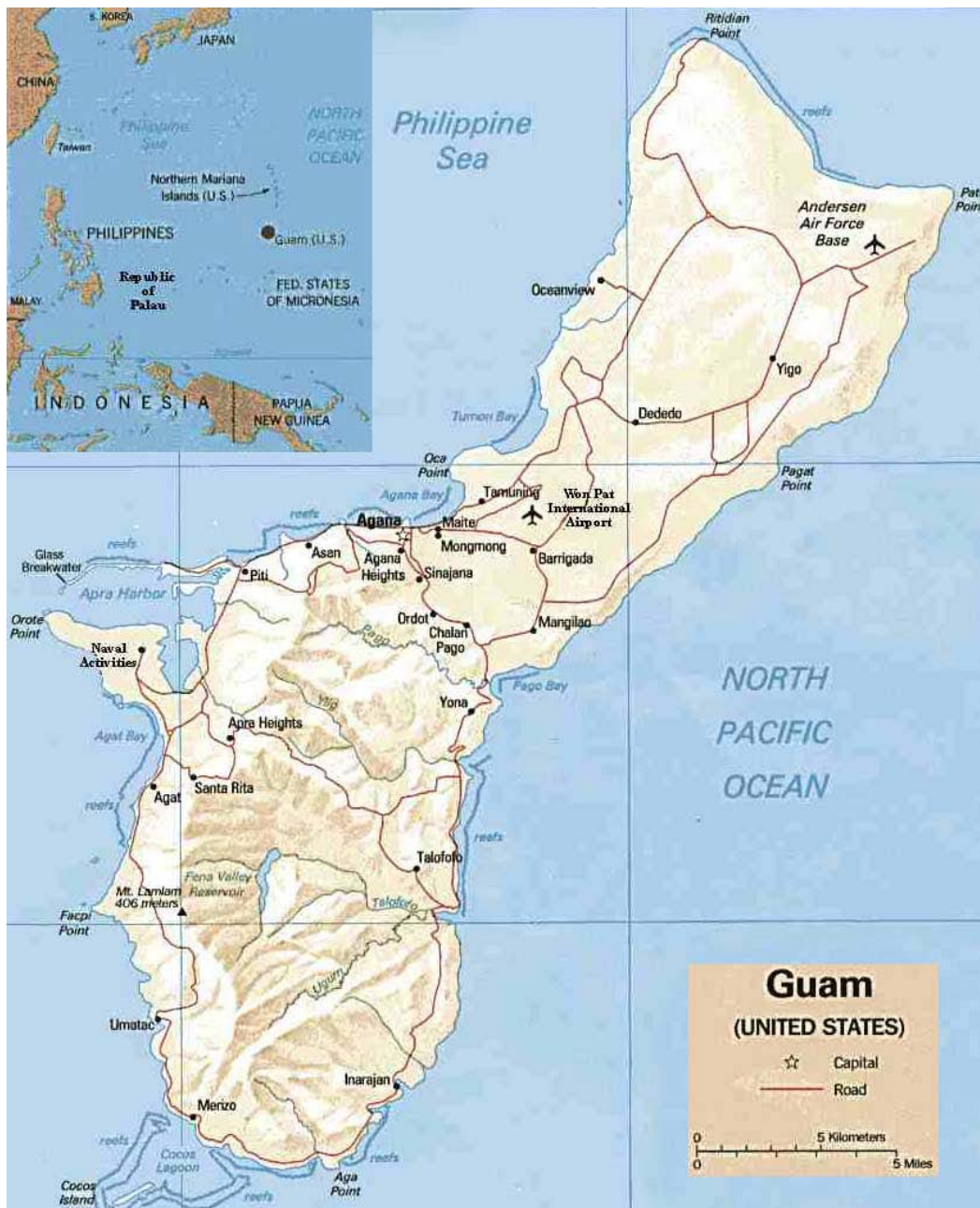


Guam Comprehensive Economic Development Strategy (CEDS) 2011



Prepared by
Guam Economic Development Authority
Bureau of Statistics and Plans
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ABSTRACT



The 2011 Guam Comprehensive Economic Development Strategy (CEDS) is primarily based upon the concept of economic tigers in general and on Guam becoming the first Pacific Tiger in particular. The Pacific Tiger strategy is based on six overall economic goals that are designed to bring about a sustainable and participatory economic development process for Guam. The Pacific Tiger strategy found its strongest supporters in the current Calvo-Tenorio Administration whose economic platform “Blueprint 2020” provides details on how to begin the operations of the six Pacific Tiger goals into objectives.

The process was initiated to provide direction, focus, and priority for local efforts and guide federal assistance and private investment in order to stabilize and grow the economy to improve quality of life and public services. In general, the projects outlined in this plan focus on a set of broad economic objectives, including the development of a broader economic base, the achievement of full employment, the establishment of greater employment opportunities, the creation of higher wage and salary levels, the improvement of the island’s standard of living, and the equitable distribution of economic growth.

Guam’s CEDS document describes the island’s economic problems, needs, potentials, and resources; presents the community’s vision and goals; sets its strategic direction for action; establishes priority programs and projects for implementation; and outlines the standards for an annual evaluation and update of the plan and its related processes.

To be an effective guide to the island’s long-term economic development, the strategies and projects presented in this document must reflect contemporary changes in the economy if they are to correctly correspond to set policies and goals. As such, Guam’s CEDS is viewed not as a static document, but rather as a continuous effort to refine Guam’s future growth objectives, strategies, and requirements.

EXECUTIVE SUMMARY



General Overview

Guam experienced a prolonged period of investment-driven growth through the 1980's and early 1990's. During this period, the private sector overtook the public sector in economic importance. Growth in employment and output in Guam dropped significantly in the latter part of the 1990's and continues to drop into the 21st century.

The latest March 2011 *Current Employment Survey* report issued by the Guam Department of Labor shows that there are 61,930 jobs on Guam, representing a slight decline from 62,200 jobs one year ago. By employer, 74.42% of the jobs were provided by the private sector, 6.36% by the federal government, and 19.22% by the Government of Guam. By economic sector, 27.76% of the employed individuals were in Services (including 8.85% in Hotel and Other Lodging Accommodations), 18.44% were in Retail Trade; 10.27% were in Construction; 7.14% were in Transport and Public Utilities; 4.28% in Financial, Insurance and Real Estate, 3.39% in Wholesale Trade, 2.71% in Manufacturing and 0.44% in Agriculture. By gender, employees were 56% male, 44% female. Guam's unemployment rate was recorded at 13.3% in March 2011. The number of unemployed increased from 6,510 persons (9.3%) in September 2009 to 9,970 persons (13.3%) in March 2011.

According to the Guam Bureau of Labor Statistics, as of July 18, 2011, Guam's average household income for calendar year 2010 was \$49,263, an increase of \$3,477 or 7.1% from \$45,786 in 2008, recovering from a 2.7% decline in 2005. Per Capita Income for 2010 was \$12,864, a decrease of \$225 or 1.7% from calendar year 2008.

Guam has seen a precipitous drop in revenues from three major sectors of the economy (tourism, military/federal, other). As a result of this drop, total government revenues have dropped 49% from \$660 million in the mid-1990's to an estimated \$340 million in 2010. This condition has led to very serious shortcomings in the delivery of basic public services and raises major concerns in public safety, health, education, and employment. Other economic indicators paint an equally dismal picture. Reduction in government expenditures has not kept pace with the island's shrinking economy.

The estimates for Guam show that real GDP -- GDP adjusted to remove price changes -- increased 1.7% to \$3.9 billion in 2009 after increasing 0.5% in 2008. Guam's tourism industry is the island's single largest economic sector. The industry generates approximately 60% of Guam's annual business revenue. By 2005, a Global Insight report revealed that tourism directly supported 10,412 full-time and part-time jobs. This economic activity generated \$378 million in local wages. Visitor arrivals began to decline in 2001 and 2002 after years of continued growth. Tourist arrivals have struggled in the midst of a worldwide economic slump, compounded by the September 11, 2001 terrorist attack on the World Trade Towers, the invasion of Afghanistan by the United States and its allies, the war with Iraq, and the fury of Typhoon Chata'an and Supertyphoon Pongsona in 2002. Furthermore, the earthquake and tsunami events in Sendai, Japan in March 2011 have added to the struggles facing Guam's major source market.

About 90% of all Guam visitors are from Asia, with the balance made up of visitors from the United States, neighboring Pacific islands, and other areas. Visitors from Japan comprise the largest share of Guam's market mix with close to 80% of all arrivals to Guam. Guam's market share in 2010 was 5.4 % of the Japanese tourist market, a total of 16.6 million outbound travelers. Guam Visitors Bureau's purchasing power in source markets has been seriously impacted by the yen's 27% rise in value against the U.S. dollar during the period of April 2008 to April 2011. This increase in the yen's value has limited its advertising and public relations expenditures, especially in Japan. The global economic recession of 2008 also played no small part in diminishing international travel arrivals from major source markets to Guam.

Guam has a large U.S. military presence, which includes Navy and Air Force bases that encompasses nearly 27% of the island's land mass. The Department of Defense (DoD) plans to relocate 8,600 Marines and approximately 9,000 dependents from Okinawa to Guam with an initial estimated cost of \$10.27 billion. The current Guam population is 180,000. It is estimated that up to 20,000 temporary workers may be needed to complete the required construction. At the completion of the relocation, approximately 6,000 civilian workers will be added to the island's population. The government of Guam is concerned that this rapid population increase will place an unsustainable burden on its infrastructure. Major funding for the buildup effort is being contributed by DoD, US Department of Agriculture (USDA), and the Government of Japan. Defense spending on Guam is about \$700-800 million a year, with 6,500 active duty personnel and approximately 7,000 dependents. There were 3,600 Federal civilian employees and Federal taxes returned to Guam were \$45 million.

