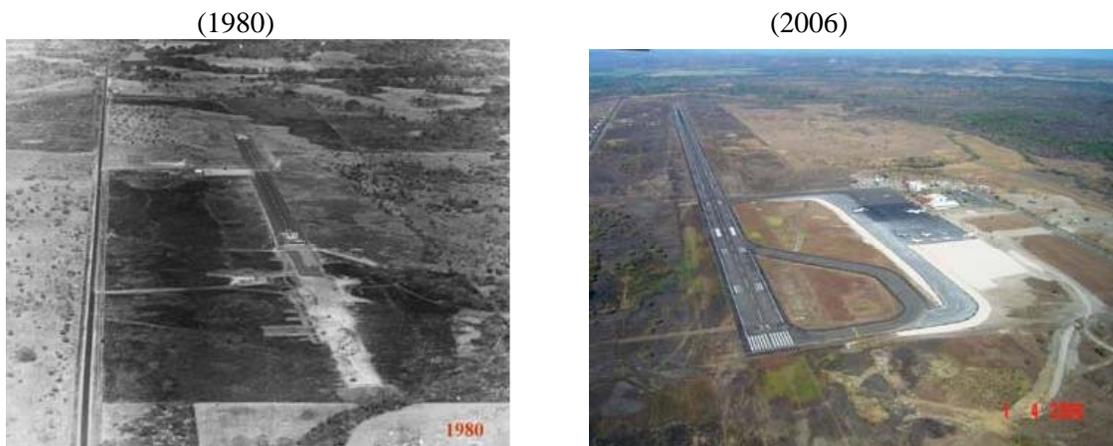
⁵ The Liberia Airport authorities are currently searching for the construction date of the first runway, since no official documentation exists. This summary is probably the most complete documented report of the Airport's history.

⁶ Scheduled international flights did not begin until 2002, in addition to chartered flights that became more regular in the mid-1990s.

⁷ It must be noted that after 1980, in the midst of the Central American crisis, Costa Rica became a strategic ally of the United States, evidenced by the large amounts of economic aid that was transferred to the country during Ronald Reagan's administration. There have been several reports that explore the role of the Liberia Airport in supporting political and/or military roles, but these are not the primary focus of this study. It suffices to say that the geopolitical importance of the Liberia Airport and its closeness to the Nicaraguan border served as important catalysts for the development and maintenance of these facilities. (In the US

In 1989, President Oscar Arias gave a further stimulus to the Airport, when the Papagayo Gulf mega resort project became a reality. The runway was extended 500 meters, increasing the operating capacity of the runway for aircraft as big as a Boeing 747-200. A new terminal building, in a new location, was set up and financed by the government according to the original master plan, in addition to aircraft parking and a control tower. The conditions were now in line with the necessary standards to receive international flights, and therefore President Jose Maria Figueres (1994-1998) was, according to our interviews, under great pressure from the tourism industry to inaugurate the Airport. However, the official opening did not occur until 1995, when it was named Daniel Oduber Quiros International Airport. By 1999, the Airport was equipped with modern navigational equipment (VOR/DME) and a runway of 2,750 meters long by 45 wide, with an ILS (Instrument Landing System) by 2002. International traffic at Liberia started to grow significantly after Delta's arrival in 2002. By 2003, 37,817 international passengers landed at Liberia, compared with 887,711 at Juan Santamaria⁴⁴.

FIGURE 5
Runway extension and new terminal and airport control facilities



Source: DGAC

The new facilities provided a major stimulus for scheduled route development, moving away from chartered flights from the US and Canada to regular commercial services. At first, only a single chartered flight landed in high season during 1995-1996, but this quickly grew to 17 chartered flights in the period 1999-

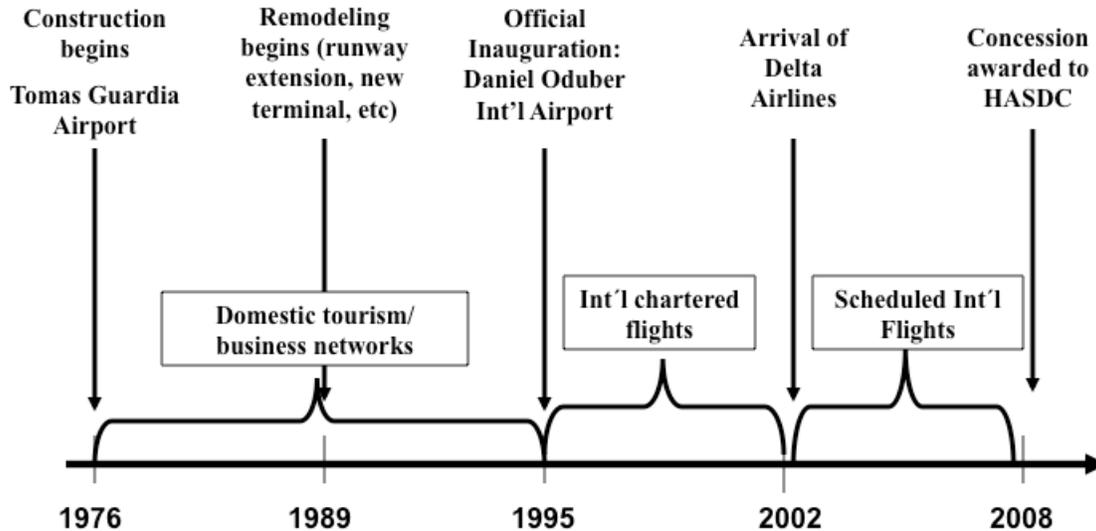
backed war against the Sandinista government in Nicaragua, Guanacaste's most infamous runway was the clandestine 2 km long Santa Elena airstrip built by Col. Oliver North's network next to the Santa Rosa National Park.) Liberia and Juan Santamaria airports were both used for emergency landings. (Honey, Hostile Acts). Interestingly, however, no official data exists for any investments in the Liberia airport during President Monge's administration.

2000. The 9/11 terrorist attacks in 2001 interrupted this high level of growth of international tourist arrivals, but it was regained in 2002 with the inauguration of the first commercial flight from Delta Airlines, followed by arrivals from American and Continental Airlines in 2003. By 2005, Liberia had a comprehensive range of domestic and international services, particularly to North America, that expanded to include United Airlines and US Airways. Chartered flights also continued, including companies like Skyservice, Air Canada and others. Evidence of this growth is that in 1998, 38,000 passengers used the Liberia Airport, while after passenger terminal and airfield extensions, the passenger throughput increased to over 405,000 passengers in 2007⁴⁵.

The high level of growth in the Liberia Airport prompted further infrastructure investments. In 2003, a new aircraft parking area was finished, with capacity for 5 large planes and additional space for private jets. By 2005, this area was expanded to reach a maximum capacity of 8 large aircraft and expanded the parking space for private users. The passenger terminal was renovated in 2004 with an additional 15,000 square meters of construction, and has recently been expanded another 15,000 square meters. These renovated facilities have permitted Mexicana de Aviacion, Delta Airlines, United Airlines, Grupo Taca, Cubana de Aviacion and others to use this airport as a backup airport in case of unforeseen circumstances in Juan Santamaria Airport⁴⁶.

Although the Liberia Airport did not report large volumes in passenger arrivals until 2002, it held an important role for domestic tourism and business networks since its inception in 1975. As a local landing strip, it helped to connect veterinary and agro industrial businesses with the capital, with regularly scheduled daily operations between Liberia and San Jose. Costa Rica's daily newspaper, *La Nacion* reported that in 1996, after the official inauguration by President Figueres, only SANSA Airlines and Travelair had operations in the Liberia Airport, averaging 20 to 30 daily flights with 8 passengers each⁴⁷. In the year 2000, Nature Air bought Travelair operations, expanding incoming flights into the Liberia area. To this day, small charter operations continue to have an important role in Liberia, and offer an efficient alternative because in-country flights reduce travel time to a fraction (4 hours by road vs. 45 minutes by air to Liberia).

FIGURE 6
Key Events During Liberia Airport's History



Source: Author's compilation

National airport authorities are conscious of the importance of these charters for tourism networks and categorize them as “critical” for the development of the industry⁴⁸. They recognize many of these travelers are high-level spenders, but also express concern because local aviation is not profitable for the airport⁴⁹. They say they are considering examining more carefully this segment of air transport in the near future.

According to those interviewed, Liberia Airport's profitability is under pressure with the additional expense of longer operational hours, particularly from non-scheduled private aircraft movements that arrive anytime between 6 am to 12 midnight⁵⁰. For example, the Meteorological Institute has called for additional resources to staff Liberia, which currently has 3 only technicians⁵¹. In addition, many airports rely heavily on duty free shops for revenue, but Liberia lacks them, so airport authorities rely solely on landing fees to make up this shortfall. Juan Santamaria has higher fees and thus subsidizes operation of Liberia and Limon. A study by Ontario-based Jacobs Consultancy on behalf of the World Bank's International Finance Corporation (IFC) done in December 2006, determined that landing fees at Juan Santamaria are 10 times lower than those at Panama or Managua⁵². Consequently, a Boeing 737-400 (weighing 63 metric tons) pays US\$16.32 for landing at Santamaria, whereas at Managua that same aircraft would be charged US\$184.60 for landing. However, the Airline Association in Costa Rica (Asociacion de Lineas Aereas de Costa Rica – ALA) contends that overall costs for airlines at Juan Santamaria continues to increase despite relatively low landing fees, since the high infrastructure tax neutralizes the lower landing taxes⁵³. Fees are only one part of a complicated debate and negotiation process (See Box 1).

TABLE 4
Regional Tariffs at International Airports in Central America and the Caribbean

Airport	Landing fee per ton (US\$)	Cost for B737-400 Plane (63 tons)
Barbados	\$3.30	\$207.25
Costa Rica (J. Santamaria)	\$0.26	\$16.32
Jamaica (Montego Bay)	\$3.85	\$216.00
Nicaragua	\$3.29	\$184.60
Panama	\$2.63	\$164.85

Source: Loaiza 2007g, based on Jacobs Consultancy report for SJO, December 2006.

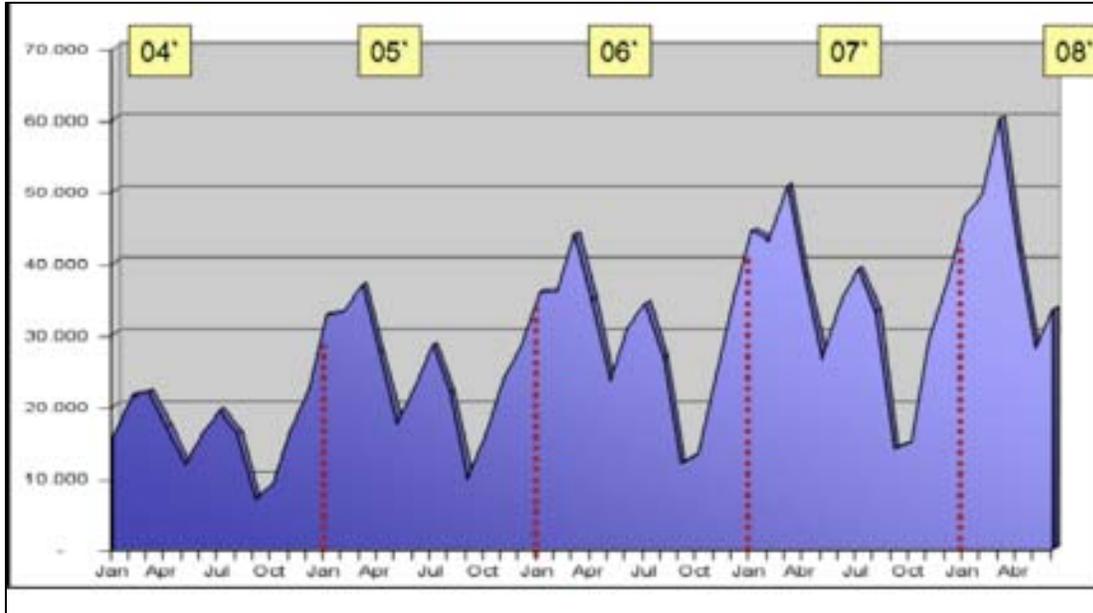
Although the total number of passengers from international scheduled flights may appear to be vastly more important than charter flights, having reliable and segregated data on the types of passengers will permit a more accurate evaluation of their contribution to the local and national economy. For example, ICT airport surveys have determined that 95% of international passengers (non-residents) to Liberia come for vacation, and between 45% and 50% of them travel with prepaid packages and fixed itineraries. Such surveys are made for the World Tourism Organization, but additional data is collected in an effort to identify the contribution and choices that different types of tourists make⁵⁴. This helps inform tourism and airport authorities so they can design policies so that the local and national population can make the most of tourist earnings and guarantee their sustainability in the long run. These policies must draw input from multiple sectors, and encompass a broader scope than just airport maintenance and infrastructure in order to focus on more complex interactions, for instance, the role that major port of entry can have in its surrounding town and coastal communities. It may be beneficial to continue charging relatively low rates to local aviation companies if the tourists they help transport are especially beneficial to the local population in terms of their spending patterns. To this end, airport policies need to be formulated alongside tourism development strategies, and based on quantitative studies that will help stimulate tourism with high potential for local and national development.

EMPIRICAL TRENDS: PASSENGER TRAFFIC AT LIBERIA AIRPORT

Starting in 1997, passenger traffic shows a virtually continuous increase, beginning with chartered flights and continuing with regularly scheduled commercial airliners. Growth rates were particularly high in 2004 and 2005, with clear seasonal fluctuations. High season begins in December and lasts until March, with a small peak in July, matching summer vacation in the USA and Canada. Travelers from these two countries account for 96% of the visitors at Liberia, which is much higher than at Juan Santamaria, where they represent approximately 57%⁵⁵. In addition, 95% of the visitors in Liberia are on vacation or leisure and 58.1% arranged their trip on an independent manner from their country of residence, 32.2% of the sample organized their trip through a packaged itinerary, and 8% decided once they arrived in Liberia⁵⁶. These statistics indicated that 87.7% of these visitors went to the North Guanacaste region sometime during their trip, becoming the primary destination from Liberia, followed by other surrounding destinations like Monteverde, Arenal and South Guanacaste, but only 15-20% of the sample mentioned they visited these areas⁵⁷.