Since 2006, the proposed military buildup has been expected to have a major economic impact on the local economy. What is in common among these factors is that they tend to be largely outside of the control of local economic planners and policymakers and leave the local economy exposed to instability they create. Partly related to the recent devastation in Japan as well as new developments from the U.S. Congress, the terms, magnitude, and timing of the military buildup on Guam might deviate from those spelled out in the 2006 U.S.-Japan Agreement. Much depends on the fiscal health of both the U.S. federal government and the Government of Japan, who initially agreed to share the cost of the military buildup on a 60-40 basis (approximately).

To effectively counteract this situation, Guam has developed the 2011 Comprehensive Economic Development Strategy (CEDS) to guide its future economic development policies and efforts. The purpose of the strategy is to develop a specific action plan to assist the island in guiding future economic development by focusing limited community and outside resources on Guam's targeted economic sectors (e.g., tourism, marine resources, aquaculture, commerce, manufacturing and service) and to achieve the specific socio-economic objectives (full employment, improved employment opportunities, higher wages and salaries, etc.) outlined in the broader planning efforts of the Calvo-Tenorio Administration whose economic platform "Blueprint 2020" provides details on how to begin the operations of the six Pacific Tiger goals into objectives.

Key Findings

According to the Guam Bureau of Labor Statistics, Guam's mean household income in 2008 was \$45,786, which represents a 2.7 % decline from 2005 (\$47,062). More recently, however, as of July 18, 2011, Guam's mean household income for calendar year 2010 was \$49,263, an increase of

\$3,477 or 7.1% from \$45,786 in 2008. Per Capita Income for 2010 was \$12,864, a decrease of \$225 or 1.7% from calendar year 2008.

Guam's unemployment rate was recorded at 13.3% in March 2011. The number of unemployed increased from 6,510 persons (9.3%) in September 2009 to 9,970 persons (13.3%) in March 2011.

According to the Department of Public Health and Social Services, the number of people who qualified for public assistance in 2010 were as follows: Temporary Aid to Needy Families, \$3,301,236 for 1,264 persons; Old Age Assistance, \$684,465 for 245 persons; Aid to the Permanently and Totally Disabled, \$536,050 for 201 persons; and Aid to the Blind, \$6,742 for 3 persons. For food stamp assistance, while there was a slight decline in 2007, the average number of households receiving supplemental nutrition assistance has steadily increased throughout the period of 2006 to 2010. The average number of households per month to receive assistance increased from 8,098 in 2006 to 11,595 in 2010. The average number of recipients receiving food stamps monthly increased from 27,303 recipients in 2006 to 36,926 recipients in 2010. More recently, the total dollar value of benefits received increased from \$79,070,302 in 2009 to \$104,489,497 in 2010.

The Calvo-Tenorio Administration will continue to move forward with a "One Guam" approach to address the needs of Guam associated with the military buildup. A Civilian-Military Coordination Council (CMCC) has been established to assist DoD in implementing Adaptive Program Management, whereby DoD will monitor the buildup and adjust the construction pace if it unduly impacts the environment and/or the infrastructure.

Many new construction jobs will be created during the buildup years. Priority will be given to U.S. workers before the hiring of foreign labor. U.S. Public Law 110-229 provides that Guam can import foreign labor without limit until 2014.

With the many hurdles facing Guam's tourism industry, businesses are challenged to focus on recapitalizing the island's tourism plant. Efforts are underway to restore and upgrade the island's deteriorated cultural and historic assets in order to validate and sustain Guam's differentiated brand identity, continue to be a competitive destination, and ensure the long-term viability of Guam's tourism industry.

Shopping on Guam is one of the main attractions for tourists and is a significant contributor to the local economy. Retail spending accounts for an estimated 43% of all tourism spending. Furthermore, the military and other temporary residents (i.e., contract labor from Asia or the United States) contribute substantially to Guam's retail sales by making a significant portion of their lifetime purchases on durables while on the island. As an economic sector, which complements the tourist industry and responds quickly to a generally rising standard of living, this sector is expected to play an important role in Guam in the coming years. Because of its supportive and reactive nature, however, it cannot be relied upon as a major income generator.

Guam's unique position in the Asia-Pacific region highlights potential roles that the island can play as a commercial trade hub and a major telecommunications hub. In regards to commercial trade, the U.S. exports farther across the Pacific than across the Atlantic. Asian countries, in turn, have benefited greatly from selling to the American market. Guam has an opportunity to play a

greater role in the midst of this vast Asian-Pacific trading zone. In this regard, Guam has several key advantages that can be considered for economic development opportunities.

Furthermore, Guam possesses the most advanced telecommunications infrastructure and systems in the Western Pacific region. The island sits at the nexus of the Pacific's underwater fiber optics cabling network with more terminating cable connections than anywhere else in the world and making Guam a telecommunications hub for numerous international providers.

Proposed Projects

The following projects have been selected by the Strategy Committee to put into action the strategy outlined by the 2011 CEDS. To determine project priorities, these projects were evaluated against the Economic Development Administration's Policy Investment Guidelines and Guam's requirements.

Table 1: Summary of 2011 CEDS Industries with Potential to Spur Guam's Economy

PRIORITY	CEDS INDUSTRY
HIGH	Infrastructural Development (*Prerequisites to all projects listed below)
	Maritime Development
	Hågatña Revitalization
	Education Tourism
	Agriculture
	Planning
	Information Technology
	Green Technology
MEDIUM	Business Hub
	► Industrial Park
	► Conference Center
	► Cottage Industries
	Ecotourism
	Sports Tourism
LOW	Manufacturing & Exporting
	Financial & Legal Services
	Medical Tourism
	Film Industry

Table 2: List of Proposed CEDS Projects to Spur Guam's Economic Growth

Priority	Project Name	Description	Estimated Cost
INFRASTRUCTURAL DEVELOPMENT			
*Non-exhaustive list of projects in Appendix			
High	Power c/o Guam Power Authority	See Appendix A	\$15,859,000
High	Water and Sewerage c/o Guam Waterworks Authority	See Appendix B	\$203,934,000
High	Roads, Highways, and Other Physical Structures c/o Guam Department of Public Works	See Appendix C	\$80,400,830
High	Airport c/o Guam International Airport Authority	See Appendix D	\$21,268,393
High	Seaport c/o Port Authority of Guam	See Appendix E	\$149,053,411
High	Hospital c/o Guam Memorial Hospital Authority	See Appendix F	\$32,800,000
MARITIME DEVELOPMENT			
High	New Wharf and Land Reclamation	Build new wharf, reclaim land, purchase cranes	\$35,000,000
High	Guam Fisherman's Cooperative Association Marina Authority	Revitalize the Agat Marina and expand the Greg D. Perez Marina in Hågatña	\$7,500,000
High	Marina Development	Design and construction	\$4,500,000
High	Guam Fisherman's Cooperative Association Building Complex	Build 20,000 sq. ft. two-story complex	\$3,500,000
High	Guam's Limited Entry Longline Fleet	Establish a longline fleet to operate in Guam's waters	\$1,750,000
High	Marine Small Loan Revolving Fund	Establish a revolving low-interest loan fund to assist small boat fishermen in making necessary repairs to their vessels or purchasing needed equipment	\$500,000
High	Multipurpose Vessel Development	Establish a vessel that is able to perform multiple missions	\$500,000
High	Guam Domestic Fisheries	Develop and implement fisheries feasibility study	\$200,000
HÅGATÑA REVITALIZATION			
High	Hågatña Revitalization	Master plan development and design	\$3,000,000
EDUCATION TOURISM			
High	Education Tourism	Develop feasibility study	\$300,000
PLANNING			
High	Consolidated Survey Center	Modernization of Government of Guam Data Systems to support various studies.	\$500,000
AGRICULTURE			
High	Guam Farmers Cooperative Association Complex	Build complex	\$3,960,000

Priority	Project Name	Description	Estimated Cost
INFORMATION TECHNOLOGY			
High	Telecom Industry Training Program	Prepare training program	\$205,000
High	Regional Software Support Center	Develop feasibility study and cost-benefit analysis	\$150,000
GREEN TECHNOLOGY			
High	Green Technology	Develop feasibility study	\$300,000
BUSINESS HUB			
Medium	Industrial Park	Develop feasibility study to explore various industry options	\$200,000
Medium	Conference Center	Develop marketing study to maximize enhancement of the tourism feature	\$200,000
Medium	Cottage Industries	Develop feasibility study to explore various cottage industries that are viable for Guam	\$100,000
ECOTOURISM			
Medium	Feasibility Study	Explore the viability of Guam entering this tourism market	\$200,000
SPORTS TOURISM			
Medium	Feasibility Study	Explore the viability of Guam entering this tourism market	\$200,000
GUAM IMPROVEMENT PROJECTS			
Medium	<i>“One Guam Report”</i>	See Appendix	\$1,817,167,482
MEDICAL TOURISM			
Low	Feasibility Study	Explore the viability of Guam entering this tourism market	\$200,000
MANUFACTURING & EXPORTING			
Low	Feasibility Study	Explore the viability of Guam entering this market	\$200,000
FINANCIAL & LEGAL SERVICES			
Low	Feasibility Study	Explore the viability of Guam entering this market	\$200,000
FILM INDUSTRY			
Low	Feasibility Study	Explore the viability of Guam entering this market	\$200,000

INTRODUCTION



A. ORGANIZATION AND STAFFING

Guam's initial Comprehensive Economic Development Strategy (CEDS) was initiated in July of 2000. The Planning Division of the Guam Department of Commerce was awarded a grant from the U.S. Department of Commerce's Economic Development Administration (EDA) funding the preparation of the first CEDS for Guam. To facilitate the preparation of the CEDS, the Guam Department of Commerce's Planning Division contracted the services of an outside consulting firm, Market Research & Development, Inc. (MR&D). MR&D worked with the Guam Department of Commerce to prepare the CEDS and comply with the appropriate procedural guidelines. In February 2003, work to update the CEDS was initiated in a collaborative effort between the Bureau of Statistics and Plans (BSP) and the Guam Economic Development and Commerce Authority (GEDCA). The 2003 CEDS expired in 2008. In January 2009, BSP received a grant from EDA to update the 2003 CEDS. It was not until the Calvo-Tenorio administration took office in January 2011 when clear plans and concerted efforts were made to update the 2003 CEDS and develop the 2011 Guam Comprehensive Economic Development Strategy (2011 CEDS). The Guam Economic Development Authority (GEDA, formerly GEDCA) is leading the current efforts and is working collaboratively with the Bureau of Statistics and Plans (BSP) and the University of Guam's Pacific Center for Economic Initiatives (PCEI).

B. THE PLANNING PROCESS

The 2011 Guam Comprehensive Economic Development Strategy is based on the concept of economic tigers in general and on Guam becoming the first Pacific Tiger in particular.

The Pacific Tiger strategy is based on the following six overall economic goals that are designed to bring about a sustainable and participatory economic development process for Guam:

- *Openness of economy to global markets for goods and foreign investments*
- *Investment in human capital*
- *Availability of young, productive and creative labor force*
- *Public sector reforms and fiscal discipline*
- *Effective policymaking and social partnership*
- *Hard work and sacrifice*

The Pacific Tiger strategy was first proposed in July 2009 and received favorable response from policymakers, the local media and the island community. The Pacific Tiger strategy found its strongest supporters in the current Calvo-Tenorio Administration whose economic platform "Blueprint 2020" provides details on how to begin the operations of the six Pacific Tiger goals into objectives in the following areas of concerns:

- *Trade in Goods and Services*
- *Education*

- *Training*
- *Wages*
- *Local Labor*
- *Government Operations*
- *Fiscal Management*
- *Infrastructure*
- *Veteran Affairs*
- *Social Issues*
- *Environment and Natural Resources*
- *Military Buildup*

ENVIRONMENTAL ASSESSMENT



A. GUAM OVERVIEW

Physical Characteristics

Guam, as the westernmost territory of the United States, is the largest and southernmost island in the Mariana Archipelago, and was the first Pacific island discovered by the Western World. The island is 30 miles long, ranges from 5 to 9 miles in width, and has a total land area of 209 square miles. Guam is located in the Western Pacific Ocean, 3,700 miles southwest of Honolulu, 1,500 miles east of Manila, 1,500 miles southeast of Tokyo, and 3,100 miles northeast of Sydney.

The island was formed through an uplift of undersea volcanoes and is surrounded by coral reefs. It is composed of two distinct geologic areas of approximately equal size. The northern part of the island is a high coral limestone plateau rising 850 feet above sea level. This area contains the northern water lens, the main source of fresh water for Guam. Apra Harbor, one of the largest protected harbors in the Pacific, is located on the west central side of the island. The southern portion of the island is composed of volcanic deposits, which form low-lying mountains and rivers, that direct surface run off either to Fena Reservoir or the ocean.

Guam's climate is tropical with temperatures ranging between 75 and 86 degrees, and a mean annual temperature of 81 degrees. May and June are the hottest months, with the most rainfall occurring from July through October. The average yearly precipitation is approximately 90 inches. Constant trade winds blow from the northeast during the dry season, December through April. Drought-like conditions can occur during the dry season; however, Guam's subterranean water lens is capable of supplying fresh water far in excess of the island's present needs.

Population

Guam's latest official population based on decennial census data released by the U.S. Census Bureau is for the year 2010. Guam's 2010 population was 159,358 people. Guam's population increased 2.9 percent from its 2000 population of 154,805 people. Its population growth was significantly less than the 16.3 percent increase that occurred between 1990 and 2000. In addition, Guam's population growth was significantly lower than the population estimates made by the U.S. Census Bureau that were based upon an annual growth rate of 1.5 percent. The impact of Guam's slow economic growth between 2000 and 2010 is evident by its slow population growth rate during the same period. It is suspected that there was a high out migration of Guam residents as they sought greater economic opportunities in Hawaii or the continental United States. Table 3 reflects Guam's decennial population for the years 1990, 2000 and 2010.

Table 3: Decennial Population of Guam: 1990, 2000 and 2010

Municipality	Population			Change			
	1990	2000	2010	Number		Percent	
				1990 to 2000	2000 to 2010	1990 to 2000	2000 to 2010
Guam (total)	133,152	154,805	159,358	21,653	4,553	16.3 %	2.9 %
Agana Heights	3,646	3,940	3,808	294	- 132	8.1 %	- 3.4 %
Agat	4,960	5,656	4,917	696	- 739	14.0 %	- 13.1 %
Asan	2,070	2,090	2,137	20	47	1.0 %	2.2 %
Barrigada	8,846	8,652	8,875	-194	223	-2.2 %	2.6 %
Chalan Pago-Ordot	4,451	5,923	6,822	1,472	899	33.1 %	15.2 %
Dededo	31,728	42,980	44,943	11,252	1,963	35.5 %	4.6 %
Hagatna	1,139	1,100	1,051	-39	- 49	-3.4 %	- 4.5 %
Inarajan	2,469	3,052	2,273	583	- 779	23.6 %	- 25.5 %
Mangilao	10,483	13,313	15,191	2,830	1,878	27.0 %	14.1 %
Merizo	1,742	2,163	1,850	421	- 313	24.2 %	- 14.5 %
Mongmong-Toto-Maite	5,845	5,845	6,825	0	980	0.0 %	16.8 %
Piti	1,827	1,666	1,454	-161	- 212	-8.8 %	- 12.7 %
Santa Rita	11,857	7,500	6,084	-4,357	- 1,416	-36.7 %	- 18.9 %
Sinajana	2,658	2,853	2,592	195	- 261	7.3 %	- 9.1 %
Talofofo	2,310	3,215	3,050	905	- 165	39.2 %	- 5.1 %
Tamuning	16,673	18,012	19,685	1,339	1,673	8.0 %	9.3 %
Umatac	897	887	782	-10	- 105	-1.1 %	- 11.8 %
Yigo	14,213	19,474	20,539	5,261	1,065	37.0 %	5.5 %
Yona	5,338	6,484	6,480	1,146	- 4	21.5 %	00.1 %

Source: U.S. Census Bureau: Census 1990 for Guam, Census 2000 for Guam, Census 2010 for Guam

While the U.S. Census Bureau released information on Guam's total population during August 2011, it did not release Guam's demographic information from the 2010 decennial census. It is anticipated that information on Guam's demographic profile will not be made available until spring 2012. Based on Guam's 2000 population demographics, the median age on Guam was 27.4 years compared to 35.3 for the U.S. as a whole. The ratio of males in the population was 51.1 percent. By ethnicity, Guam's population was 37% Chamorro (Guam's indigenous population), 27% Filipino, 7% other Pacific Islander, 6% non-Filipino Asians, 7% Caucasian, and 2.2% all others (2008 Guam Statistical Yearbook).

Socio-Cultural Profile

Since becoming an unincorporated territory of the United States in 1898, the island's population has grown from 18,000 to 159,358 through a mixture of in-migration and one of the highest birth rates in the U.S. (1.96% as of 2008). With this steady increase in population and the attendant economic expansion such growth portends, significant social changes have occurred. These social changes, while creating even greater diversity, have also caused detrimental effects to the community as a whole. One of the negative results of Guam's rapid population and economic growth has been the erosion of its traditional family structure. The greatest threat to the island's family structure has been in large part the economic growth which has also improved the overall standard of living. Subsistence farming has given way to a wage based economy which has created a new array of expectations and desires. While over time, the island has improved its

standard of living; in real economic terms, that same progress has created significant challenges to traditional family values. Loss of these family values has been blamed for rising crime rates, drug and child abuse, as well as increased poverty, welfare dependence, and high school “drop out” rates.

The goal to revitalize traditional family values in island homes and communities has continued through the establishment of cultural programs offered by various public and private organizations. Young people today are subjected to tremendous pressure to conform to modern values that often run counter to the traditional values of local families. This clash of values has often created dislocation and confusion, which has reinforced dysfunctional behavior.

For these reasons, the preservation of the Chamorro culture is sought. Among the needs identified are the preservation of the language through the study of Chamorro within a scholastic framework, use of indigenous names in public places, development of an authentic Chamorro village, establishment of a permanent Guam Museum facility, reconstruction of the Governor’s Palace, and the recovery of Chamorro artifacts from local and foreign sources.

More recently, the Chamorro culture has taken center stage for two reasons. One is in response the relocation of U.S. Marines from Okinawa to Guam (aka “military buildup”) and the potential negative impacts this change would have on the Chamorro culture. More specifically, the proposal by the Department of Defense (DOD) to build a firing range/training site in Pagat, a Chamorro historical site, has led to intense discussions, legal documents (Programmatic Agreement and lawsuits), and strong activism by different groups in the local community.

Another reason that Chamorro culture has attracted much attention in recent years reflects a shift in strategy in the Guam Visitors Bureau (GVB) to rebrand Guam’s image as a tourist destination and to emphasize the importance to visitors of the “experience” from their visit to Guam, including their experience of the local culture. Programs such as the Hafa Adai Pledge, the painting of village murals, the Hågatña Revitalization (the restoration of Guam’s capital), and the Maila ta fan Boka (“Come Let’s Eat”) program highlights the local culture through its food, art, and hospitality.

Environmental Situation

In general, Guam has a high quality physical environment. The Guam Environmental Protection Agency conducts various programs that monitor the status of the environment on a regular basis. The U.S. Environmental Protection Agency’s regulations apply to Guam; in some cases, Guam’s own laws are more stringent than those of the USEPA.

As a relatively small and high density island, Guam’s marine environment is a key litmus test for the overall environmental impact of human activity on the land. The quality of marine waters has been found to be generally excellent across all indicators. At the confluence of Pago River and its receiving marine waters, however, a high nitrate level is evident in violation of federal EPA standards. This is attributed to nutrient loading by leachate from the island’s Ordot landfill, which will soon be closed and replaced by a new municipal sanitary landfill at Layon. The pollution of marine waters near all of Guam’s sewage treatment plants are also of concern to federal EPA. A Stipulated Order has been issued to bring Guam’s wastewater system in compliance with the Clean

Water Act. As a result, effluence prior to being discharged into the marine environment by the island's sewage treatment plants is being required to undergo secondary treatment.