The statistics published by the ICT demonstrate that the impact and expenditure patterns of tourists will vary according to their motivation to travel, length of stay, type of accommodation, etc. For example, packaged itineraries averaged US\$ 4,923.25; including 2.8 persons per package⁵⁸. Over 90% the packaged tours included a round trip ticket, hotel and breakfast, 85% included lunch and dinner, but only 14.75% included tours⁵⁹. This most likely indicates that many of these itineraries were all inclusive resorts, which bring in relatively little into the country. Average expenditure per trip differed significantly in the first and second semester of 2007. First semester, the sample indicates an average of US\$ 1,109.10 (Standard deviation \$869.30), whereas the second quarter the average was US\$ 1,353.90 (Standard deviation \$3385.50)⁶⁰. The large range in standard deviation indicates that there is a vast diversity and different types of tourism entering Liberia that should be studied in more depth in further studies. Another concern is that Liberia is overwhelmingly dependent on the North American market for international travel, making it very vulnerable to economic fluctuations affecting this market, particularly in the face of a financial crisis.

FIGURE 7
Total Inbound/Outbound Passengers
Daniel Oduber Quirós International Airport, monthly 2004-2008



Source DGAC 2008 and CATURGUA 2008

Delta's arrival in 2002 marked the beginning of high rates of growth at Liberia Airport, and by 2005 eight other commercial airlines established scheduled flights. By 2006, an average of 10 flights per week were landing during peak season. According to the latest statistics from DGAC, 405,450 inbound and outbound passengers used the Liberia Airport in 2007, which was a 15% growth over 2006. Among the major carriers currently using the airport are American Airlines, Continental, US Airways, Air Canada, United and Northwest, including many additional scheduled airlines through code shares^h, as well as charter and private air transport services.^{i 61}

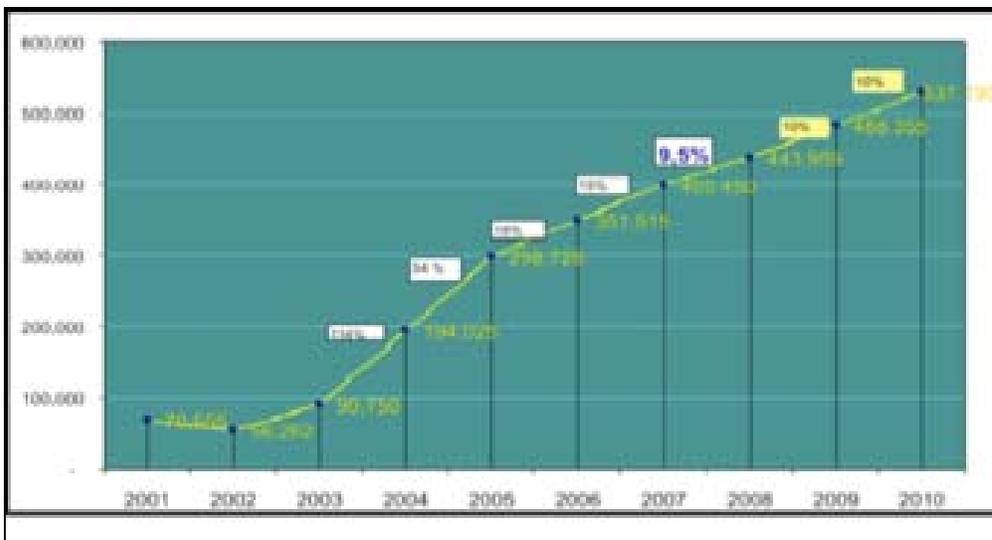
Many consider airport capacity has reached its maximum level, since most of these flights land at the same time⁶². For example, seven flights are scheduled for Saturdays, between 11:30 am and 2 pm, causing delays and congestion for all passengers, whereas the rest of the day the terminal is almost empty. Growth rates for 2008 through 2010 are expected to be 10% per year, although industry experts commented on interviews they expect these growth rates to be

⁸ Code share agreements refer to a practice where a flight operated by an airline is jointly marketed as a flight for one or more carriers. Most major airlines today have code sharing partnerships with other airlines, and code sharing is a key feature of the major airline alliances (Wikipedia).

⁹ All these major carriers also fly to J. Santamaria (SJO)

substantially lower next year, or close to zero. According to a hotel representative, the current level of airport infrastructure, particularly terminals and custom checks, is barely enough to meet demand, and if no further improvements are made, eventually the facilities are going to be incapable of handling the passenger traffic⁶³. Tour operators warned in our interviews that if current growth rates continue, by 2010-2011 the airport could “collapse” because of expanding passenger traffic, unless improvements are made⁶⁴. The new Liberia Airport Master Plan should set out a calendar to manage the high growth rates. It is expected at the end of 2008.

FIGURE 8
Yearly Growth Rates and Activity Forecasts (Passenger Traffic)
Daniel Oduber International Airport (2001-2010)



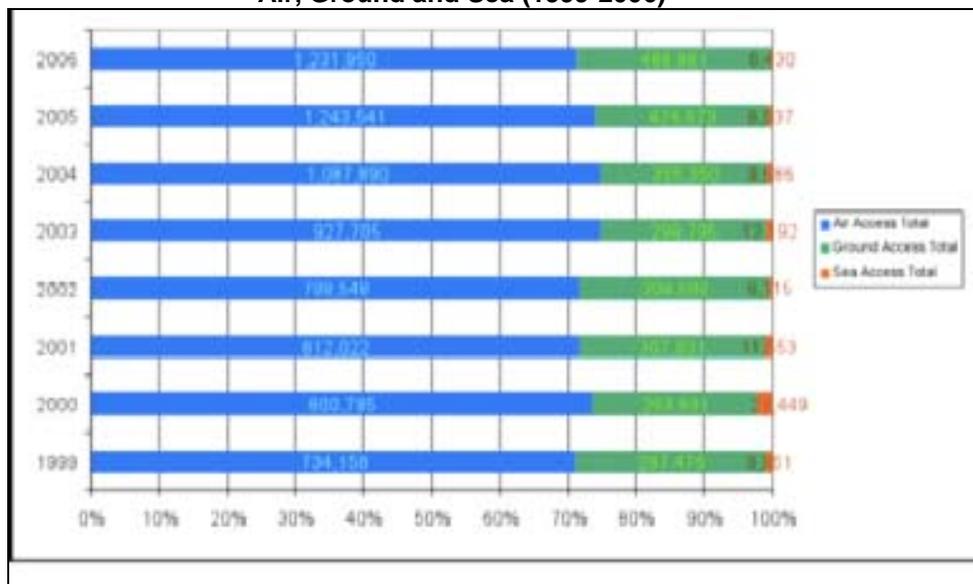
Source: DGAC and Caturgua 2008

Airports are of key importance in Costa Rica because they serve as major ports of entry. In fact, 76.4% of visitors to Costa Rica chose to arrive by air, followed by 23.4% by land and only 0.2% by sea⁶⁵. Airport infrastructure is thus the main gateway into Costa Rican territory, where visitors get their first impression of Costa Rica. When arriving into Liberia, visitors encounter a hassling of sales people, real estate ads and publications, but very little reference to Costa Rica’s national policy on tourism. It is of primary importance to emphasize the “No Artificial Ingredients” motto, emphasizing nature based tourism, as has been better done in Juan Santamaria. Although Santamaria’s billboards are increasingly dominated by resort advertisements, there ICT’s promotional

Cruise tourism is not included in this figure because only visitors that stay for more than 24 hours are considered “visitors”. Cruise tourism day arrivals are handled separately by the ICT. See ICT Annual Statistical Annexes.

campaign is still present at the airport. Part of this campaign at Liberia can include the creation of an environmental management program, emphasizing Liberia's policies to *green* the airport in terms of its emissions and carbon footprint. This can be done through partnering with airlines to green up operations, consolidating car rentals in nearer locations, and eventually through sophisticated mechanisms like Boston Logan's heat-reflecting roof and windows, low-flow faucets, waterless urinals, self-dimming lights and storm water filtration⁶⁶. For example, the Airport could provide information about carbon offset programs that visitors could support by offsetting the emissions from their flights, as Nature Air does. Liberia Airport's overall development strategy must be congruent with the country's tourism image and policy, and an environmental management program, together with a promotional campaign, can both help achieve that goal.

FIGURE 9
Tourists Number of Tourists entering Costa Rica by Port of Entry
Air, Ground and Sea (1999-2006)



Source: ICT Statistical Annual 2007

FUTURE PLANS

Until the new airport master plan for Liberia is released, most infrastructure developments have been put on hold. According to Costa Rican civil aviation sources, this plan is already at a very advanced stage, and is being elaborated by the International Civil Aviation Organization (OACI)⁶⁷. In the meantime, the airport authorities have invested in maintenance and better services for their users, including runway re-surfacing and expansion, international certifications, and feasibility studies for new drainage systems, corporate platforms, etc. (See Table 5). Probably the most urgent project is construction of a new passenger terminal, which the government promised would be completed in 2007⁶⁸. The current one, donated by a consortium of hotels and real estate developers, is no longer adequate for the levels of incoming and outgoing traffic at the airport⁶⁹. The plan is to seek a private operator who is willing to invest in a new terminal and provide more services and shops while having the local authority, DGAC, retain control of all the other operations. A concession arrangement is viewed by the government as positive because it could provide the necessary passenger terminal capacity to meet the demand and required standards of customer service without imposing budgetary problems. However, there has been a lot of opposition on behalf of carriers and critics of Alterra Partners (now HASDC), who believe the government is perfectly capable of running the airport and making the necessary investments. According to the daily newspaper, *La Republica*, the Civil Aviation (DGAC) has a budgetary surplus of US\$ 38.4 million, which is considered enough for all necessary investments (Canales, 2008). DGAC estimates two new terminals will cost US\$18 million, and a new landing platform for five planes US\$ 8 million (ibid). Civil Aviation claims these resources can be better spent in other airfields and smaller airports. Critics contend the concessionary at Juan Santamaria, Alterra Partners, has breached the contract and unfulfilled their obligations, and that the same would occur at Liberia with the new concessionary because the government is incapable of enforcing these contracts⁷⁰.

Although the concession was publicly offered several times, no interested parties were found⁷¹. This may be due to uncertainties regarding the rate of future expansion and whether the current level of growth is truly sustainable in the future. One service provider at the Liberia Airport mentioned there is a certain level of risk when only some operations are under control of the private operator, and this could directly impact profitability. Hence, concessionaries prefer to absorb the whole operation of the Airport, not just the terminal buildings. The last proposal by the Civil Aviation Technical Council (CTAC), however, made some key changes, which provided additional transparency and clarity for the concessionary, and 22 firms came forward to express interest in investing a total of US\$18.9 million⁷². The airport authorities claim they have worked hard not to

replicate the conflict-riddled process at Juan Santamaria^k. By the end of 2008, Coriport Group -- composed of MMM Aviation group from Canada (57%), HASDC Corporation (25%) and 3 Costa Rican firms^l (6% each) – had won the public bid and been awarded the concession⁷³. Their expected completion date is late 2009. It is estimated that the project will cost US\$ 35 million, \$16 million more than initially budgeted⁷⁴. Since HASDC, the current concessionary for Juan Santamaria International Airport, is part of Coriport Group, there has been criticism that a “monopoly on air transport” will negatively affect Costa Rica’s competitiveness⁷⁵.

TABLE 5
Budgeted infrastructure investments at Liberia Airport
(financed by government agencies)

Project Description	Institution Responsible	Estimated Completion Date	Total Budget (US\$) <small>(\$1 = 520 colones)</small>
Feasibility studies for the expansion of corporate/charter flight platform	CETAC (Civil Aviation Technical Council)	2008	\$2,500
Expansion of the Alpha runway	CETAC	2010	\$4,000,000
Architectural plans and construction of a new terminal building	CETAC	2008-2010	\$8,000,000
Platform IV expansion (5 more landing slots)	CETAC	2007-2008	\$2,500,000
Airport certification	CETAC	2009-2010	\$10,000,000
Design for platform construction (land and illumination equipment)	CETAC	2007	\$140,000
Total asphalt re-carpeting	CETAC	2007-2008	\$4,000,000
Drainage system for residual water	CETAC	2010	\$2,500,000
Feasibility studies for a concession of a new passenger terminal	CNC (National Concessions Council)	2007	\$7,700

Source: Mideplan (2007) Program for Public Investment Projects on Air Transport

11 Juan Santamaria Airport reconstruction has been practically paralyzed since 2005. For a short synopsis, see Box 1 below.

12 These include (i) Emperador Pez Espada: owned by Allan Kelso; (ii) Brad & Tod Corporation SRL: owned by Brad and Todd Corbet; and (iii) Cocobolo Inversiones SRL owned by Nasser Kaziminy (Nelson 2008).

Other projects include the construction of a duty free shop, operated by IMAS, a public social benefit organization that handles the same operation in Juan Santamaria. This building is already under construction, and should be operational in the following months. A VIP service for business travelers and private aviation is underway, where important visitors can go through a separate platform with customs and baggage checks in an air-conditioned, luxury cabin. However, this must wait for the Master Plan to be published. Airport officials are also considering adding free wireless Internet capability to the Airport.

Although at one point in time freight activity was considered an important element of Liberia's potential growth, given its near perfect technical conditions including good climate, low altitude and few surrounding obstacles that permit passenger or cargo aircraft to depart with all passengers and the maximum possible weight in their "belly hold", there is currently no demand for large cargo aircraft. Airport officials note there is a clear potential for export, but not for import (with the exception of supplies for all inclusive resorts), but the point remains that cargo airlines need both ends of the operation to reach profitability. So far, only "belly-hold" freight activity from commercial passenger airlines has been used, but no cargo planes are using Liberia on scheduled itineraries. Plans for a cargo terminal are on hold until further notice.

Box 1: Concession at Juan Santamaria International Airport

Airport infrastructure development and modernization at Juan Santamaria have been outsourced under concession to a US company, Houston Airport System Development Company (HASDC), who manage George Bush International in Texas, and are the 6th largest operator worldwide¹. Up until December 2008, Alterra Partners another transnational group owned the concession, but the remodeling process has been paralyzed while Alterra battled through the court systems for years on end. The operation and development of this airport was effectively contracted out, including financing and construction of the works required to satisfy current and future demand under the master plan for this airport. The initial management contract amounted to US\$240 million over 20 years.² Under HADSC management, it has now been extended to 25 years.

The airport services concession took the form of an "interested management" (*gestión interesada*) contract, whereby a third party acts on behalf of the State, which charges for the service and pays the management company a previously defined fee. Both the Transport Ministry (MOPT) and Civil Aviation (DGAC,CETAC) remain responsible for the asset, employing the management company, HASDC, as administrator.

Since late 2005 it has been impossible to consolidate the development of airport infrastructure because of severe difficulties relating to the implementation of the management contract, which triggered a lengthy interruption of construction works and contractual problems. Allegations of corruption, the abrupt departure of Jill Jamieson, inspector of the airport, and the constant criticism of the Office of the Comptroller General have led to insurmountable obstacles³. The result has been very slow pace of the works and practically no progress on other local airports and aerodromes, owing to lack of investment and the inability to attract other concessionaires.

By the end of 2008, an agreement was reached between the Civil Aviation Technical Council (CETAC), the Transport Ministry (MOPT), the international financial institutions and Alterra Partners. HASDC, the sixth largest airport operator in the world, was selected as the new administrator of Juan Santamaria, provided it finishes the new terminal building in 14 months⁴. HASDC will also update the master plan, pay US\$ 10 million in existing fines, inject US \$40 million of its own capital

Box 1 sources include:

- 1 Loaiza, Vanessa (2008). Nuevo gestor asumirá el Santamaría en diciembre. La Nacion Newspaper, October 8, 2008. "http://www.nacion.com/ln_ee/2008/octubre/08/pais1729912.html
2. WTO (2007). World Trade Organization WT/TPR/S/180 Trade Policy
- 3 Anonymous interview to ex member of DGAC.Review of Costa Rica. Geneva: March 2007
4. Loaiza, Vanessa (2008). MOPT acepta nuevo gestor para aeropuerto Santamaría. La Nacion Newspaper, September 13, 2008. "http://www.nacion.com/ln_ee/2008/septiembre/13/pais1699243.html
5. Loaiza, Vanessa (2008). Nuevo gestor asumirá el Santamaría en diciembre. La Nacion Newspaper, October 8, 2008. "http://www.nacion.com/ln_ee/2008/octubre/08/pais1729912.html
6. Loaiza, Vanessa (2008). MOPT acepta nuevo gestor para aeropuerto Santamaría. La Nacion Newspaper, September 13, 2008. "http://www.nacion.com/ln_ee/2008/septiembre/13/pais1699243.html

SUPPORT AND ANCILLARY SERVICES

A wide variety of supporting and ancillary services accompany airport development. Some are part of the general requirements and regulations for operating an international airport. Others typically emerge to provide services to the airlines and passengers.

Services Required to Operate Airport

A wide range of safety and service requirements need to be provided at an international airport. Most importantly, airport development, its administration, management and operations must conform to the internationally accepted guidelines of the International Civil Aviation Organization (ICAO) and the United Nations' technical agency for aviation. In addition, these comply with the International Air Transport Association (IATA) and the United States Federal Aviation Administration (FAA) standards and recommended practices for aircraft operations and maintenance⁷⁶.

At the present time, Daniel Oduber International Airport is in compliance with International ICAO standards, and as a result, the FAA has classified it as a Category 1 airport. Rating of a country as a "category 1" simply refers to a country's compliance with these safety standards, after an audit with the host civil aviation authorities, in this case the DGAC and CTAC^m. These institutions verify the necessary infrastructure for international aviation safety oversight, and monitor the national regulatory framework, regulations, air carrier certification and surveillance programs and the organizational and personnel resources to implement and enforce these standards⁷⁷. These safety requirements have become increasingly demanding after the 2001 terrorist attacks in the United States.

The airport has all basic services it needs to operate, but at peak periods, the current infrastructure is not sufficient to meet demand. Among the most urgent

13 The Civil Aviation Technical Council (*Consejo Técnico de Aviación Civil - CTAC*) and the Directorate General of Civil Aviation (*Dirección General de Aviación Civil - DGAC*), under the Ministry of Public Works and Transport, are responsible for the regulation and control of civil aviation in Costa Rica. The DGAC implements the resolutions of the CTAC, and has decision-making power on the granting of licenses and certificates of airworthiness and air traffic; it also supervises and administers domestic airfields and airports, and oversees the Costa Rican Aeronautical Register. The CTAC has decision-making authority on passenger, freight and connection prices applied by air transport companies, whether domestic or international. The CTAC is also responsible for analyzing, determining and applying rates established by government decree, for the provision of airport and auxiliary services. In fixing and applying rates, account may be taken, among other things, of differences in the economic capacity of the companies that provide international services. (WTO 2007).

requirements at Liberia Airport is to reduce long passenger lines for paying the departure tax, expand the entrance facilities and number of X-ray machines at customs, install more bathrooms, and expand the baggage claim area so that it can be used by more than one baggage operator at a time. If the airport continues to grow, the existing setup will prove to be far too small, particularly with stricter security baggage control procedures.

Fire and Rescue

A basic operational requirement necessary for international operation standards is to provide fire fighting and rescue services, in order to achieve a very fast response time to potential incidents on the airfield. The existing airport fire station is located next to the departure terminal. An agreement between the DGAC and the firefighters, where the DGAC provides the specialized equipment and the INS (National Insurance Institute – Instituto Nacional de Seguros) pays for the crew, has proven very effective. In fact, in 2008 modern equipment was purchased, including seven new fire trucks and equipment totaling more than US \$4 million⁷⁸. Airport and fire rescue operations at Liberia are currently a Category 7, meaning it is prepared to handle incidents for aircrafts up to Boeing 757-200 size⁷⁹. It has with two permanent teams of five people each, covering around the clock. In addition, the Liberia City Fire Fighters Brigade supports both teams.

Airport categories for rescue and fire fighting are based on the over-all length of the longest airplane normally using the airport and its maximum fuselage width, in this case, a Boeing 747-100, with corresponding levels of water, foam and complementary fire fighting agents⁸⁰. The biggest fire hazard facing the Airport today is not related to infrastructure, but to the traditional practice of building open fires to clean plots of land, which not only affects the environment but also creates serious risks of out of control fires. Firefighters interviewed at the airport noted they have had to combat these fires frequently in the summer, and have made sure nearby pastures are kept low to prevent accidents from happening⁸¹.

Hospitals and Emergency Plans

According to airport officials, a comprehensive set of emergency procedures exists to combat such events. The plan coordinates the response and participation of all existing agencies that could be of assistance in an emergency. International Civil Aviation Organization standards suggest that on the airport the involvement of the following actors: air traffic control unit, rescue and fire fighting services, airfield administration, medical and ambulance services, aircraft operators, security services, and police⁸². Off the airport, it is necessary to coordinate fire departments, police, medical and ambulance services, hospitals and harbor patrol or coast guard⁸³. The multi-institutional plan that was developed for Liberia makes use of nearby facilities that can handle large

volumes of casualties. This network of hospitals and related support agencies includes the Liberia hospital, Nicoya and Puntarenas medical facilities, and even San Jose national hospitals if necessary. Clinica Biblica and Hospital Cima, two of the leading private hospital groups in the country, have recently announced they will build hospitals in the town of Liberia, to be completed in 2011⁸⁴. Airport authorities report no major accidents at Liberia, although recently in February 2007, one of Delta’s turbines caught fire, as a result of foreign object damage, and returned quickly to land⁸⁵. No injuries were reported.

TABLE 6
Auxiliary Medical Centers in the event of an emergency (EBAIS)

Region	Total of Local Community Medical Centers (EBAIS)	Per Capita Ratio for Each Local Community Medical Center (EBAIS)
Costa Rica	919	4755
Guanacaste	84	3359
Liberia	9	5866

Source: CCSS Costa Rica Social Security System Statistics Department 2008

Services Provided to Airlines

Fueling

Aviation fuel is provided by Recope, the national oil refinery. Plans to incorporate an oleduct (underground pipeline) or nearby aviation fuel storage facility are underway, but jet fuel is currently transported from La Garita Alajuela, and this is both costly and contributes to the congestion of major highways. Ideally, a fuel “farm” should be located close to the main aircraft apron areas, with sufficient capacity to handle both peak periods and emergencies.

Security and maintenance staff

Total staffing for the airport maintenance now exceeds 400 employees, of which 200 are government jobs, and the rest belong to private companies. For instance, Air Dispatch Service Limited (ADS) provides ground-handling services for incoming aircraft, while cleaning is outsourced to a private service company. When maintenance of an aircraft is required, technicians and repair parts come from San Jose or neighboring countries. The DGAC is continually assessing security arrangements to make sure they handled well. Recently, the number of

police guards at the airport was increased to 72. There are no private security companies operating within Liberia Airport, so all the security staff is handled by the government⁸⁶.

Lodging and Airline Kitchens

There are no lodging facilities at Liberia Airport, and most crew members and staff find accommodation in the town of Liberia. Catering facilities are outsourced to a private operator (Casa Proveedora Phillips) who prepares meals for commercial, private, and charter flights at Juan Santamaría. Since 2004, Casa Proveedora Phillips has been operating facilities on a mobile platform within the Liberia Airport grounds, with a total of 20 employees. The plant manager in Liberia said in an interview that the Liberia Airport's growth has taken everyone by surprise, and that their list of clients has expanded to include all major airlines⁸⁷.

Services Provided to Visitors

When the Daniel Oduber International Airport was inaugurated in 1995, there was no noticeable increase in supplementary services for the airport's operation in the surrounding areas. However, with the growth in passenger traffic after 2002, new tourism services and businesses have sprung up in Guanacaste, including accommodations, catering facilities, and tour operators. In addition, Liberia now provides all sorts of entertainment and other facilities for tourists and a growing local population. These include a variety of restaurants, hotels, pharmacies, shopping malls, educational centers, including two universities: Universidad de Costa Rica regional campus and Escuela de Agricultura de la Región Tropical Húmeda (EARTH). Liberia's role as a business hub is evidenced by the creation of business parks around the Airport. Solarium, for example, has over 300,000 m² of construction and offers an industrial park, a residential zone, malls and office space. Liberia also inaugurated the headquarters for Ad Astra Rocket Company, a state-of-the-art scientific company headed by Costa Rica's sole astronaut, Franklin Chang who intends to build the first plasma engine for space travel.

Liberia's growth has put pressure on the local municipality to reevaluate its infrastructure regulations. According to Liberia Mayor Carlos Marin, the plan, which was first set forth in 1982 and is still in effect, no longer reflects the reality of Liberia. He stated that commercial and residential areas need to be demarcated to avoid "the limitations and problems that an uncontrolled historical development have created" including dealing with wastewater and sewage⁸⁸. He also noted that the surge in foreign investment has caused land prices to soar: "prices shot up and no land was left for the local Liberian population", Marin told

*La Nacion*⁸⁹. This has resulted in higher prices for house rentals in Liberia and the nearby areas.

Figure 10
Liberia City Satellite Picture



Source: GoogleEarth and Maptak.com

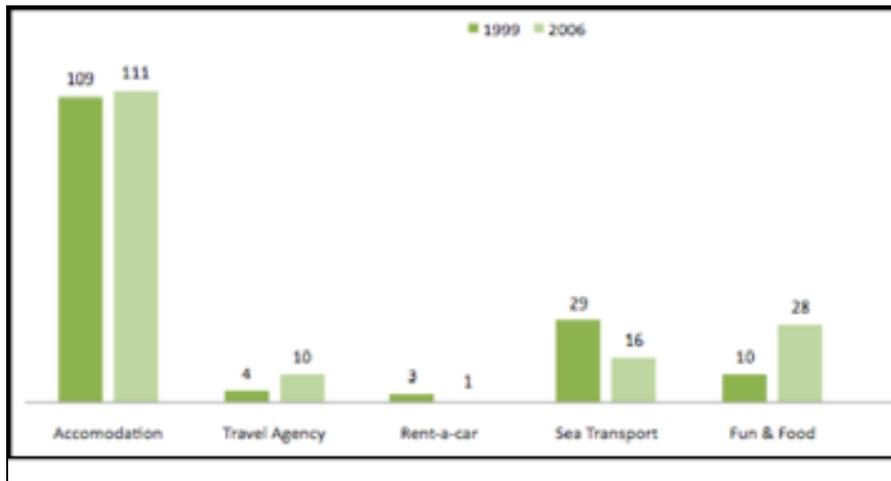
Figure 11
International and Local Airports in Costa Rica



Hotels and Accommodations

Accommodation services for tourists have steadily increased in the Guanacaste province, particularly luxury facilities (4 and 5 stars), where national room availability has grown at an average rate of 4.5% annually⁹⁰. In 2006, the northern area of Guanacaste had 16.9% of the total hotel accommodation in the country, or 6,887 rooms, and this was expected to grow by another 1,662 by 2012, according to the National Tourism Development Plan⁹¹. (The current worldwide financial crisis is likely to slow this rate.) Occupancy rates are estimated between 58% (BCCR) and 62% (ICT), according to two separate studies, done in 2006⁹². Due to the increase in air passenger traffic in the last six years, demand for additional hotels—both budget and premium—is on the rise. A new Hilton Hotel in the Solarium Business Park in front of the Airport was inaugurated at the end of 2008, but interviewees indicated that the present economic recession has negatively impacted its occupancy rates. As a result of the current worldwide financial crisis, industry leaders expect a slower growth in visitor arrivals at Liberia Airport, a significant decrease in tourism-related foreign direct investment, and the postponement of residential and hotel complexes that are not yet in the construction phase⁹³.