Erosion of soil is associated with construction activity and natural erosion occurs in poorly vegetated areas of southern Guam. Frequent grass fires also subject areas to increased erosion. Soil erosion is an area of special concern in southern Guam since sediment run-off negatively impacts the reef in areas where rivers discharge into the receiving waters of the ocean. Past sedimentation has resulted in the destruction of coral reefs and associated organisms in areas adjacent to the mouths of rivers.

Aside from sedimentary run-off, the National Oceanic and Atmospheric Administration (NOAA) identifies climate change, recreational use, and the proposed Military Buildup as threats to Guam's coral reefs. NOAA's strategic plans include reducing sedimentation and pollution from fires, development, recreation, and agriculture and protecting fisheries by management based on conservation. NOAA is also working on mitigation measures to prevent damages to the coral reefs due to the construction of a wharf for a transient nuclear-powered aircraft carrier. According to the Record of Decision published by the Department of the Navy and Department of the Army, the Department of the Navy has postponed the selection of a site, but still considers Apra Harbor as the best alternative since it is the only site deep enough for a wharf.

The quality of the surface water system has been found to be generally good, but problem areas have been identified with specific river systems. The most common violation of water quality standards related to elevated fecal coliform levels. In addition, elevated readings regarding nutrient loading readings are chronic for certain river systems.

The quality of air is very high with prevailing winds removing air contaminants (e.g., sulfur dioxide), which are mainly associated with point sources burning of fossil fuels to generate electricity for the Guam Power Authority. The use of high sulfur fuel is allowed under a waiver of the U.S. EPA air pollution guidelines.

Solid waste landfills are an area of concern in Guam, given the limited land area. The amount of solid waste continues to rise each year. These problems are magnified as the standard of living changes and increases in population and industrial activity bring more goods and commodities to the island. After decades of violating the Clean Water Act by allowing harmful leachates to be discharged, the U.S. District Court issued a Consent Decree in 2004, outlining the necessary actions needed to close the Ordot Dump and construct the Municipal Solid Waste Landfill Facility. Due to non-compliance, a receiver was appointed to work with the Solid Waste Management Division to ensure that the necessary actions are being taken. As of April 2011, Ordot Dump is slated to be closed by August 2011, and the Layon Landfill will open in Inarajan, Guam.

To reduce the volume of garbage going into the Ordot Dump, a policy was issued banning items such as cardboard and organic waste. Through collaboration between community organizations, private businesses, and the local government, some headway has been made in recycling solid waste, including the creation of the "i*recycle" program by local businesses to recycle aluminum cans with the proceeds going to local schools.

In addition to the issue of volume, Guam's primary water supply, the Northern Aquifer, may be potentially contaminated. In 2010, the U.S. Department of Environmental Protection Agency issued a statement in response to the Draft Environmental Impact Statement (DEIS) of Department of Defense, expressing concerns of how construction due to the proposed Military Buildup may negatively affect the Northern Aquifer. According to the statement, the DEIS addressed issues concerning water supply but did not adequately address the issues of increased chloride levels, removal of vegetation in surrounding areas, drainage, and contaminant movement. According to the Final Environmental Impact Statement (FEIS), released in July 2010, DoD is working with the Guam Environmental Protection Agency, the U.S. Environmental Protection Agency, and the Guam Waterworks Authority to ensure the protection and management of the aquifer.

Hazardous and toxic waste has a great potential to adversely impact Guam's environment. In recent years, this potential has increased significantly, as evidenced by the growth in the number of on-island hazardous waste generators, solid waste treatment, storage, and disposal facilities. While increasing quantities of hazardous materials are imported into Guam by the commercial sector, the military continues to be the largest importer and user of hazardous materials. As hazardous materials become waste, disposal requires special handling in accordance with Guam's Hazardous Waste Management Regulations. The cost for packaging, transporting and disposing of hazardous waste at an EPA approved site continues to rise.

Natural Resources

While vast ocean resources surround Guam, the island itself is not endowed with substantial natural resources, other than its people, beautiful beaches and scenery. Mining, other than for coral to use as aggregate for roadways and concrete, is non-existent. Forestry has not been widely practiced, except for harvesting firewood, since World War II when sizeable areas of Guam's hardwood forests were destroyed through shelling and the resulting fires. Development has crowded out large numbers of undomesticated animals with the exception of deer, wild boar, carabao and dogs. While fish are reasonably abundant in Guam's coastal waters, the cooler ocean waters surrounding the island are relatively barren in comparison to the equatorial waters located a few hundred miles to the south. The more popular pelagic fish species are concentrated there, supporting commercial fishing activity.

There are no rivers on Guam large enough to provide significant hydropower. However, there is a natural, large deepwater harbor that is protected from typhoons that frequent Guam. The harbor is located on the central leeward side of the island, in reasonably close proximity to the island's business district. The harbor is very advanced relative to other infrastructure in Guam and the Western Pacific, having been extended and improved over the years by both the military and civilian governments.

Natural Disasters

Guam lies in the direct path of frequent tropical storms and typhoons. Since 1945, the island has been affected by 160 tropical cyclones with lowest intensities ranging from 34 to 60 knots at sustained wind speeds. Of the 160 tropical storms, 68 were classified as typhoons (sustained wind speed of 64 knots or higher). Supertyphoon Paka struck the island in December 1997 and was Guam's most expensive natural disaster with direct damages estimated at over \$500 million with

maximum wind speeds in excess of 175 mph. In 2002, the island was hit by Typhoon Chata'an and later, Supertyphoon Pongsona. The two typhoons cost Guam a total of \$278 million in damages.

The Marianas Trench is located 210 miles due southwest of Guam. The trench is seismically active zone, making Guam subject to periodic earthquakes. The earthquake that occurred in August 1993 was severe, measuring 7.9 on the Richter scale and destroying two major hotels.

In light of Guam's seismically active zone and typhoon belt location, the government's most effective form of disaster mitigation has been the adoption and policing of a stricter building code. The building code is far stricter than most, if not all, U.S. cities. The code mandates structural designs that minimize the destructive effects of both earthquakes and typhoons. An emergency response plan is updated annually by the Guam Department of Homeland Security's Office of Civil Defense to best utilize the Government's limited resources in mitigating, preparing for, responding to, and recovering from the various emergencies and disasters affecting the island and its residents. While the adoption of a stringent building code has reduced the loss of life and property from natural disasters, the code has also significantly increased construction costs.

B. ECONOMICS

Employment

Guam's unemployment rate is at 13.3%. According to the latest Guam Department of Labor's Current Employment Statistics Report (March 2011), Guam's total workforce was found to be at 61,930 persons, representing a slight decline from 62,200 persons one year ago. Currently, Guam's unemployment rate is more than double Hawaii's unemployment rate and higher than the U.S. unemployment rate.

Table 4 shows Guam's unemployment rate for the last 10 years. The highest rate of unemployment (15.3%) occurred in July 2000, after which the unemployment situation improved, reaching its lowest at 6.9% in March 2006. Since then, the unemployment rate began increasing again and was 9.3% in September 2009. The most recent increasing trend overlaps with the economic slowdown, which began in the summer of 2007 and significantly affected the U.S., Japan, and Korea, which are major tourist markets for Guam. Compared to the national and Hawaii figures, Guam's unemployment rate had been higher until September 2009 when the U.S. national average unemployment rate (9.8%) exceeded Guam's unemployment rate. Guam's unemployment rate in 2011 has once again exceeded that of the United States as Guam's unemployment rate was 13.3% in comparison to the U.S. unemployment rate of 8.8%. In comparison to Hawaii, which also has an island economy, Guam's unemployment rate has been consistently higher than Hawaii's unemployment rate.

Table 4: Unemployment: Comparison of Guam, US and Hawaii 2000-2011

Year	Month	Unemployed on Guam	Unemployment Rate		
			Guam	U.S.	Hawaii
2011	Mar.	9,970	13.3	8.8	6.3
2009	Sept.	6,510	9.3	9.8	7
2007	Sept.	5,310	8.3	4.7	2.8
2006	Sept.	4,890	7.4	4.5	2.3
2006	Mar.	4,530	6.9	4.7	2.6
2005	Dec.	4,500	7.0	4.9	2.6
2004	Mar.	4,710	7.7	5.8	3.5
2002	Mar.	7,070	11.4	5.7	4.5
2001	Sept.	8,760	13.5	5	4.2
2001	Mar.	9,040	13.0	4.3	3.9
2000	July	10,850	15.3	4	4

Source: Guam data from Bureau of Labor Statistics, Guam Department of Labor, The Unemployment Situation on Guam, Summary History 1974-2009; U.S. and Hawaii data from <http://www.bls.gov>, 2011
Hawaii and U.S. data from
<http://departmentofnumbers.com/unemployment/hawaii>.

A more recent picture of Guam's employment situation is presented in the Guam Department of Labor's *Current Employment Statistics Report*. The latest available employment figures from March 2011 reflect a slight decline in the number jobs from March of the previous year. Payroll employment declined from 62,200 jobs in during March 2010 to 61,930 jobs during March 2011. During the March 2011, Guam's workforce was in the following economic sectors: 27.76% were in Services (including 8.85% in Hotel and Other Lodging/Accommodations); 18.44% in Retail Trade; 10.27% in Construction; 7.14% in Transport and Public Utilities; 4.28% in Financial, Insurance and Real Estate; 3.39% in Wholesale Trade; 2.71% in Manufacturing; and 0.44% in Agriculture. By employer, 74.42% of the jobs were provided by the private sector, 6.36% by the federal government, and 19.22% by the Government of Guam. By gender, employees were 56% male and 44% female.

The *2009 Annual Census of Business Establishments*, which was conducted during March 2009, reflects a general decline in the growth rate of jobs that began during the five year period of 1995 through 1999. Table 5 shows Guam's average annual employment growth rate of created jobs over five year periods beginning in 1985 through 2009.

Table 5: Average Annual Job Growth Rate Over A Five-year Period: 1985-2009

Five-Year Period	Average Growth Rate per Year
1985-1989	9.55%
1990-1994	3.41%
1995-2000	-1.55%
2000-2004	-0.92%
2005-2009	1.20%

Source: Guam Department of Labor, Bureau of Labor Statistics, *Annual Census of Establishments*, Summary Tables for March 1985 to 2009. Release # 2009-14.

Guam's job growth rate decline is also reflected in the decline in the number of business establishments. According to the 2009 Annual Census of Business Establishments, the number of business establishments on Guam declined throughout the decade. The number of business establishments declined from 2,776 in 2000, to 2,677 in 2005 and to 2,408 in 2009. This represents a 13.26% overall decline in business establishments during the ten year period of 2000 and 2009.

Household Income and Per Capita Income

According to the Guam Bureau of Labor Statistics, as of July 18, 2011, Guam's average household income for calendar year 2010 was \$49,263, an increase of \$3,477 or 7.1% from \$45,786 in 2008, recovering from a 2.7% decline in 2005. Comparatively, Guam's average household income was \$39,317 in 2000 and \$41,472 in 1990. While the average household income declined, the average household size decreased to an average of 3.5 household members compared to 3.9 members in 2005. The average number of earners within the household was 1.5 in 2008, which declined from 2.2 in 2005 and 1.9 in 1999.

While there have been some positive fluctuations, overall, Guam's Per Capita Income and Mean Earner's Income have fallen from income levels in 1998. Guam's Per Capita Income figure encompasses the total civilian population, including those without income.

Per Capita Income for 2010 was \$12,864, a decrease of \$225 or 1.7% from calendar year 2008. For 2008, Guam's Per Capita Income was \$13,089, an increase of \$321 or 2.5 % from \$12,768 in 2005. Per Capita Income statistics include the total non-institutional civilian population both those with and without income. There are several measures to measure per capita income. Two measures were estimated by the Bureau of Labor Statistics at the Guam Department of Labor (Per Capita Income and Mean Earner's Income), and two measures were estimated by the U.S. Department of Commerce-Bureau of Economic Analysis.

Per Capita Income was calculated using income divided by the total population whereas Mean Earner's Income divided money income with the population who were 16 and older. Nominal (Real) GDP Per Capita divided Nominal (Real) GDP by the total population. Data on these measures are presented in Table 6. According to the Guam Department of Labor, income statistics

may not be comparable with other income statistics (e.g. U.S. Census Bureau) due to differences in the defined income concepts.

Guam's Mean Earners Income has followed the same basic trend as its Per Capita Income indices. The Mean Earners Income is a statistic that covers workers who are 16 years of age and older, excluding those without income. In 1998, the Guam Department of Labor reported Guam's Mean Earners Income to be at \$22,612. In 1999, it fell 7.2% to \$20,976. While 2000 remained below the level set in 1998, it improved 3.7% in 1999 at \$21,756. While Guam's Mean Earners Income declined to \$21,602 in 2001, the decline was a slight 0.7% going into 2000. In 2008, the Guam Department of Labor reported a Mean Earners Income at \$25,479, an increase of \$2,854 or 12.6%, from the 2005 income of \$22,625.

Table 6: Guam Per Capita and Mean Earner's Income: 1990 – 2008

Year	Per Capita Income¹	Mean Earner's Income¹	Nominal GDP Per Capita²	Real GDP Per Capita^{2, *}
1990	\$13,388			
1998	\$12,028**	\$22,612**		
1999	\$10,825**	\$20,976**		
2000	\$12,722***	\$21,756**		
2002			\$22,154	\$22,669
2003			\$21,651	\$22,269
2004			\$23,156	\$23,698
2005	\$12,768	\$22,625	\$24,323	\$24,323
2006			\$24,418	\$23,149
2007			\$24,675	\$22,991
2008	\$13,089	\$25,479		

Sources: ¹ Bureau of Labor Statistics, Guam Department of Labor. ² U.S. Department of Commerce-Bureau of Economic Analysis (May 2010).

Notes: *Using 2005 prices. **Figures taken from 2003 CEDS. ***Figure was \$11,465 from 2003 CEDS

Price Indicators

The latest Consumer Price Index (CPI) was for the 1st Quarter of 2011. It shows that the CPI is 1.9% compared to the same period one year earlier. The Consumer Price Index is one of the most widely used economic indicators of economic trends. It is used as a measure of inflation and shows the effects of economic policy, as a deflator of other statistical series and as an income or benefits escalator. Since consumers are constantly offered new items to include in their market basket, buying patterns change over time. In the U.S., the CPI market basket is updated approximately every 10 years. On Guam, CPI data prior to 1997 was based on consumer buying patterns in 1978. In 1997, the Government of Guam began using a new market basket formula to calculate the island's Consumer Price Index (CPI), which is based on a 1995 Consumer Expenditure Survey. Using the results of the 1995 Household Expenditure Survey, the market basket of goods and services to be included in the CPI was developed with great care. Categories within the market basket included Housing, Apparel and Upkeep, Transportation, Medical Care, Entertainment, Food and Beverages, and Other Goods and Services.

Guam's updated Consumer Price Index was officially released during June 1997. The 3rd Quarter of 1996 was designated Guam's base quarter, and is therefore, equal to 100. The CPI was later rebased to 4th Quarter 2007. Table 7 shows Guam's inflation rates in the last 10 years, calculated as average annual percent change in CPI.

Table 7: Guam Annual Percent Change in Consumer Price Income: 2000-2010

Year	Average Annual Percent Change in CPI
2000	2.0%
2001	-1.4%
2002	0.6%
2003	2.7%
2004	6.1%
2005	7.7%
2006	11.6%
2007	6.8%
2008	6.2%
2009	1.7%
2010	2.9%

Source: Bureau of Statistics and Plans Business and Economic Statistics Program. *Guam Consumer Price Index*. 2nd Quarter 2011. Vol. XXXVII, No. 2.

Gross Island Product

On July 18, 2011, the U.S. Bureau of Economic Analysis (BEA) released estimates of gross domestic product (GDP) for Guam for 2008 and 2009. These estimates were developed under the Statistical Improvement Program funded by the Office of Insular Affairs (OIA) of the U.S. Department of the Interior. The estimates for Guam show that real GDP -- GDP adjusted to remove price changes -- increased 1.7% to \$3.9 billion in 2009 after increasing 0.5% in 2008. For comparison, real GDP for the U.S. (excluding the territories) decreased 2.6% in 2009 after remaining unchanged in 2008.

The largest contributor to the growth in real GDP during this period was federal government spending, a majority of which was spent by the Department of Defense. Federal spending increased in both 2008 and 2009; the increases in both years largely reflected increases in construction spending and in compensation.

The tourism industry continued to weaken in 2008 and 2009, negatively impacting economic growth. Spending by tourists makes up the vast majority of Guam's exports of services. Real exports of services declined 9.0 % in 2009 after falling 12.1 % in 2008. These declines reflected decreases in the number of visitors to Guam. Real consumer spending fell 1.5 % in 2009 after remaining unchanged in 2008. Consumer prices rose over this period, increasing 1.1 % in 2009 after increasing 5.5% in 2008.

Table 8: Guam-Real Gross Domestic Product, Chained Dollars

	Line	[Millions of chained (2005) dollars]							
		2002	2003	2004	2005	2006	2007	2008	2009
Gross domestic product	1	3,589	3,615	3,879	4,003	3,850	3,879	3,899	3,966
Personal consumption expenditures	2	2,490	2,286	2,450	2,588	2,557	2,603	2,602	2,563
Private fixed investment	3	156	185	161	145	155	200	228	219
Net exports	4	-1,041	-970	-874	-908	-1,016	-1,194	-1,237	-1,285
Exports	5	763	662	822	858	785	755	680	606
Goods	6	86	82	77	70	75	101	104	82
Services	7	677	580	745	788	710	654	575	523
Imports	8	1,804	1,632	1,696	1,766	1,800	1,949	1,918	1,891
Goods	9	1,648	1,472	1,526	1,579	1,627	1,740	1,699	1,690
Services	10	157	160	170	187	173	209	219	202
Government consumption expenditures and gross investment	11	1,959	2,110	2,143	2,179	2,154	2,275	2,310	2,474
Federal	12	1,175	1,332	1,379	1,385	1,341	1,442	1,503	1,643
Territorial	13	782	777	764	794	813	833	808	831
Addenda:									
Population (thousands) ¹	14	161.1	163.6	166.1	168.6	171.0	173.5	175.9	177.9
Per capita real GDP (chained dollars)	15	22,278	22,097	23,353	23,743	22,515	22,357	22,166	22,293

Source: 2010 Guam Statistical Yearbook: Bureau of Economic Analysis, U.S. Department of Commerce

Guam was approximately a \$4 billion economy in 2007, measured in real terms using chained 2005 dollars. With an estimated population of 173,456 in 2007, this provided an estimated real income of almost \$23,000 per person annually. The same estimates showed that, for the period 2002-2007, the Guam economy grew by 3.7% in nominal (current dollar) terms and by 1.8% in real (constant dollar) terms. Over the same period, the population of Guam grew at 1.5%, thus yielding a per capita real income growth of 0.3% per year.

One month later, BEA released the major components that made up Guam's GIP in 2002-2007 in its news release entitled "The Bureau of Economic Analysis Releases Estimates of the Major Components of Gross Domestic Product for Guam" (June 13, 2010). Table 9 summarizes the major components for Guam's GIP in 2007.

In the early 1970s, Guam's Nominal Gross Island Product (GIP) was in the neighborhood of \$500 million annually. According to information released from the Guam Economic Development Authority, Guam's estimated Gross Island Product had grown by 1998 to roughly \$3.02 billion. In 1999, however, Guam's GPI declined 10% to \$2.72 billion but experienced a 2% growth in 2000. For 2000 and 2001, Guam's GIP remained at \$2.77 billion. GIP estimates for 2002 ranged from \$2 billion to \$3 billion, depending on the source and method of calculation. Similarly, for 2005, GIP estimates ranged from \$3.4 billion to \$3.7 billion.