FIGURE 12
Ancillary Facilities in Guanacaste (1999 and 2006)



Source: ICT 2007

Car Rental and Tour Operators

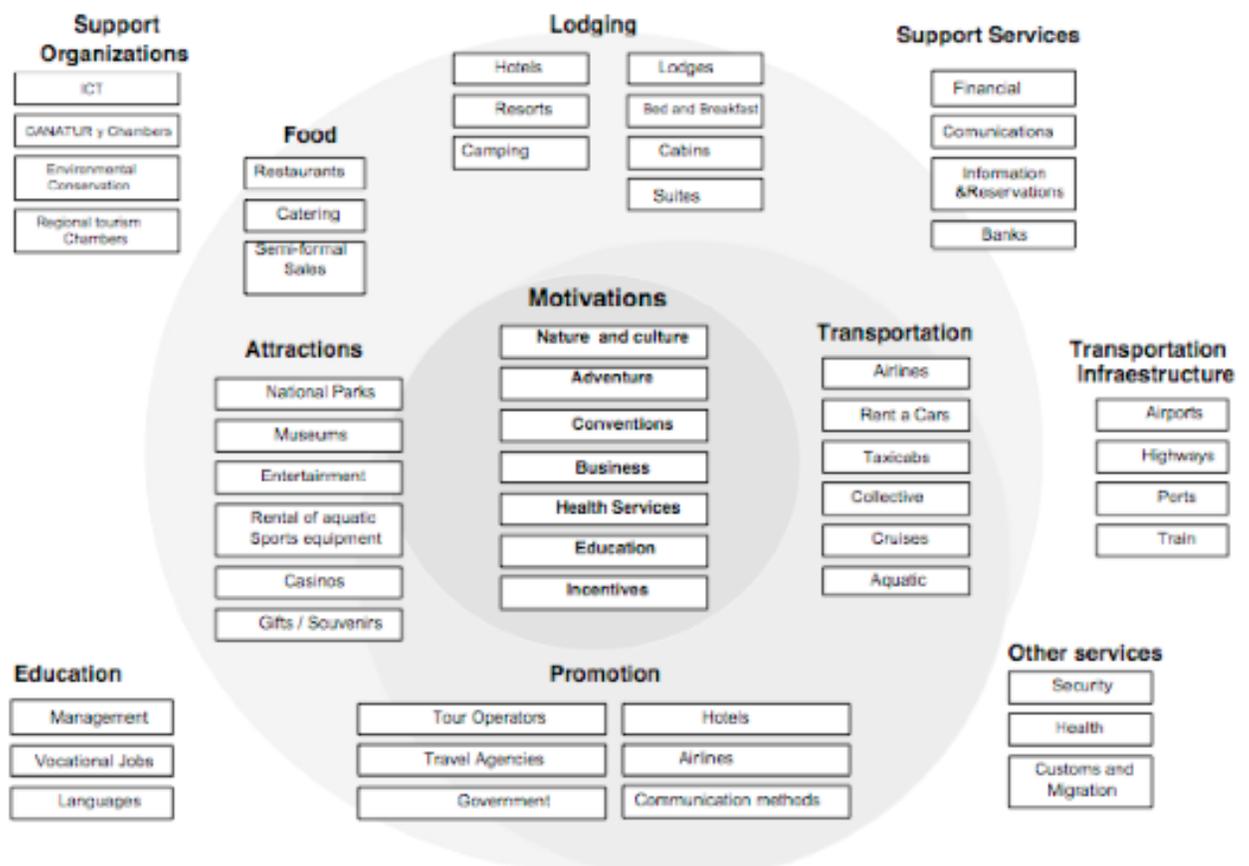
In response to increased international arrivals, all major car rental companies now have offices where passengers can collect and return cars within the vicinity of the Airport. As of 2006, there were 31 car rental companies registered with the ICT⁹⁴. In addition, in Guanacaste there are 21 registered “adventure tourism” operators, selling “extreme” sports and ecotourism activities such as canopy zip lines, bungee jumping, white water rafting, rappeling, kayaking, horseback riding, and trekking tours⁹⁵.

IMPACTS FROM AIRPORT DEVELOPMENTS ON LIBERIA AND THE NORTH PACIFIC COAST

Increasing tourist arrivals through the Liberia airport have had a multiplicity of effects. Some – such as the expanded need for fire safety and health services - are derived directly from increased air traffic, while others are related to the indirect impacts of expanded tourism operations and real estate developments in the surrounding areas. In essence, there appears to be a mutually reinforcing relationship between the airport's expansion and the development of Guanacaste and Liberia in particular as an international vacation destination. For instance, the Liberia airport has provided easier and more efficient access to Guanacaste beach resorts, and this in turn helps increase the profitability of these resorts. In addition, luxury developments are ideally constructed within 1 hour or 2 hours from an international airport. These elements have been crucial to the real estate expansion in recent years. That is why resort and golf course owners, for example, helped finance infrastructure facilities at Liberia. There is also a wide variety of incoming passengers exhibiting an array of spending patterns, as evidenced by the ICT passenger surveys. It may well be the case that certain international charter flights and international scheduled flights are facilitating the expansion of an all-inclusive model, whereas some domestic flights could be facilitating a type of tourism that leaves more in the country and distributes it more widely than prepaid packages do. In any case, establishing causality between the airport's development and the growth in real estate and hotel operations in the Guanacaste is no simple exercise. The same is true for establishing the counterfactual, i.e., what would have happened in the absence of Liberia's Airport? This section will examine the association that exists between two events that co-occurred, e.g., the airport's growth and Guanacaste's development, and understand key variables such as infrastructure, visitor arrivals, land use patterns, livelihoods, immigration and job creation within the tourism cluster.

Costa Rican tourism comprises numerous variables, including support organizations, promotional campaigns, nearby attractions and other features. All interviewed groups agree that the expansion of air transportation has been essential to the growth of tourism in Guanacaste (see below). By the end of the 1970s, Guanacaste had superseded Puntarenas as the primary coastal destination for Costa Ricans. Tamarindo became the first hub for local tourists, followed by Playa Hermosa. A Costa Rican developer notes that, changes were not significant in the North Pacific coast for another 25 years, when the Liberia Airport began scheduled international flights, Guanacaste became a destination of its own, geared towards US and Canadian tourists.

FIGURE 13
Tourism Cluster in Costa Rica



Source: Tourism Cluster in Costa Rica, INCAE 2002

The Liberia Airport existed for more than 30 years without contributing to any significant growth or development in the area, suggesting that it is not simply the mere presence of an airport that drives development. Passenger traffic did not dramatically increase until the establishment of regularly scheduled flights in 2002. Real estate developers and luxury hotels also contributed financially to the Liberia Airport development, conscious that this expansion would significantly expand their market. If the international airport were not located in Liberia, there is reason to believe the overall level of development we see today in the town might not have been possible, at least not such a high level of growth rate. Liberia offers services of numerous kinds to nearby coastal towns and owes this to its privileged location and access to road and air infrastructure. However, there is ample evidence that if there had not been a significant amount of development already in place, no international carrier who have agreed to provide service.

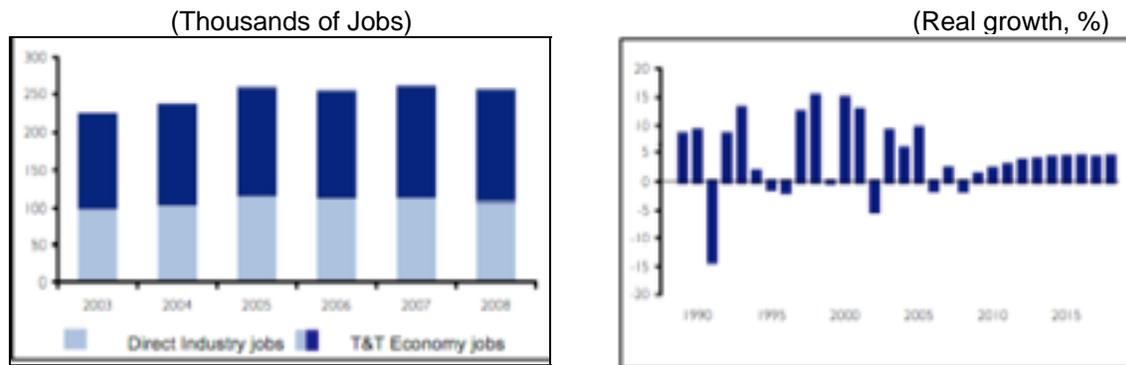
While causality is not clear, synergy is, and the development of Liberia's Airport so far appears to have had the following implications: massive increase in the number of visitors, as well as the accompanying investment, changes in land

use, demand for infrastructure and changes in livelihoods, among others. The following section will analyze these different implications, with the aim of understanding the role of the airport within the tourism cluster.

Job creation/loss

Airports have become essential to business, commerce and industry, by providing access to markets and tourist destinations, with capacity to develop distant areas and support inward investment. The tourism industry is labor intensive and has a low ratio of investment to job creation. This means that more jobs can be created per unit of capital invested in comparison to other industries. Tourism generates direct and indirect jobs through hotels, restaurants, taxis, souvenir shops and the supply of goods and services to related sectors. The noticeable increase in passenger traffic at Liberia Airport, therefore, has helped to increase employment in all these related industries. According to the World Travel and Tourism Council, travel and tourism generated 107,000 direct jobs in Costa Rica in 2008, representing 5.4% of total employment. More importantly, this industry represents total economic employment of 258,000 (indirect + direct) jobs, a 13.1% share of total employment (WTTC 2008b). These calculations are made using the WTTC's Tourism Satellite Accounting methodology⁹⁶.

FIGURE 14
Costa Rica: Travel and Tourism (T&T) Employment



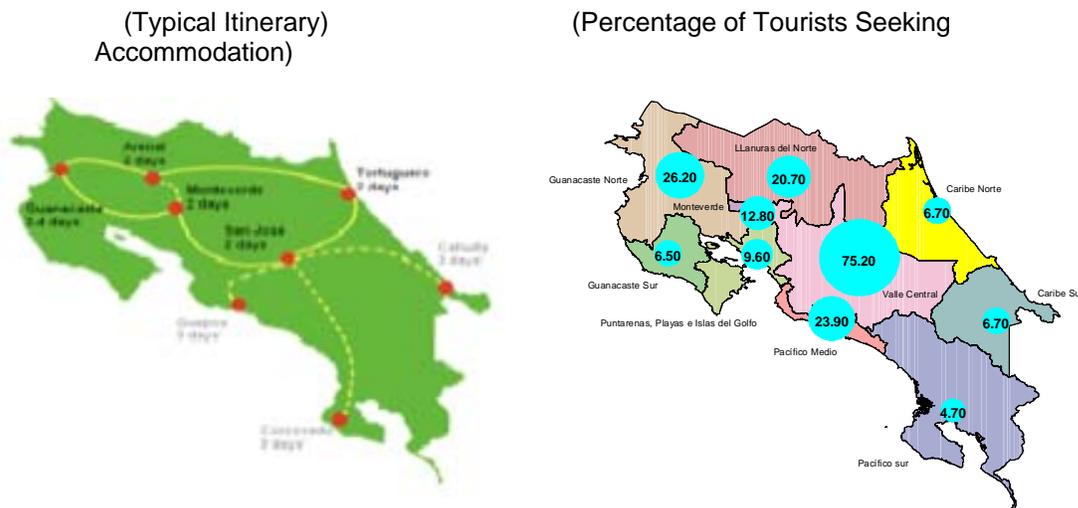
Source: WTTC 2008b TSA Accounts

In Costa Rica, the Statistics and Census National Institute (Instituto Nacional de Estadística y Censos - INEC), provides the most accurate data, and based on its latest survey for July 2006, estimates that hotels and restaurants account for 97,829 direct jobs, which is 5.5% of the total employed population⁹⁷. If we include other jobs related to tourism, including air, land and port operation personnel, tour operators, rental agencies and other businesses closely associated to tourism, this figure would undoubtedly be much higher. Unfortunately, these statistics are not available from INEC. Nevertheless, the ICT

estimates 326,488 direct and indirect jobs are generated in the whole country as a result of tourism, substantially higher than WTTC's estimate of 258,000 jobs. ICT based this calculation on the assumption that every hotel room generates two direct jobs and every direct job generates 3 indirect jobs⁹⁸. Using the same equation, if we take the 8,309 rooms currently available in Guanacaste in 2006, we can estimate that these generate 16,600 direct and 49,800 indirect jobs, totaling almost 67,000 jobs in the Guanacaste province. ICT estimates North Guanacaste will account for 26% of the demand for accommodation, becoming the second most visited region after the Central Valley. Average stay for a tourist in North Guanacaste is 5.4 days⁹⁹. There is also a growing tendency for fewer visitors to seek accommodation in the Central Valley, which the ICT argues could be a result of the growth of Liberia's Airport:

"The Central Valley remains the most visited planning unit, given the location of the main airport of the country, the capital city and other successful attractions such as Irazu and Poas volcanoes. However, visitor arrivals to the city have tended to decrease, which could be due to the opening of the Liberia Airport, or, hypothetically, the desire to leave directly to the tourist attractions located in other planning units instead of spending the night in San Jose¹⁰⁰"

FIGURE 15
Estimated Distribution and Duration of Demand for Accommodation



Source: MREE 2006 and PNND 2006

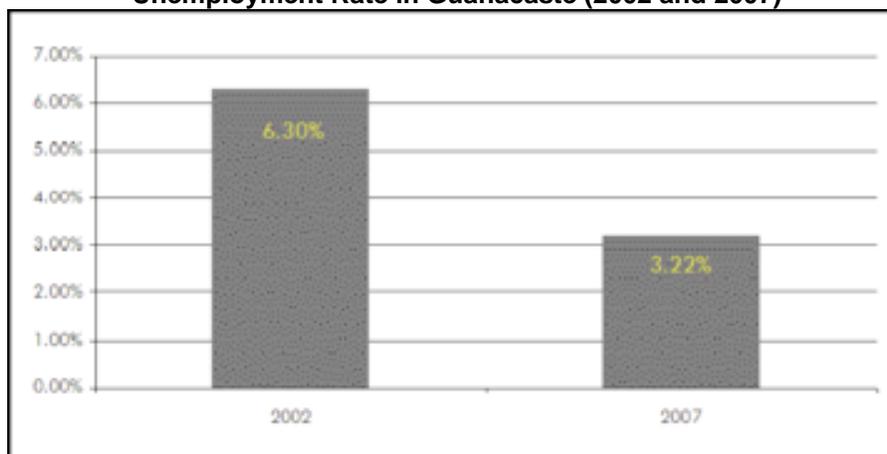
The ICT argues tourism is capable of providing immediate employment. The challenge is to properly organize and focus the tourism sector so that training takes place and higher skilled jobs are generated that contribute to higher remuneration and benefits to the tourism workforce. Some critics contend employment opportunities in tourism have not been realized in developing countries, and that jobs are usually temporary, menial and low wage¹⁰¹. Whether this is actually the case in Guanacaste merits further study. Interviewees suggest

that job creation is satisfactory and has provided opportunities to SMEs and the local population, but that more training and educational investments are necessary to allocate the high skilled jobs to the local population.