Table 9: Guam Nominal Gross Island Product: 2007

NOMINAL GIP IN 2007	Percent of \$4.28 Billion
MAJOR COMPONENTS (Expenditure Categories)	
Personal consumption expenditures	65.0
Private fixed investment	4.21
Net Exports of goods and services	19.02
Exports of services (including tourism): 16.89%	
Imports of goods and services	35.14
Government consumption, expenditures and gross investment	46.87
Federal Government: 26.68%	
Government of Guam: 20.19%	

Source: U.S. Bureau of Economic Analysis, June 13, 2010

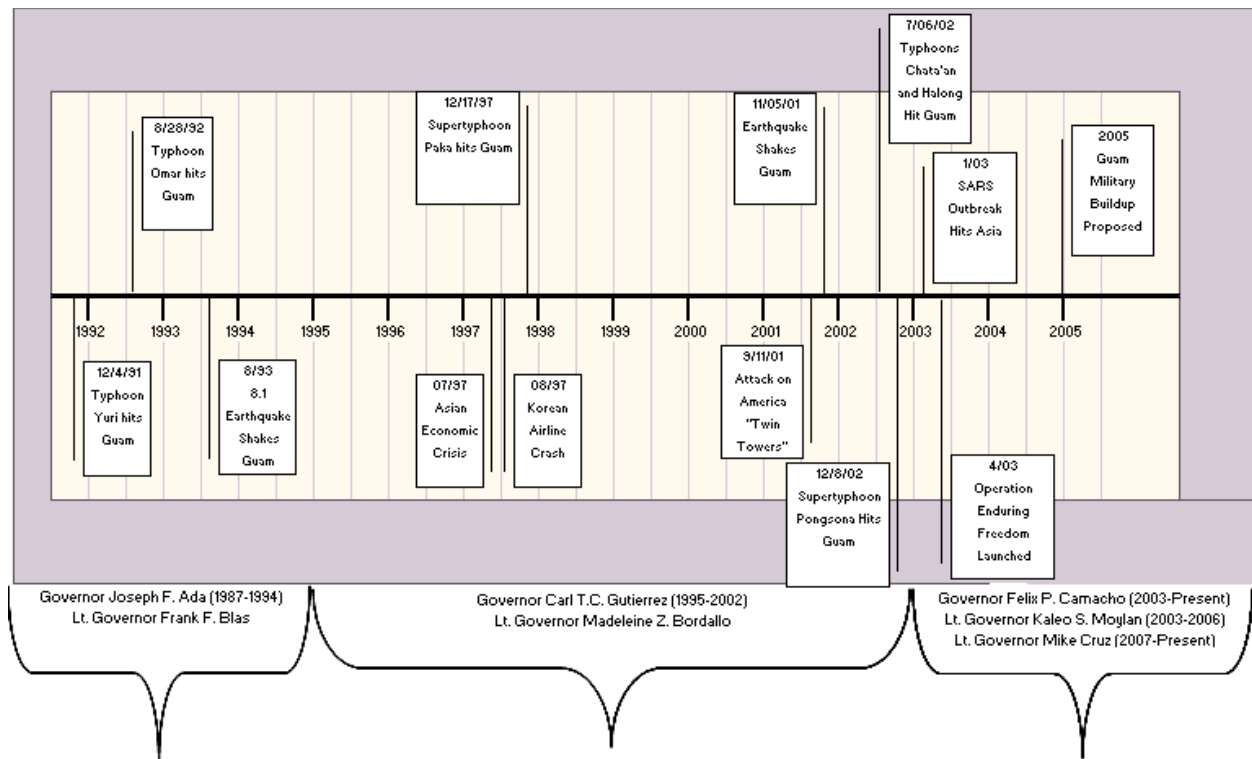
Except for the estimate for Private Fixed Investment (4.21%), which is likely to be understated, all other estimates are as expected. Like many economies, including the U.S., Guam is driven by consumer spending (65%). Unlike the U.S., the share of government spending (47%) is much higher due to the greater investment spending by the public sector.

Table 9 also confirms Guam's reality as an island in that it is dependent on imports, which amounted to 35% of the Gross Island Product (GIP). As an economic strategy concern, one must look closely into whether all imports are necessary and to explore options at replacing some of them as a way to spur the local economy. Assuming a spending multiplier of 1.5, one is able to illustrate how significant the economic impact would be of shifting 10% of what is currently imported to a local source in terms of an increase in GIP by 25% (or \$1 billion), an increase in the local government's revenue in terms of Gross Receipts Tax by 4% of \$1 billion (or \$40 million), and an increase in local jobs by 23% (or 14,000 jobs).

Guam's economic performance is closely tied to overseas markets, especially to Japan and to a lesser extent Korea, with both markets affecting tourism and foreign investment. In addition, Guam's economic performance is affected significantly by occurrences of natural and manmade disasters (e.g., typhoons, earthquakes, and airline crash). Since 2006, the proposed military buildup has been expected to have a major economic impact on the local economy. The factors affecting the impact are largely outside of the control of local economic planners and policymakers, leaving the local economy exposed to the subsequent instabilities.

Figure 1.

Events That Affected Guam's Economy



Source: Ruane, Maria Claret M. & Ning Li (2009). "Guam's Income Distribution: 1981-2005", *Journal of International Business Research*, vol. 8, no. 2, 2009, pp. 101-110.

This reality has become quite clear in the aftermath of the earthquake and tsunami that devastated northeastern Japan in March 2011. Almost immediately, tourist arrivals on Guam declined significantly, which affected hotel occupancy rates along with occupancy taxes (11% of hotel receipts), as well as employment and income prospects sought by many island residents who are employed in tourist-related activities.

Partly related to the devastation in Japan as well as new developments from the U.S. Congress, the terms, magnitude, and timing of the military buildup on Guam might deviate from those spelled out in the 2006 U.S.-Japan Agreement. Much depends on the fiscal health of both the U.S. federal government and the Government of Japan, who initially agreed to share the cost of the military buildup on a 40-60 basis (approximately). The delays may likely increase earlier cost estimates, worsening the fiscal situation.

As such, these factors highlight the importance of local economic growth, propelling a sustainable and participatory development path. In addition to strengthening existing markets (tourism and military), additional economic activities need to be explored and developed to diversify Guam's economic structure in order to create a stronger and more sustainable economic portfolio. In the past five to 10 years, the private sector has become a more significant contributor to the economy. The latest Guam Department of Labor's "Annual Census of Business Establishments" (March 2009) shows the following data: Annual growth rate of number of jobs over the five-year period. The same source shows that the number of establishments increased from 1,706 in 1985 to 2,776 in

2000 before declining to 2,677 in 2005 and 2,408 in March 2009. In the near future, the private sector will remain the primary source of economic growth and will need to be an active partner in developing and supporting the economic goals, objectives, and projects contained in this report. Of course, the public sector needs to provide the necessary physical, social, human, and institutional infrastructure and an overall business environment that will be conducive to local and off-island business start-ups and retention.

C. PUBLIC SECTOR

Federal Government

The federal government plays a leading role in the economic affairs of Guam, making up almost 27% of Guam's \$4 billion economy in 2007 (U.S. Department of Commerce, Bureau of Economic Analysis). It provided 6.36% of total employment in March 2011 (Guam Department of Labor, Bureau of Labor Statistics), which was significant but much lower than its 18% share of jobs in 1985 or 10-12% in the early 1990s. Between 1985 and 2009, federal employment expanded in 1985-1990, declined in 1990-2005 and expanded in 2005-2010.

Table 10 shows that, since 2006, federal government spending on Guam ranged from \$530.2 million in 2007 to \$1.23 billion in 2010. Through May of this year (2011), the Federal government has spent \$308.1 million on Guam. As expected, the largest share (approximately half) of federal government spending on Guam was related to the anticipated military presence, with the Department of Defense (and within it, the Department of the Navy) shown in Table 10 to rank first in terms of share of total Federal government spending. Ranking second is the Social Security Administration, followed by the Department of Health and Human Services. Table 10 also shows the remaining agencies that made major federal government expenditures.

Table 10: Federal Expenditures on Guam: 2006-2011

Federal Government Spending by Agency/Sub-Agency	Rank	2011 (through May)	Rank	2010	Rank	2009	Rank	2008	Rank	2007	Rank	2006
Total Amount for the Year -->		\$308.1M		\$1231.5M		\$963.1M		\$1,206.1M		\$530.2M		\$919.1M
PRIME AWARD MAJOR AGENCIES												
Dept. of Defense	1	43.93%	1	51.57%	1	44.58%	1	51.91%	1	96.20%	1	46.25%
Social Security Administration	2	31.65%	3	15.25%	2	18.58%	3	13.62%	2	27.70%	2	14.67%
Dept. of Health and Human Services	3	12.08%	4	4.19%	4	6.89%					5	4.43%
Dept. of Education	4	9.17%	2	15.80%			4	5.96%	3	4.83%	4	6.21%
Dept. of Agriculture	5	6.62%	5	2.31%					5	2.12%	3	8.32%
Dept. of the Interior	6				3	6.89%						
Dept. of Housing & Urban Development	7				5	5.15%	2	16.76%				
Dept. of Transportation	8						5	3.99%	4	3.09%		

Federal Government Spending by Agency/Sub-Agency	Rank	2011 (through May)	Rank	2010	Rank	2009	Rank	2008	Rank	2007	Rank	2006
Total Amount for the Year -->		\$308.1M		\$1231.5M		\$963.1M		\$1,206.1M		\$530.2M		\$919.1M
PRIME AWARD SUB-AGENCIES												
Navy	1	37.88%	1	46.61%	1	31.67%	1	41.22%	1	76.74%	1	36.02%
Social Security Administration	2	31.65%	2	15.25%	2	18.58%	2	13.62%	2	27.70%	2	14.67%
Centers for Medicare & Medicaid Services	3	7.71%	3	13.42%								
Education	4	7.20%										
Food & Nutrition Service	5	6.43%									3	7.90%
Air Force			4	2.76%	3	11.00%	4	6.24%	4	12.14%	4	7.85%
Dept. of Energy			5	2.19%								
Assistant Secretary for Public & Indian Housing					4	4.37%					5	3.53%
Federal Highway Administration					5	3.31%						
Bureau of Reclamation							3	8.73%				
U.S. Fish & Wildlife Service							5	5.24%	3	15.76%		
Defense Logistics Agency									5	5.73%		

Source: www.usaspending.gov, accessed May 2011

The U.S. Department of Defense has maintained bases on Guam since the turn of the century. After the end of World War II, Guam became the site for major naval and air force facilities in support of the U.S. defense commitments in the Asia-Pacific region. In Fiscal 1993, military expenditures in Guam amounted to \$748 million, making the defense sector second to only tourism in terms of expenditures and employment. In that year, there were 10,600 active military personnel and 11,400 dependents living on the island.