According to a study done in 2007 for Estado de la Nacion for two of the most important tourist destinations in the country—La Fortuna near Arenal Volcano (and therefore not part of Guanacaste) and Tamarindo in the North Pacific Coast—approximately 50% of interviewed households have at least one member employed in jobs associated with tourism¹⁰². Although there are important differences between the two destinations, both populations indicated that their employment opportunities improved as a result of increased tourism.

In La Fortuna, for example, families who have at least one member in the tourism industry have a higher level of schooling than their counterparts in Tamarindo (7.3 vs 5.9 years, respectively), and the level of schooling was found to positively influence the probability of having a job in tourism¹⁰³. It is no surprise, therefore, that local business leaders call for increased education and training. Specifically, the tourism industry has asked for an INA (National Training Institute – Instituto Nacional de Aprendizaje) to be set up in Guanacaste province, but it remains only in the Central Valley. At the moment, some of the employment opportunities created by the tourism industry in North Guanacaste are beyond the reach of the “average” worker, which is very low skilled. Nevertheless, the overall unemployment rate in Guanacaste (not including La Fortuna) has *decreased* by 49% in the last 5 years, as evidenced by the following graph:

FIGURE 16
Unemployment Rate in Guanacaste (2002 and 2007)



Source: INEC 2008

Many of these new jobs are related to construction work in Guanacaste, particularly to poor and unskilled workers, and in many cases, immigrants from neighboring countries. This reduction in unemployment, however, may be short

lived if this construction boom ends as a result of an economic downturn in the United States. An industry expert commented on our interviews that unemployment might be dropping partially due to families abandoning the region for the Central Valley¹⁰⁴. Most importantly, one must also study the nature and quality of the jobs that have been generated.

Two broad and quite distinct categories of jobs have emerged: those during the construction stage and those that arise from regular operations. In addition, hotels and small resorts are much more labor intensive once they are operating than apartment complexes and condominiums. The implications of each kind of job need to be understood, beyond aggregating figures, but unfortunately at the moment limited data exists for the North Pacific coast. It is clear that airport infrastructure and its related industries have created jobs at Liberia and at the coastal areas, by increasing the level of tourism arrivals. Although this trend has been maintained at a relatively constant pace, with the exception of a drop due to the terrorist attacks in the US in 2001, there is an impending risk of volatility. As countries embrace international tourism as the single most important way to boost their economy, they become vulnerable to shocks. In this moment, Liberia is particularly vulnerable to a deterioration of the overall economic climate due to the economic meltdown that began in the US and has become global, particularly since most of the arrivals at Daniel Oduber are from North America.

Accompanying investment and tourism-related foreign direct investment

Tourism has become Costa Rica's second most important source of earnings (after the export of INTEL microelectronic components) and a major incentive for attracting foreign direct investment (FDI)¹⁰⁵. The Costa Rican Central Bank estimates that in 2004 US\$176.6 million tourism related FDI entered the country, with a growth rate of 27% in 2005, reaching US\$224.5 million. Estimates for 2006 are even larger, with a 56% increase totaling US\$325 million¹⁰⁶. In short, tourism has represented approximately a quarter of the total FDI for the last 3 years and Guanacaste is currently the second most important destination for tourism related FDI, after Puntarenas¹⁰⁷.

Nevertheless, the Costa Rican Central Bank notes the increasing importance of non-traditional investments in what is typically referred to as *residential tourism*. For example, total real estate FDI increased from US\$ 41 million in 2004 to \$325 million in 2007, primarily due to the arrival of highly renowned international hotel chains¹⁰⁸. The study notes that primarily vacationing homes and land purchases have fueled this dynamic. El Coco, Ocotol, Conchal, Flamingo, Tamarindo, Sámara, Nacascolo y el Golfo de Papagayo are noted as key locations for these investments, many of which are relatively close to Liberia's International Airport.

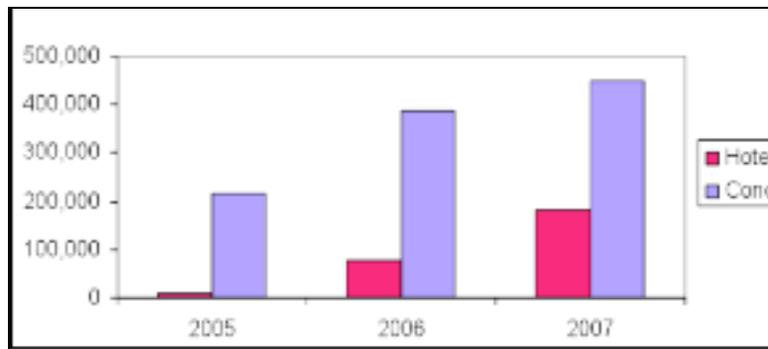
As stated by a recent report by Costa Rica's Central Bank:

"Traditionally, the main recipients of FDI have been industry and tourism. However, in recent years, there has been a growing tendency towards non-traditional purchases of

housing, land, condominiums, villas, and commercial premises by foreigners... Indeed, housing developments provided with swimming pools and golf courses sum up the preferences of non-resident aliens ”¹⁰⁹

Countrywide real estate FDI has shown a gradual increase during the past four years accounting for 2.4% of Costa Rica’s GDP in 2007¹¹⁰. Guanacaste has consistently been the main recipient with the exception of 2007ⁿ, primarily due to important investments in Golfito and Quepos, including Hacienda El Dorado Megaproject¹¹¹. No figures exist to disaggregate total investment in residential and hotel projects, but both the number of condominiums and hotels in Guanacaste has soared to record levels.

FIGURE 17
Condominiums and Hotels in Guanacaste (2005-2007)



Source: CCC and CFIA 2008.

Residential tourism development has fewer linkages than hotel accommodations, and is associated with speculation and short life cycles¹¹². In addition, the development of residential tourism tends to be seen as a threat to the preservation of the *authenticity* tourists came looking for, potentially damaging the long run “no artificial ingredients” successful marketing campaign¹¹³. The town of Santa Cruz, for example, is the area with the highest level of construction in the country for both 2006 and 2007, followed by Carrillo and Liberia, all part of the Guanacaste province. More and more, sales for condominiums and time shares are marketed through a generic “sun and beach” marketing model, similar to the ones used in the Mediterranean and Dominican Republic, without sufficiently accentuating a high quality nature based tourism model that has differentiated Costa Rica, eroding its branding strategy¹¹⁴.

TABLE 7
Guanacaste’s total share of Costa Rica’s construction permits (m2)

ⁿ Total real estate investment in Guanacaste increased from US\$ 64.4 million in 2004, to US\$ 127.4 million in 2007 (BCCR 2008).

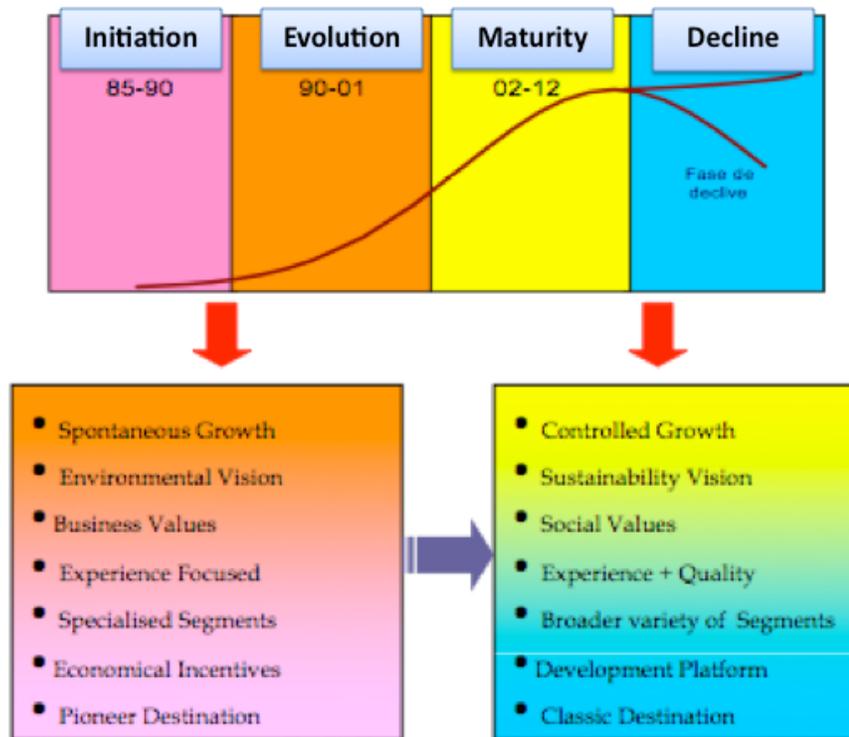
Percentages (1985-2006)

	1985	1990	1995	2000	2005	2006
Guanacaste	4,2%	5,0%	9,3%	9,4%	12,1%	15,6%

Source: INEC, adapted from Roman 2007b

The growth in air passenger traffic through the Liberia Airport has been a key factor for attracting this level of investment to the area. An interviewee from a leading consultancy for real estate investors in Costa Rica noted: “No high end hotel or resort will be interested in investing if an international airport is not within 1 or 2 hours max... Just look at how coastal property prices soared with Liberia Airport.” However, it is interesting to note that the Liberia Airport development has not been an issue of concern in the Tourism National Development Plans. There is no in-depth analysis of whether or not the growth of the Liberia Airport has served to foster the government’s future vision of Costa Rican tourism. This vision is encapsulated in the concepts of “authentic tourism products” and “alternate models” of tourism development that reinforce the country’s nature-based tourism brand¹¹⁵.

FIGURE 18
ICT Tourism Development Models 1985- 2012



Source: Adapted from Cordero, A. and Marieloz Bonilla (2006). Policies on Sustainable Tourism in Costa Rica - Review of existing tourism policies, regulations and legislation of Sustainable Tourism in Costa Rica. Bhutan Sustainable Tourism Legislation - Project FLACSO-Costa Rica, 2006. Based on *Plan Nacional de Turismo ICT 2002-2012*.

The ICT lists strategic actions that should guide sustainable tourism development for the period 2002-2012 in its National Tourism Development plan¹¹⁶. This signaled an important change away from the traditional coastal tourism development formulas used until the 1990s to a new strategy based on sustainability and quality:

Growth is not being defined only as a numeric goal. Growth implies the differentiation and diversification of tourism products in order to search for new potential markets using nature-based and other sophisticated approaches. These include *sustainability* and *competitiveness*, with a focus on quality as a transversal axis.¹¹⁷

Whether the long term vision of tourism development conforms to the ever-increasing number of tourist arrivals in Liberia, however, remains to be seen.

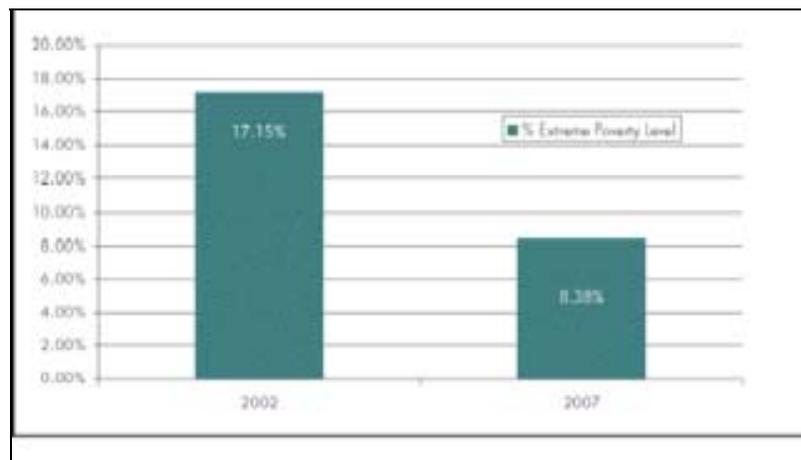
Impact on informal economy

Another important element to consider is the growth of the informal economy. In countries where there is a high level of informal employment, tourism can play an important role supporting street vendors, unofficial tour guides, and other service

providers. Although unreported for tax purposes, money returned to the local economy has a great multiplier effect, directly benefitting the poorest segments of society. In particular, the tourism industry fosters entrepreneurial opportunities for the informal sector, from the sale of handicrafts to fruit vendors and others. Unfortunately, the informal economy may also be associated with certain social ills. For example, the Estado de la Nacion reported that around both La Fortuna and Arenal drug trade and consumption has grown as a result of increased tourism, and in Tamarindo prostitution was cited as an additional problem facing the town¹¹⁸.

Data for the informal economy is not easily accessible, but the International Labor Office estimates it could exceed 50% of the total number of employees in Latin America¹¹⁹. The size of the informal economy in Guanacaste has not been measured, but the amount of people under extreme poverty has certainly diminished in the province, from 17.15% in 2002 to 8.38% in 2007, a 51% decrease, according to the latest figures¹²⁰. Whether this is a direct result of the tourism cluster in Liberia is a matter of further study.

FIGURE 19
Percentage of Population Under Extreme Poverty
Guanacaste Region (2002 and 2007)



Source; INEC 2008

Fiscal impact and government spending

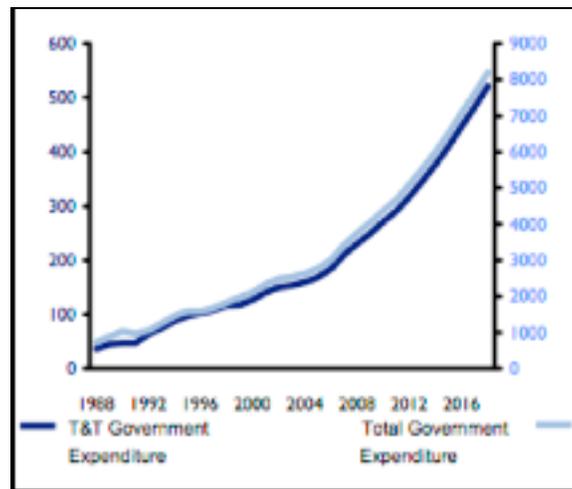
Increased taxes and government revenue provide another benefit from increased tourism. The possible concession of the passenger terminal in the Liberia Airport could generate additional income to the government, particularly important in a time where current airport tariffs do not fully cover maintenance costs and infrastructure investments at these facilities. If properly managed, the concession with Coriport Group will permit the government to spend saved resources on other airports since the private group will finance the operation. However, the Costa Rican spending and planning process is very centralized. In spite of the

tourism boom, quality of life investments – schools, clinics, water, etc – do not occur where the development is taking place, but respond to decision makers in San Jose, and as a result there has been a lack of public sector investment in Guanacaste. Currently, the concessionary at Juan Santamaria directs 35.1% of its profits to the government, but these funds have not reached Liberia and other airfields in need of infrastructure investments¹²¹.

Without significant investment on behalf of the government it will be impossible to consolidate a successful tourism cluster. Increased tourism puts a demand on critical infrastructure, diverting public resources to support private benefit in Guanacaste, in terms of water projects, roads, electricity, sewers, airport construction, to name a few. In many cases, government expenditure has not been enough. For example, the Costa Rican Social Security System has been renovating the Liberia City Hospital to increase hospital bed availability for mass casualty incidents. Two new buildings were concluded in 2008, with a total investment of \$9.7 million and more than 6,000 m² of additional space. The third and final stage will begin in 2009, and will culminate with one of the top regional hospitals in the country¹²². Even with these efforts, the region, and in fact, the whole country, suffer from saturated hospitals. This means that in the event of an emergency (planes in Liberia frequently have 150 passengers), there would be severe difficulties to handle the emergency. Clinics and other centers like local community medical centers (EBAIS) could treat moderately injured passengers, but facilities are insufficient to handle the severely injured. A security expert said that in the last emergency practice the saturation at Liberia Hospital meant they could only handle 10 severely injured passengers simultaneously. Hence, improving hospital infrastructure and capacity to cope with emergencies should be viewed as a priority for supporting the growth of tourism. This will require rerouting additional investment on behalf of the government. To date, priority has been given to improving road, electricity and water infrastructure, as part of a concentrated effort to attract FDI (See accompanying investment section).

WTTC estimates that the Costa Rican government expenditure for tourism will reach US\$ 231 million in 2008, equivalent to a 6.2% share of the total spending¹²³. By 2018, this figure is forecast to reach a 6.4% share¹²⁴. This amount is more than double the Latin American average (2.9% of total expenditures) and higher than the world average (3.8%)¹²⁵.

FIGURE 20
Costa Rican Government Expenditure
Travel and Tourism Sector vs Total Government Expenditure
(Millions of US\$, 1998 - 2016)



Source: WTTC 2008b TSA Accounts

While there has also been significant investment in upgrading fire-fighting capacity at the Liberia Airport, there is a lack of adequate fire-fighting facilities in coastal areas that have seen rapid growth. For example, in Playas del Coco and Tamarindo (among the most densely developed coastal communities in Central America), there are no fire stations, and in many cases there are no fire hydrants. Ecodesarrollo Papagayo, a large coastal development project, for example, made the decision to run its own fire truck and crew¹²⁶. The town of Liberia does have its own fire station, in addition to the specialized Category 7 unit at Daniel Oduber Airport¹²⁷. In the foreseeable future, significant investments will need to be made to supply fire-fighting capacity to the new coastal development areas¹²⁸.

Also important for the overall growth and competitiveness of tourism are tax concessions and other incentives granted by government. Different types of subsidies are currently given to the hotel, cruise, airline operators, tour and car rental agencies (See Table 5). These mechanisms range from accelerated depreciation, tax exemptions on imports, exoneration from property tax, and other forms of preferential treatment designed specifically for the tourism sector. In the case of the airport operators, fuel is untaxed (as is the case in many international airports) and all airplane parts are exempt from taxes¹²⁹. They also benefit from accelerated depreciation. Airport authorities at Liberia noted that part of the resources Juan Santamaria generates are used at Liberia to cover basic operational costs, which is basically an implicit subsidy¹³⁰. Overall, one

must weigh the new investments and permanent jobs that the airport helped to generate against the cost of subsidies and infrastructure investments. It appears that the Liberia Airport has made possible many of the new investments in Guanacaste and Liberia, generating new jobs and attracting FDI.

TABLE 8
Examples of current fiscal incentives for the tourism sector in Costa Rica

Air transport (Local and international)	Accelerated depreciation, whereby a company depreciates a fixed asset in such a way that the amount of depreciation taken each year is higher during the earlier years of an asset's life. This is a valuable tax incentive that encourages businesses to purchase new assets. In addition, airplanes can purchase fuel without taxes. There is an exemption from all taxes and surcharges applied to the import or local purchase of parts for the operation of the aircraft.
Accommodation	Exemption on taxes and tariffs applied to the import or local purchase of essential items for operation, installation, construction, expansion or renovation of structures (excluding taxes, sales tax, except for the initial investment). Can apply a method of accelerated depreciation of its assets. Municipal licenses have a maximum of 30 calendar days of the application is filed. Can seek authorization by the Central Bank of Costa Rica to accept foreign currency. Exempted from land tax for six years.
Ocean transport	Exemption from all taxes and surcharges applied to the import or local purchase of essential goods for the construction, expansion or renovation of docks and berths used for the loading or unloading of tourists. It includes the construction and maintenance of marine and spas for tourism. Can apply an accelerated depreciation method under the Law on Income Tax. Exemption of taxes and surcharges for the import or local purchase of ships, except customs taxes that are limited to 20%.
Tour operators and travel agencies	Exemption from all taxes and surcharges on the import of vehicles with a minimum capacity of 15 passengers, except import taxes (limited to 5%). (Agents noted they will set up operations inside the airport as soon as the terminal is expanded.)
Car rental agencies	Exemption of 50% of taxes on import of vehicles for exclusive use of rental to tourists. The vehicles exempted under this law should be replaced every 3 years. (Rental agencies noted they will set up operations inside the airport as soon as the terminal is expanded. They are currently within 1km, outside the premises.)

Source: Adapted from Roman 2007b and BCIE 2005

Tax evasion in the tourism and construction sector has become more common in the Guanacaste area, according to one real estate consultant¹³¹. Practices like sub-registering the total amount of construction area (m2) or deflating the total construction value have been used particularly in small and medium projects. Many times, no official construction permits exist for these developments. Vacation homes that are rented out to visitors and therefore serve as small

private hotels also lie outside the fiscal scrutiny of the Finance Ministry. There have been complaints, most notably by the Minister of Tourism Carlos Ricardo Benavides in 2006, that 50% of tourism establishments do not pay the 3% lodging tax, and that the Ministry does not have the monitoring capacity or the enforcement mechanisms to collect these funds¹³². ICT passenger surveys for 2007 indicate that approximately 14% of international tourists stay at rental houses and condominiums. There are, however, no official estimates on tax evasion regarding the rental of private homes.

Changes in land use patterns

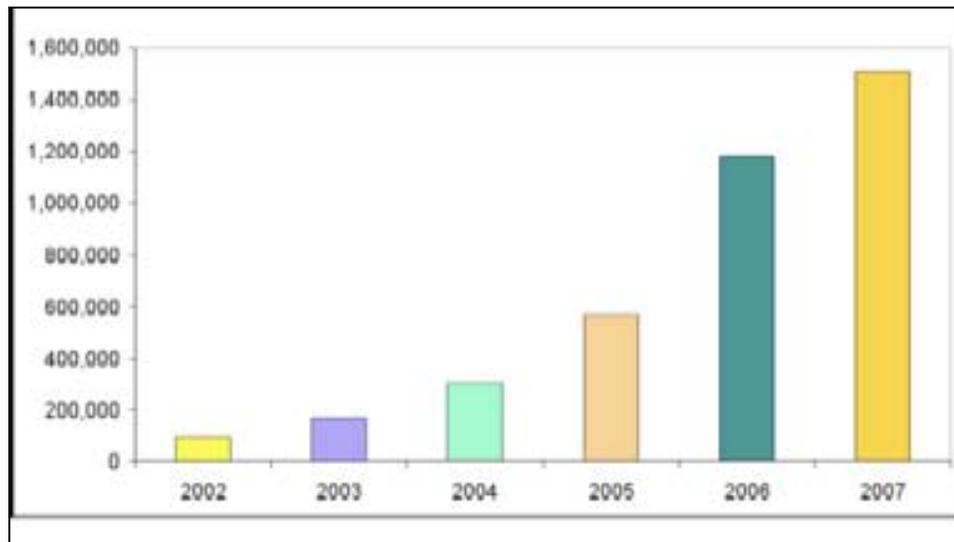
An indirect effect of construction and property developments is that the value of land increases, particularly at coastal areas, generating benefits for the local population (those who have not yet sold) and increasing the amount of property taxes collected by the local government. However, the current market value of all these developments may not be accurately registered at the local municipality, meaning that the current tax rate may not always reflect the full amount of these properties. In addition, foreign nationals who engage in real estate are generally credited with earning the biggest profits when selling and buying properties, whereas the local population may not have the necessary skills or information to maximize these opportunities. Real estate commissioners report that it is common practice to declare lower values of properties to evade transfer taxes¹³³.

Tourism holds the potential, if done well, to help to sustainably develop rural areas, providing an alternative to urbanization, reducing rural to urban migration, and enhancing opportunities particularly for women and young individuals. It is far from certain that the Liberia airport has contributed positively to these objectives. Easier access to the North Pacific through the Liberia Airport has increased real estate sales, but at the same time, contributed to the displacement of locals who have sold their land. In the case of residential tourism, owners are not always there, so local spending and employment opportunities are reduced.

Construction in Guanacaste has reached record levels, accounting for 21.2% of Costa Rica's overall construction in 2007¹³⁴. Most of this development responds to housing projects and real estate developments, including hotels and resorts. This has put pressure on existing natural resources and its carrying capacity. The number of hotel rooms alone has increased by 163% from 1999 to 2006. These statistics, however, comprise all of Guanacaste. Although there have been important developments near the Liberia Airport, the bulk of construction has been near coastal areas.

FIGURE 21

Total Square Meters of Construction in Guanacaste (2002-2007)



Source: CCC and CFIA 2008

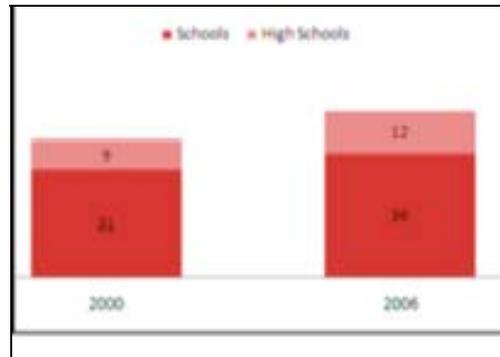
Cost and standard of living

Tourism also has a vast potential for building linkages to other economic activities. It can, for instance, stimulate agricultural production, manufacturing, and services in the surrounding area. Visitor spending can indirectly generate more jobs, wages, and profits, as tourist expenditures flow around the economy. The multiplier effect arises because consumer spending rises and feeds back into increasing business revenues, jobs, and income over and over again. However, these increased earnings and opportunities need to be measured against what one local tour operator calls the “artificial rate of inflation”, where the value of goods and services is higher in comparison with a similar products in the Central Valley¹³⁵. Scarcity of housing in Liberia, for example, has created a bubble in the price of housing developments for local residents. The cost of living in rural and indigenous communities has risen significantly, says business writer Jaleh Ruhe: “In just five years Guanacaste has become economically inaccessible for most Costa Ricans”¹³⁶.

For the local population to participate among the potential benefits of tourism and enjoy increased earnings, higher levels of education and training will be necessary. According to hotel representatives, foreign language instruction and technical skills need to be taught at an early stage. They suggest this process should begin as early as primary school, teaching sustainability, English, and other key subjects¹³⁷. From the year 2000 to 2006, there has been a 20% increase in the number of primary and secondary schools in Liberia¹³⁸. The quality of this education, however, still needs improvement. Involving the tourism industry in improving the educational system and providing access to funds and

training, has been proposed as a mutually beneficial step by the Chamber of Tourism in Guanacaste.

FIGURE 22
Educational Centers in Liberia (2000 and 2006)



Source: CCSS 2008

Adding value to tourism expenditures

An increase in mass tourism developments has been generally associated with less tourism revenue remaining in the local economy¹³⁹. Vertical integration, involving the transportation, accommodation and procurement of customers, may lead to anticompetitive market practices and significant pressure for small suppliers. Also, all inclusive vacation packages reduce the opportunities for the local population to benefit from tourism. International chartered flights generally are synonymous with these types of tour packages, which were the norm from 1997 to 2002, before commercial airlines began flying to Liberia. In 2006, ICT's airport statistics determined that between 45% and 50% of them the total number of passengers at Liberia traveled under a packaged itinerary¹⁴⁰.