Since 1993, however, Guam has experienced a significant decrease in military activity beginning with the Base Realignment and Closure Commission's (BRACC) recommendations in 1995. BRACC '95 recommended closure of the Naval Air Station (NAS), the Naval Ship Repair Facility (SRF), the realignment (downsizing) of the Naval Activities Guam, the "disestablishment" of the Fleet and Industrial Supply Center, and the reassignment of naval air units, formerly slated to be transferred from NAS to Andersen AFB, to locations outside of Guam.

The economic impact of these base closures, unit transfers, and scaled-back activities has resulted in direct job losses of approximately 4,800 jobs (i.e. 3,500 federal civilian jobs and 1,300 military positions). In terms of lost income, cumulative current dollar losses to the Gross Island Product for the period 1996-1999 has been estimated at \$942 million. In terms of the rapidity of job loss, more than 60 % of the jobs were lost within two years, with the balance being lost in the following two years.

Considering indirect job losses related to BRACC actions (i.e., those jobs lost to the multiplier effect of direct job income losses), it is estimated that another 2,011 jobs were lost, bringing the total decline in local jobs to 6,800. The loss of 6,800 direct and indirect jobs is very significant,

especially when considering that many of these jobs were high-paying, skilled, professional, and managerial positions. Furthermore, the cumulative number of jobs lost is equivalent to approximately 10 % of Guam's total workforce.

While the impact on the economy in the short-term has been grim, particularly to those losing jobs and to the Government of Guam managers faced with major revenue losses. It had been anticipated that in the long- run, military downsizing might result in the kinds of concrete local actions needed to further stimulate private sector development (e.g., income tax reform, privatization of selected government operations, increased public sector fiscal discipline coupled with the upgrading of labor productivity while limiting the growth of payrolls and number of public hires). While actions to stimulate private sector development did occur, it has become increasingly apparent that a continued military presence is a significant component of Guam's economy.

In support of a continuing military presence, government and civic leaders jointly submitted in March 2001, a white paper calling for a greater military presence on Guam. Entitled "Force Structure Redistribution in the Asia-Pacific Region: Guam's Potential Role", the purpose of the white paper, which was prepared by the Guam Chamber of Commerce, was to demonstrate Guam's endorsement of a larger military presence. Also due to tensions in the region and Guam's strategic location to serve as a staging base and operating location for mobilizing U.S. military forces and equipment within the Western Pacific, there is evidence of increased military activity on Guam. The signing of the "U.S.-Japan Alliance: Transformation and Realignment for the Future" agreement (ATARA) in October 2005 set into motion actions and expectations of a military buildup on Guam for the projected time period of 2010-2014. Although the component of the proposed military buildup on Guam with the largest dollar value and on-island population increase will come from the relocation of 8,000 Marines and 9,000 dependents from Okinawa to Guam, it will also include construction of a wharf in Apra Harbor to support a transient nuclear power aircraft carrier and construction of facilities and infrastructure to support 600 Army Missile Defense Task Force and their 900 dependents (U.S. Department of the Navy, 2009, page ES-1).

As 2010 approached, many developments have given stakeholders a better sense of what to expect from this military buildup. The first set of specific information was contained the U.S. Department of Navy's Draft Environmental Impact Statement (DEIS), which was released to the public in November 20, 2009. The public was given 90 days to comment on the DEIS, during which more than 10,000 comments were submitted. The final report was released at the end of July 2010, which introduced the "Adaptive Program Management" approach to the military buildup, which will pace of military construction and population increases according to the capacity of Guam's infrastructure. A Record of Decision occurred as scheduled during September 2010. Since then, old and new issues have surfaced that continue to create uncertainty regarding the magnitude, timing and other details of the proposed military buildup. This includes continued interest in the military's plan to use of Pagat, a historic burial site on Guam, as a firing range and training site, along with sluggish recovery in of the U.S. economy and the record-high federal government debt, leading to a downgrade of its credit rating; the devastation of northeast Japan from the earthquake and tsunami in March 11, 2011; delay in implementing a \$1 billion multiple award construction contracts (MACC) whose funding would come from Japan's almost 60% share; recent announcements by U.S. senators geared toward a reexamination of the 2006 Agreement; recent

leaked information regarding the “real” details of the military buildup, especially on the magnitude of the personnel relocation and project costs.

These uncertainties clearly highlight the need for Guam’s economic planners to welcome the military’s contribution to the economy and, at the same time, develop other less uncertain sources of economic activities.

Military

Guam is currently home to a large U.S. military presence which includes Navy and Air Force bases that comprise nearly 27% of the island’s land mass.

The Department of Defense (DoD) plans to relocate 8,600 Marines and approximately 9,000 dependents from Okinawa to Guam with an initial estimated cost of \$10.27 billion. The current Guam population is approximately 180,000 (2010). It is estimated that up to 20,000 temporary workers may be needed to complete the required construction. At the completion of the relocation, approximately 6,000 civilian workers will be added to the island’s population. The government of Guam is concerned that this rapid population increase will place an unsustainable burden on its infrastructure.

The Calvo-Tenorio Administration will continue to move forward with a “One Guam” approach to address the needs of Guam associated with the military buildup. A Civilian-Military Coordination Council (CMCC) has been established which will assist DoD in implementing Adaptive Program Management, whereby DoD will monitor the buildup and adjust the construction pace if it unduly impacts the environment and/or the infrastructure.

Many new construction jobs will be created during the buildup years. Priority will be given to U.S. workers before the hiring of foreign labor. Public Law 110-229 provides that Guam can import foreign labor without limit until 2014.

Major funding for the buildup effort is being contributed by DoD, USDA and the Government of Japan. Defense spending on Guam is \$700-800 million a year, with 6,500 active duty personnel and approximately 7,000 dependents. There were 3,600 Federal civilian employees in 2009 and Federal taxes returned to Guam was approximately \$45 million dollars.

Table 11: Estimated Number of Civilian Employees by U.S. Department of Defense Service Branches on Guam as of September 3, 2009

Branch of Service	Estimated Number of Civilian Employees
Marine Corps	1,467
Air Force	125
Navy	9
Army	TBD
Total:	1,601

Source: US Government Accountability Office,
Defense Infrastructure, October 2009

Compact Impact

Another major issue affecting federal territorial relations is the unrestricted immigration to Guam by the Freely Associated States (FAS) citizens of the Republic of the Marshall Islands (RMI), the Federated States of Micronesia (FSM), and the Republic of Palau. The Compact of Free Association Act of 1985 (P.L.99-239), implemented in 1986, establishes the relationship between the United States, FSM, and the RMI. The Compact of Free Association Act (P.L.99-658), implemented in November 1994, establishes the relationship between the United States and the Republic of Palau. The Compact of Free Association Amendments Act of 2003 (P.L.108-188) renewed the original Compact of Free Association (P.L. 99-239) between the United States, FSM, and the RMI. Compact immigration provisions authorize unrestricted immigration into the United States, its territories and possessions, enabling citizens of these nations to enter into, lawfully engage in occupations, and establish residence as non-immigrant aliens. Guam's resident population, as a result of this law, is estimated to have increased by approximately 22,000 persons between 1987 and 2010. Currently, FAS citizens comprise more than 13% of the estimated 180,000 people on Guam.

In recognition of the possible adverse impact to Guam's economy of providing health care, education, job training and public assistance to the peoples of foreign nations not domiciled on Guam, Congress promised to appropriate sums to cover costs incurred by Guam resulting from any increased demands placed on educational and social services by immigrants from the Federated States of Micronesia, the Republic of the Marshall Islands, and the Republic of Palau. Guam's 2004 Compact Impact Reconciliation Report found that the un-reimbursed Compact Impact cost for the period FY 1987 to FY 2003 totaled \$269 million. The un-reimbursed cost includes \$178 million for education, \$48 million for health, welfare and labor, and \$43 million for public safety.

According to the most recent "Impact of the Compacts of Free Association on Guam" report, the Government of Guam found that the currently identified locally funded cost incurred for providing educational and social services to citizens of the Freely Associated States was \$31.18 million in FY 2004, \$28.17 million in FY 2005, \$42.16 million in FY 2006, \$47.33 million in FY 2007, \$53.26 in FY 2008, \$58.69 million in FY 2009, and \$63.69 in FY 2010 for a total of \$324.50 million (unaudited) for the past seven fiscal years as shown in Table 12. During this time, Guam has received \$102.6 million in Compact Impact Assistance Grant funds. The total un-reimbursed cost since the implementation of the Compacts in 1986 is over \$490 million.

Table 12: Total Cost of Services to Compact (FAS) Migrants: FY 2004 to FY 2010

Fiscal Year	Cost for Services to FAS Migrants (in millions)			
	Total Cost	Education	Public Safety	Health, Welfare and Housing
2004	31.19	18.99	4.64	7.56
2005	28.18	21.21	5.35	1.62
2006	42.16	27.28	6.54	8.33
2007	47.33	30.34	7.53	9.46
2008	53.26	34.68	6.98	11.60
2009	58.69	36.59	7.45	14.65
2010	63.69	31.99	17.07	14.64
Total	\$324.50	\$201.08	\$55.56	\$67.86

Source: *Impacts of the Compacts of Free Association on Guam: FY 2004 through FY 2010*

NOTE: Excludes costs based on *Compact Impact Reconciliation* (FY 1987 to FY 2003)

Local Government

Guam is an organized, unincorporated territory of the US, which means that in some cases federal laws do not automatically apply to the island. For example, U.S. import tariff laws do not apply, and Guam is considered to be a duty free port. On the other hand, federal banking and transportation laws and regulations apply to Guam, with some exemptions, to address the island's unique political, geographical, and social circumstances.