Liberia airport is facilitating – in fact making possible – a type of tourism – all inclusive resorts – that bring few benefits to Costa Rica, in part because the leakage is so high. This occurs when there are insufficient forward or backward linkages in the economy. Furthermore, it is a type of tourism that is not in keeping with Costa Rica's stated policies or international reputation for high quality nature based, small-scale tourism, as noted in its "No Artificial Ingredients" campaign. Amongst the most common costs associated with high levels of resort and vacation home tourism is the exclusion of local businesses and products through increased leakage of tourism revenues¹⁴¹. Permitting small and medium tourism enterprises (SMEs) to enter the market generates important benefits to the local population, and creates options for visitors that do not want to endorse all-inclusive packages. Providing benefits for SMEs (access to finance, for example) must therefore be an integral part of sustainable tourism strategy.

Changes in livelihoods and social patterns

Although increased social interaction with foreign buyers and tourists can generate productive social patterns, including a strengthening of their cultural identity, fluency of a second language and a more diverse society, it can also reinforce certain social ills. These include an increase of prostitution, drug addiction and delinquency. International reports have pointed to Costa Rica as a popular sex tourism destination. Two important NGOs, End Child Prostitution and Trafficking of Children for Sexual Purposes (ECPAT) and Paniamor Foundation in Costa Rica are combating this by raising awareness, working with law enforcement agencies and running an aggressive media campaign¹⁴². Also, luxury condominiums and hotels exacerbate inequalities with those who cannot afford them. A tourism representative stated in one of our interviews that “Guanacaste is not for Costa Ricans anymore; its prices are more in the likes of Hawaii and Fiji”¹⁴³.

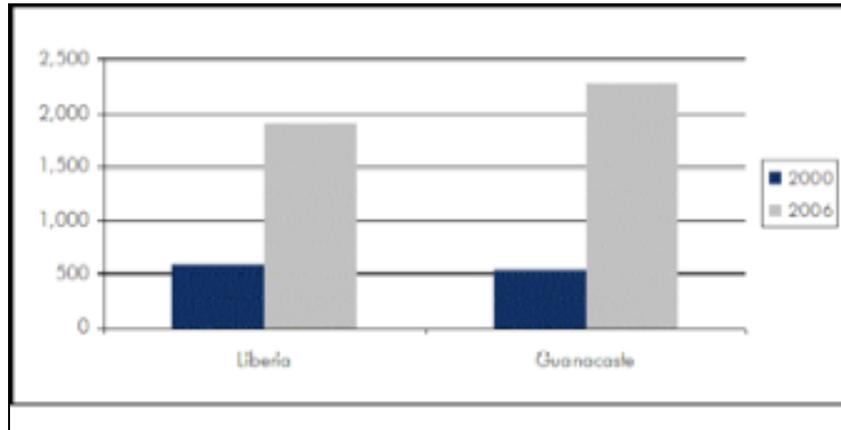
Moreover, tourism expansion in Guanacaste has started to create resource use conflicts, as is currently the case with the Sardinal water pipeline¹⁴⁴. Hotels and real estate developments are currently perceived by the local population as competing for the use of prime resources like energy and water, which are already in short supply in the North Pacific coast. Also, the construction of seaside hotels and tourist facilities has in practice privatized a number of beaches by cutting off access for locals, despite the legal requirement that all beaches remain public. Other socio-cultural impacts include higher prices for food and land, which may not necessarily be compensated by wage increases. Last but not least, mass tourism including chain hotels leads to the standardization of facilities and even attractions (golf and marinas, for instance) and an erosion of Costa Rica’s cultural identity. While this uniformity is marketed as preserving the quality and service desired by international travelers, the reality is that Costa Rica has built a strong international reputation based on marketing its unique natural attractions and its local culture.

Environmental Considerations

There are some impacts from the development of Liberia as an international airport that are not easily quantifiable and may not be evenly distributed. Some of those interviewed noted negative impacts in the vicinity of the airport. These include aircraft noise, air quality problems, and increased congestions on local roads. Urbanization associated with airport development may also have adverse impacts on Liberia’s landscape. There are also indirect effects in the coastal areas now under development, where managing increasing amounts of solid waste and sewage has become problematic, and broad based recycling programs have proven hard to implement. Construction growth has increased energy usage, which used to be almost entirely hydroelectric, but now is dependent on fossil fuel generators to meet demand. Luxury residences and

high-end resorts will put added pressure on the electricity gridline, due to their high average energy consumption and the tropical temperatures. Average levels of consumption are noticeably higher in 2006 than in 2000, and this tendency is expected to increase as the construction boom continues.

FIGURE 23
kW/h Consumption per Capita in Guanacaste (2000, 2006)



Source: CCSS Costa Rica Social Security System. Statistics Department. 2008

If hotel and tourism businesses are not committed to a sustainable development strategy, and if governmental policies are not properly implemented and monitored, negative environmental impacts will be exacerbated. Continued expansion will end up exceeding the carrying capacity, leading to depletion of natural resources. Among the most critical, is an added strain on fresh water resources resulting from the demand of hotels, swimming pools, and golf courses. Unregulated water wells and the excessive use of groundwater can lead to aquifer salinization or contamination. Wastewater disposal and the use of septic tanks are also problematic, causing erosion or contaminating underground reservoirs. Continuing to expand the airport and the numbers of incoming passengers may generate unexpected environmental consequences in the long run.

The above synopsis of key costs and benefits is not meant to be all encompassing. What is essential is to regulate the growth and dimensions of tourism development, in order to sustainably manage the “urbanization” of coastal areas, and incorporate the local population and the small and medium enterprises into these market opportunities, while minimizing the negative externalities.

CONCLUSIONS AND LESSONS LEARNED FOR FUTURE AIRPORT DEVELOPMENT

Conclusions

This project seeks to provoke a more constructive dialogue about the role of tourism in promoting sustainable development. In developing countries this is a matter of grave concern, since they face a huge challenge to maintain high growth rates of tourism while meeting their socioeconomic and environmental objectives and obligations, all with limited institutional capabilities and restricted economic resources. An overreliance on market mechanisms, without a proper guidance of this development, could create conditions that are insensitive to many requirements of sustainable tourism, and which could exacerbate the negative externalities associated with this growth. Developing a broad based and inclusive long-term strategy for coastal tourism can foster efficient and coordinated action, maximizing local revenues of tourism investments and conserving coastal landscapes in an effort to maintain its natural capital, the primary source of competitiveness.

So far, the development in the North Pacific coast of Costa Rica has exceeded all previous forecasts in the National Development Plans, Airport Master Plans and Tourism Strategies. This has created a situation where this growth clearly does not form part of a planned strategy. If left unmonitored, this could lead to destructive or unsustainable scenarios in the long run. The competitiveness and natural beauty that fueled this growth in the first place may find themselves at risk. The implications of this growth are vast, and cover sociological, environmental and economic implications. The case of the Liberia demonstrates that there was a symbiotic relationship between the Airport's growth and the growth of residential, hotel and other developments in Guanacaste. The private sector played a key role, as evidenced by the resort and real estate developers who helped underwrite cost of key infrastructure at Liberia, and negotiated the arrival of the first international scheduled airline. Although this has clearly benefited different aspects of the tourism industry in North Guanacaste, including residential tourism, it may undermine Costa Rica's stated national tourism policy encapsulated in "No artificial ingredients" campaign and its reputation as the leader in high quality ecotourism, unless the government assumes its role as a policy leader in directing the growth of this sector in a sustainable and competitive manner.

Key recommendations

This report notes a series of key recommendations including:

- There must be more cooperation among interested sectors,

governmental institutions and local individuals in shaping tourism policy and decisions, so that these strategies guide the development of infrastructure, and not lag behind it. Liberia's transition from a national to an international airport has been driven by private developers and short term incentives rather than a sound government strategy with planned goals and a clear strategy. Most importantly is the conclusion that sustainable tourism does not happen by chance; it is the result of an overall development strategy and long term planning, with a host of supporting mechanisms.

- Without better data and well-structured economic models it will be difficult to measure the real value of tourism to the region, and further understand its implications. More quality data, and continuous monitoring and evaluation, will be necessary to inform this debate.
- More training and education are necessary among the local population for them to make use of opportunities arising from tourism, meaning that INA, government universities and other institutions must take part of this development as well. A learning and skills council could help complement employment and skills training initiatives, to make sure Guanacaste is not constrained by a shortage of employees and that the local population is able to access the employment opportunities created from expansion. More educational investments are necessary to allocate the high skilled jobs to the local population, and it is urgent to teach foreign language instruction and technical skills at an early stage.
- The role of public private partnerships (PPPs) must be emphasized, including joint efforts between the government, private developers, tourism chambers, related NGOs, academia and other interested parties. PPPs are essential to overcome reduced government budgets through the creation of effective strategies, and may help enable institutional reforms, legislative changes, improvements in public education and technical skill projects, etc. They could also help improve the training programs and institutions in Guanacaste.
- Liberia Airport's overall development strategy must be *greened*, congruent with the country's tourism image and policy. The incoming terminal should welcome its visitors with advertisements and promotional billboards reflecting the "No artificial ingredients" campaign, fostering nature-based tourism. It should also step up efforts to *green* its installations, in terms of its emissions and carbon footprint. This could be achieved through the creation of an environmental management program that encourages partnering with airlines to green up operations, consolidating car rentals in nearer locations, and investing in state of the art technology.

- It is fundamental that the new concessionary at Liberia carries out the necessary investments in infrastructure at Liberia in an efficient and coordinated manner, in compliance with the contract and avoiding the delays and complications that have plagued Juan Santamaria. The governmental authorities in charge of supervising these works must ensure that above all the Airport fulfills its role as a catalyst for development and sustainability.

Further research

This report has also identified areas for further research, including:

- Airport surveys and interviewees have signaled that there are significant differences between visitors who arrive on domestic airlines, such as Nature Air and SANSA vs international charters and regularly scheduled flights. Since 2003, the incorporation of the Liberia Airport into the tourism picture in Guanacaste has contributed to a rapid and continued growth in visitor arrivals, but has not been subjected to analysis of its implied costs and benefits. More needs to be understood in terms of tourists who visit several locations in the country and those who stay at all inclusive hotels, through specialized methodologies including cost benefit analysis. This would include the study and design of incentives and tax structures that encourage domestic carriers and internal travel within Costa Rica, without putting at risk Costa Rica's niche market for high quality and differentiated tourism services. It may be beneficial to continue charging relatively low rates to local aviation companies if the tourists they help transport are especially beneficial to the local population in terms of their spending patterns. At present the Liberia airport is primarily servicing the North American resort and vacation home sector of Costa Rica's tourism industry. These sectors are economically less valuable than Costa Rica's high yield nature tourism sector and therefore any expansion of the airport, or the development of other international airports along the Pacific Coast, must be carefully evaluated in terms of impacts on the region and on Costa Rica's overall tourism industry and international brand. To this end, airport policies need to be formulated alongside tourism development strategies, and based on quantitative studies that will help stimulate tourism with high potential for local and national development.
- The rise of residential tourism, or vacationing homes, demonstrated to be one of the main sources of FDI in the last years. It is now time to research in depth the implications of this type of development in Guanacaste, in order to manage it and make it compatible with Costa Rica's vision of sustainable tourism conceived in the National

Development Plans. This type of tourism also has important implications in terms of tax collection. Innovative mechanisms must be designed to incorporate this sector on a fiscal basis, so that its contributions will help finance the local government and develop local and national infrastructure.

Just as tourism can influence almost every aspect of life in its host destination with incredible speed, it is also vulnerable to incentives and subject to a long-term vision. If planned inadequately, it can displace local populations, negatively affect societal norms, increase prostitution and destroy fragile ecosystems. However, if properly managed, it can give long-term benefits to local inhabitants and become a key engine of growth for the national economy. Costa Rica finds itself at a critical stage – an inflexion point – where a more profound and informed debate must form part of any advanced stage of tourism development, particularly in coastal areas.

Liberia Airport is currently overwhelmingly dependent on North American visitors, which makes its surrounding areas particularly vulnerable to fluctuations arising from a potential recession in the US. However, its impact will not be felt equally in all of Guanacaste. The effects of Liberia Airport can be viewed in terms of geographic concentric circles, with specific impacts close to the installations (such as noise, development of auxiliary services – hotels, car rental, souvenir shops, real estate agencies, etc.) and the growth in the nearby town of Liberia (providing all sorts of entertainment and other facilities to tourists and a growing local population including restaurants, hotels, pharmacies, shopping malls and universities) and finally the growth of resorts and vacation home complexes within one hour's drive of the airport, etc. Government agencies and the private concessionary in charge of its administration must understand that their decisions will have a much broader impact than within the Airport's physical infrastructure, and look beyond towards a more complex vision of the tourism industry where multiple factors are interrelated.

Liberia's impact on its local and neighboring communities has shown that infrastructure can, in a very short time, facilitate access, reduce transport times and attract very significant FDI flows, in the knowledge that many real estate developers seek closeness to international airports as a key variable for financial sustainability. The growth of Liberia's Airport and the launch of regularly scheduled international flights gave a clear signal to national and international investors that Guanacaste was a mature (investment-grade) touristic destination. The local and national government institutions were unprepared for the level of growth that ensued. Understanding the effects of this growth will help other regions in Costa Rica and Central America to better manage the possible impacts. Valuable insights can be gained by comparing the original design of the Airport and the actual outcome. The evidence presented in this paper suggests that opening a major airport project in a region with few rules, limited government

resources, no planning or control, lack of response capacity in basic services could reasonably expected to have the results we see in Guanacaste. In retrospect, and for future projects, securing a number of those variables more comprehensively, and understanding both their negative and positive impacts prior to fostering its expansion and growth will make more sense, in terms of securing a sustainable tourism strategy.

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Interviews conducted

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2. Dirección General de Aviación Civil. Statistics Department. San Jose.
3. Dirección General de Aviación Civil. Liberia Airport. Guanacaste.
4. Cámara de Turismo de Guanacaste, Liberia, Guanacaste.
5. Aerolíneas TACA, active pilot currently on duty at Liberia Airport, performed in San Jose.
6. ADS Systems Liberia, Ground Dispatch Services, Liberia Guanacaste.
7. Ministerio de Obras Publicas y Transportes, Former Minister. San Jose.
8. DECISA Construcción. San José, Costa Rica.
9. Instituto Nacional de Seguros, Bomberos. Liberia Guanacaste.
10. Corporación Centroamericana de Servicios de Navegación Aérea, COCESNA, Former Board of Directors, expert on aeronautics law and specialist in aviation affairs. Founder of Dirección General de Aviación Civil. San Jose.

11. Former Minister of Transport MOPT and Former Board of the Central American Economic Integration Bank. San Jose, Costa Rica.
12. Leading real estate consultancy with experience in project development of high end resorts in North Guanacaste. Head consultant. San Jose, Costa Rica.
13. Ingenia, Structural Engineer. San Jose Costa Rica.
14. Architects (2). One experienced in construction of Juan Santamaria Airport, another specialized on sustainable architecture. San Jose, Costa Rica.
15. Car rental agencies (3) along the Liberia Airport strip.
16. Hotel manager in Liberia (2).
17. Autostar, Car sales manager. Liberia, Costa Rica.
18. Casa Proveedora Philips. San Jose, Costa Rica.
19. Nature Air. San Jose, Costa Rica.
20. Café Britt, Costa Rica.
21. SQG Private Development Group.
22. Banco Lafise, Manager.

ANNEXES

Major Hotel Chains in Guanacaste

Hotel Chain	Hotel Name	Location	Characteristics
Hilton Hotels Corporation (Estados Unidos)	Hilton Papagayo Resort Costa Rica	Playa Arenilla, Carrillo	Previously known as <i>Fiesta Premier Resort</i> 202 luxury rooms 71 bungalows 3 restaurants 1 spa Water sports, beach, fishing, coral reef.
Hilton Garden Inn Liberia Airport		Liberia	160 rooms 10 luxury suites Convention center
Best Western International (Estados Unidos)	Best Western Tamarindo Vista Villas	Tamarindo, Santa Cruz	17 rooms 15 villas Water sports, beach, fishing, coral reef.
Best Western Las Espuelas		Liberia	120 rooms 1 restaurant
Best Western El Sitio Hotel & Casino		Liberia	52 rooms 1 restaurant 2 pools Travel Agency
Global Hyatt Corporation (Estados Unidos)	Azulera Hotel Resort & Spa	Playa Brasilito, Santa Cruz	185 luxury rooms 64 condominiums In construction
Sol Meliá (España)	Pardisus Playa Conchal	Playa Conchal, Santa Cruz	406 luxury rooms 87 condominiums 6 restaurants Car rental and equipment. Water sports, beach, fishing, coral reef. Golf, Casino Spa and gymnasium Meeting room
Barceló (España)	Barceló Langosta Beach	Playa Langosta, Tamarindo, Guanacaste	198 luxury rooms 2 restaurants Spa and gymnasium Meeting room Car rental and equipment. Water sports, beach, fishing, coral reef.

Source: Ramirez 2008, based on Hotel Web Pages. Translated by author.

Data Sheet

Daniel Oduber International Airport
Data Sheet

Source: DGAC

Contact Data	
Telephone	26681010
Fax	26681032
Geographic Data	
Location	103536N 0853240W
Address and distance from Liberia City	7.5 Nautic Miles West
Elevation	82 meters above sea level
Reference temperature	36°C
Magnetic variation	1° East and 0.2° decreasing
Administrative Data	
Allowed traffic	Visual Flight Rules / Instrument Flight Rules
Airport time operation	12:00/6:00
Customs & Immigration Office operating hours	12:00/23:59
Meteorological Office service time	12:00/23:59
Air traffic service	12:00/23:59
Fueling services	12:00/23:59
Flight connection services	12:00/23:59
Security coverage	24 hrs
Flight Notification Office service time	12:00/23:59
Fuel Type and Oils at airport	Avgas 100/130 & JET A-1 as per request
Fueling capacity	37 liters per second
Airplanes reparation	As per request
Rescue Equipment and Firefighters	
Airport fire and rescue category	Category: 7
Rescue team	Two permanent teams of 5 people covering 24 hrs. Both teams are supported by Liberia's Fire Fighters Body
Rescue equipment	3 Fire Fighter trucks available*
Aircraft Platform Description	
Length	123 m
Width	128.5 m
Maximum aircraft resistance	Boeing 747-100
Surface	Asphalt
Pavement classification number	N/A
Runway Description	
Quantity	1

Access	Two access on the same runway. Runway 07 coming from the West & runway 25 coming from the East
Length	2750 m
Width	45 m
Surface	Asphalt
Maximum aircraft resistance	Boeing 747-100
Pavement Classification Number (PCN)	68
Take-Off Run Available (TORA)	2750 m
Take-Off Distance Available (TODA)	2750 m
Acceleration-Stop Distance Availability (ASDA)	2750 m
Helicopter Landing Area	
No specific area defined. Air Traffic Control indicates place to land	
Air Traffic Service Air Space	
Terminal Control Area (TMA). Lateral	A radius of 30 NM from coordinates 103536N 0853268W
Control Zone (CTR). Lateral	A radius of 8 NM from coordinates 103536N 0853268W
Terminal Control Area (TMA). Vertical	From 2500 feet over ground surface up to 8500 feet
Control Zone (CTR). Vertical	From ground surface up to 2500 feet
Air Space Classification (ASC)	C
Operation languages	English/Spanish
Transition altitude	19000 feet
Passengers Services	
Hotels	At Liberia
Restaurants	At Liberia
Transport ground access	Buses & Taxi
Medical Services	At Liberia
Banking	At Liberia
Tourism Office	At Liberia

* More fire fighting trucks and equipment are expected before 2009.

**List of institutional policies for sustainable tourism development
ICT Tourism National Development Plan 2002-2012¹⁴⁵:**

1. Sustainability will be the central axis for tourism and will be Costa Rica's main differentiating factor.
2. Tourism will develop in such way as to combat effectively and constructively all forms of social degradation, will generate economic benefits, will protect the environment and respect people's culture and values.
3. Costa Rica will fight against any kind of touristic activity that will damage the country's good customs or that could put at risk the physical and moral identity of human beings.
4. Tourism development will encourage personal wellbeing, improve facilities and encourage product development at all areas in the country.
5. Any kind of tourism activity that threatens the people's habits or puts at risk the physical and moral integrity of human beings will be fought against forcefully.
6. The government will foster touristic activities that are based on ethics, quality and sustainability. Any benefits or incentives given by the country for development will need to comply with these values.
7. Private, national and foreign investment, of new projects as well as improvement and enlargement of existing ones, will have a parallel commitment with local development.
8. Supporting small and medium tourism enterprises (SMEs) is essential, as a strategy for the incorporation of local communities.
9. All of the international and national promotion will be done according to specific plans, designed to balance the needs of the private sectors and related communities, while at the same time responding to a vision and the country's tourism goals.
10. Tourism development will be based on programs and objectives, and will establish a strict coordination plan, control, and follow-up of all of its activities.

International Flights per week at Liberia Airport (2008)

<u>Airline</u>	<u>Origin</u>	<u>Flights per week</u>	
		<u>High Season</u>	<u>Low Season</u>
-	-		
DELTA	Atlanta	9	7
DELTA	Los Angeles	1	
DELTA	New York	2	
AMERICAN	Miami	7	3
AMERICAN	Dallas	3	1
CONTINENTAL	Houston	13	2
CONTINENTAL	Newark	3	1
US AIR	Charlotte	1	1
NORTHWEST	Minneapolis	1	0
AIR CANADA	Toronto	2	1
UNITED	Chicago	1	0
FIRST CHOICE	London	1	0
SKY SERVICES	Toronto	5	1
	TOTAL	49	17

Source DGAC 2008

ENDNOTES

¹ For more info, see Plan Nacional de Turismo ICT 2002-2012 and Costa Rica's Central Bank: FDI in Costa Rica, Preliminary Report, Grupo Interinstitucional de Inversión Extranjera Directa, February 2008.

² See World Travel and Tourism Council 2008, Key World Facts on World Travel and Tourism. www.wttc.com

³ Please refer to UNWTO 2008. World Tourism: Responding to the New Challenges in the Global Economy. UNWTO Seminar.

⁴ Ibid.

⁵ Quoted by White, Lyal (2008). Tourism in Costa Rica and Colombia: Lessons for Africa. Brenthrust Discussion Paper 2/2008, based on ICT statistics.

⁶ See World Travel and Tourism Council 2008b, Travel and Tourism Satellite Accounts , The 2008 Travel and Tourism Economic Research: Costa Rica. www.wttc.org/eng/Tourism_Research/Tourism_Satellite_Accounting

⁷ See Inman, Crist (1998). "Ecotourism versus Mass Tourism as a Source of Value Added for the Host Economy: the Case of Costa Rica," in Impacts on Developing Countries of Changing Production and Consumption Patterns in Developed Countries United Nations Program for the Environment, Geneva.

⁸ See White, Lyal (2008). Tourism in Costa Rica and Colombia: Lessons for Africa. Brenthrust Discussion Paper 2/2008.

⁹ See World Travel and Tourism Council 2008b, Travel and Tourism Satellite Accounts , The 2008 Travel and Tourism Economic Research: Costa Rica. www.wttc.org/eng/Tourism_Research/Tourism_Satellite_Accounting

¹⁰ Ibid.

¹¹ Based on CINDE data quoted by White, Lyal (2008). Tourism in Costa Rica and Colombia: Lessons for Africa. Brenthrust Discussion Paper 2/2008.

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¹⁸ ICT (2008). Instituto Costarricense Turismo. Anuario Estadístico 2007. Gobierno República de Costa Rica. San José, Costa Rica. 2007

¹⁹ ICT 2007. Plan Nacional de Turismo 2002-2012. Actualizacion Octubre 2007.

²⁰ Ibid.

²¹ Ibid.

²² Loaiza, Vanessa (2008i). Nuevo gestor asumirá el Santamaría en diciembre. La Nacion Newspaper, October 8, 2008.
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¹⁰⁶ Ibid.

¹⁰⁷ Ibid.

¹⁰⁸ Costa Rica's Central Bank notes the importance of several hotels, including Los Sueños Marriott, Conchal, Hacienda Pinilla, Four Seasons, Hilton, Hyatt, as important catalysts of residential tourism investments. See BCCR 2008. FDI in Costa Rica, Preliminary Report, Grupo Interinstitucional de Inversión Extranjera Directa, Febrero 2008.

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¹¹⁶ ICT lists institutional policies for sustainable tourism development in its National Tourism Development Plan 2002-2012 including:

1. Sustainability will be the central axis for tourism and will be Costa Rica's main differentiating factor.
2. Tourism will develop in such way as to effectively and constructively combat all forms of social degradation, will generate economic benefits, will protect the environment and respect people's culture and values.
3. Costa Rica will oppose any kind of touristic activity that will damage the country's good customs or that could put at risk the physical and moral identity of human beings.
4. Tourism development will encourage personal well-being, improve facilities and encourage product development at all areas in the country.
5. Any kind of tourism activity that threatens the people's habits or puts at risk the physical and moral integrity of human beings will be fought against forcefully.
6. The government will foster touristic activities that are based on ethics, quality and sustainability. Any benefits or incentives given by the country for development will need to comply with these values.
7. Private, national and foreign investment, of new projects as well as improvement and enlargement of existing ones, will have a parallel commitment with local development.
8. Supporting small and medium tourism enterprises (SMEs) is essential, as a

strategy for the incorporation of local communities.

9. All of the international and national promotion will be done according to specific plans, designed to balance the needs of the private sectors and related communities, while at the same time responding to a vision and the country's tourism goals.

10. Tourism development will be based on programs and objectives, and will establish a strict coordination plan, control, and follow-up of all of its activities.

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¹²³ WTTC 2008b, Travel and Tourism Satellite Accounts , The 2008 Travel and Tourism Economic Research: Costa Rica. www.wttc.org/eng/Tourism_Research/Tourism_Satellite_Accounting

¹²⁴ WTTC differentiates between Total Tourism economy, total tourism industry and direct/indirect Tourism industry. The industry level is composed of all inputs to the tourism industry (e.g. food, laundry, services, advertising etc.). Total tourism economy further incorporates suppliers of investment goods to the tourism industry (government collective spending on airport infrastructure, investment such as hotels, exports of goods etc.) all weighted appropriately and to the best of our ability. Some variables enter undoubtedly, such as hotels which are solely used by tourists. However the inclusion of

other forms of capital investment should be handled with caution, as an approximated X% is used for tourism. Moreover consumer durable goods are difficult to include into satellite accounts. Source: WTTC 2008 TSA Methodological Summary

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www.wttc.org/eng/Tourism_Research/Tourism_Satellite_Accounting

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¹²⁹ Roman, Marcela (2007b). Dinámica del turismo y desarrollo inmobiliario en Costa Rica. Iniciativa Colaborativa de Diálogo e Investigación sobre Dinámicas Territoriales en Centroamérica. San Salvador, 27 de octubre, 2007

¹³⁰ According to anonymous interviews conducted to Liberia Airport authorities.

¹³¹ As registered during an anonymous interview to a major real estate and strategic investment consultant who specialize in the North Pacific coast and who advises major resort developers. Confirmed as well by several architects who also interviewed for this report.

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¹⁴² ECPAT 2008

¹⁴³ According to anonymous interviews to non governmental institutions in Liberia.

¹⁴⁴ Information confirmed from several sources, including real estate consultants, hotel managers, chambers in Liberia, etc. Ample press coverage of protests in Sardinal helped illustrate the point.

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