Guam has only one level of government. The Organic Act of Guam provides for three branches of government: executive, legislative, and judicial. The Governor heads the Executive Branch. Until 1970, the Governor of Guam was appointed by the President of the United States. Since the November 1970 election and the January 1971 inauguration, the Governor and the Lieutenant Governor have been elected for four year terms. In 2010, the Honorable Eddie Baza Calvo and the Honorable Ray Tenorio were elected Governor and Lieutenant Governor, respectively. The Governor is responsible for implementing all local and federal laws pertaining to Guam. He oversees the functions of the departments and agencies within the Executive Branch.

Guam's judiciary system consists of the federal District Court of Guam and the Unified Judiciary of Guam which consists of the Superior Court of Guam and the Supreme Court of Guam. Prior to the creation of the Supreme Court, local appellate cases were heard by the Appellate Division of the Federal District Court before going to the Federal Ninth Circuit Court of Appeals. Since July 26, 2000, the Supreme Court of Guam has assumed appellate jurisdiction over lower local courts. The President of the United States, with the consent of the Senate, appoints the presiding judge of the Federal District Court to an eight-year term. This Court has jurisdiction over cases involving federal law. The Superior Court of Guam has authority over all cases arising under the laws of Guam. This includes family, small claim, traffic, probate, civil, and lands registration issues. The Supreme Court of Guam hears all appeals.

Guam has a unicameral legislature. As a result of a plebiscite vote in 1998, the number of senators was reduced from 21 to 15. In addition to making laws for the island, senators are responsible for appropriating funds using the General Fund for government operations and other public purposes.

Guam also has a non-voting delegate in the U.S. House of Representatives. Although precluded from voting on the floor of Congress, Guam's delegate does serve and vote in those House committees and subcommittees of which the delegate is a member.

Guam elected its first Public Auditor in November 2000 as a result of P.L. 25-42. The Public Auditor serves a four-year term and is responsible for auditing all transactions and accounts of all departments, offices, corporations, authorities, and agencies of the Government of Guam. As a result of P.L. 25-44, Guam also elected its first Attorney General in November 2002.

The Organic Act provides that Guam's income tax "mirror" the federal income tax. As a consequence, the Guam income tax law is the same as the federal income tax law, with local revenues going to the Government of Guam. As required by Section 30 of the Guam Organic Act, the federal income taxes collected from military personnel and other federal government employees on Guam revert to the Government of Guam. In addition, Guam is free to pass other tax laws. Major tax initiatives include a 4% tax on Gross Business Receipts from retail sales, and excise taxes on liquor, cigarettes, and liquid fuels.

The United States Tax Reform Act of 1986 included a provision for Guam to develop its own income tax code. The Act mandates that such a code must provide protection against double taxation, fraud, and tax avoidance and evasion. The Guam Tax Code Commission was established in May 1990 and was succeeded by the Guam Finance Commission in 1994 to formulate a new tax system for Guam. In December 2000, the Guam Finance Commission was disbanded by the 25th Guam Legislature, and no further action has been taken on de-linking the Guam tax law from the U.S. Internal Revenue Code.

For FY 2009, the Government of Guam's total revenue was \$533,432,934; however, the Government also incurred expenditures of \$673,433,910. The Government of Guam's deficit increased by \$140 million, an increase of 826% from the prior year's restated amount. This deficit is funded primarily by withholding income tax returns that total \$259 million.

In FY 2010, the general fund deficit grew by \$84 million. Projections for the biennium (2-year) budget state that by September 2013, the deficit will be at \$349 million and the Government of Guam will remain in deficit until 2015. Although the deficit grew in 2010, there were also slight positive changes that occurred, such as a 0.4% revenue growth, 1% tax revenue growth, and 1.7% growth in revenue generated from licenses, fees, and permits. Currently, Guam's revenue generally comes from tax revenues and federal contribution. In order to plan for the buildup and other major events, a biennium budget has been created. According to the Executive Budget for the FY 2011, the projected revenue is at \$600,811,600.

Education

The educational needs of Guam are provided by an island-wide public school system (the Department of Education) comprised of five high schools (grades nine to twelve); eight middle

schools (grades six to eight); and 27 elementary schools (grades one to five) operated by the Government of Guam. The Catholic Archdiocese of Agaña also operates a substantial school system with a total of ten schools with three high schools, six elementary/middle schools, and one elementary school. Several other religious denominations also operate schools on Guam. These include Saint John's Episcopal School, Harvest Christian Academy, Guam Adventist Academy, Temple Baptist School, and Trinity Christian School. The Department of Defense Education Activity (DoDEA) also provides education for military dependents on island with four schools; one high school, one middle school, one elementary school, and one joint elementary/middle school. Additionally, there are two Japanese schools, one Chinese school, and one Korean school operating on-island. Also, Asmuyao Community School has been established to offer alternative education and independent study programs. The Guam Trades Academy is a training center geared to support construction and related industries on Guam. For academic year 2009-2010, public school enrollment was 30,769, the Catholic school enrollment was 4,965 students, and the Department of Defense school enrollment was approximately 2,500.

One major development within Guam Department of Education is the reconstruction of John F. Kennedy High School. As a result of the extensive damage caused to the structure and its campus by Typhoon Pongsonga in 2002, the school to be closed and students from JFK High School were relocated to other educational structures. A new high school facility has been constructed on the site of the previous high school. The new high school is slated to open during August 2011 for the 2011/2012 school year.

The Guam Community College (GCC) provides vocational and technical education for students from high school through college. For the Fall Semester of 2010, the college had an enrollment of 2,436 students, receiving academic as well as technical and professional instructions. GCC provides various academic and professional programs, as well as technical and vocational programs that award Associate Degrees or Certificates of Completion. Journeyman Certificates are awarded to students in the construction, hotel, and restaurant industries. GCC works in collaboration with local high schools and the University of Guam and is fully accredited by the Western Association of Schools and Colleges (WASC) from 1979 to 2012.

The University of Guam (UOG) offers post-secondary degree programs through five different colleges and schools, namely: College of Liberal Arts and Sciences (CLASS), College of Natural and Applied Sciences (CNAS), School of Business and Public Administration (SBPA); School of Education (SOE); and School of Nursing and Health Sciences (SNHS). The University provides six Baccalaureate (BA, BBA, BA Ed., BS, and BSW) and six Masters (Professional MBA, MED, MAT, MPA, MS and MA) degree programs. For the Spring Semester of 2011, there were 3,536 students enrolled, a 5.1% increase from the previous year.

Public Assistance

The decline in Guam's economy is reflected by the increase of those seeking assistance through various public assistance programs. According to the information from the 2000 Census released by the U.S. Census Bureau, 6,466 Guam families had income below the National Poverty Level in 1999, which represents 20 % of 32,367 families surveyed. Of the 38,769 households surveyed, 4,211 households (10.9%) reported having public assistance income. The mean public assistance income received was \$5,291. In comparison, the U.S. Census Bureau reported that nationally,

only 9.2 % of families had income below the National Poverty Level, while those households receiving public assistance income was 3.4%.

The 1996 federal welfare reform laws set a five-year limit on recipients from receiving aid under cash assistance programs, which include the Temporary Assistance to Needy Families Program (TANF) and the Government of Guam's General Assistance Program (GA). These reforms do not affect Supplemental Nutrition Assistance Program (Food Stamps), Aid to the Blind, Old Age Assistance, Medicaid, or Aid to the Permanently and Totally Disabled. This five-year limitation went into effect on Guam during July 2002.

Between fiscal years 2008 and 2009, the average number of recipients who received assistance under the Temporary Aid to Needy Families (TANF), Old Age Assistance, Aid to the Permanently and Totally Disabled, Aid to the Blind and General Assistance programs increased. The majority of the recipients received assistance under the TANF program. The average monthly participation in the TANF program increased from 1,668 recipients in fiscal year 2008, 1,081 in fiscal 2009 and 1,264 recipients in fiscal year 2010. The increase in the number of recipients is indicative of Guam's slow economy. Table 13 shows the average number of recipients and the average amount of funds disbursed monthly under public assistance program.

Table 13: Average Number of Recipients and Average Monthly Funds Disbursed for Public Assistance, Guam: Fiscal Years 2008 to 2010

Type of Assistance	FY 2010		FY 2009		FY 2008	
	Recipients	Dollars (\$)	Recipients	Dollars (\$)	Recipients	Dollars (\$)
Monthly Average (Total)	2,159	404,081	1,938	360,267	1,668	320,823
Temporary Aid to Needy Families (TANF)	1,264	274,454	1,081	230,819	926	201,766
Old Age Assistance (OAA)	245	56,998	251	59,383	250	59,093
Aid to the Permanently and Totally Disabled (APTD)	201	44,541	204	44,497	180	39,808
Aid to the Blind (AB)	3	562	1	278	1	214
General Assistance (GA)	446	27,526	401	25,290	311	19,942

Source: 2010 Guam Statistical Yearbook, Department of Public Health and Social Services, Government of Guam

With specific regard to food stamp participation on Guam, while there was a slight decline in 2007, the average number of households receiving supplemental nutrition assistance has steadily increased throughout the period of 2006 to 2010. The average number of households that participated in the food stamp program monthly increased throughout this period, from 8,220 in 2006 to 11,595 in 2010. The average number of recipients receiving food stamps monthly increased through most of this period from 27,724 recipients in 2006 to 36,926 recipients in 2010. In addition to the increased number of recipients, the average amount of food stamp provided to households increased \$552.96 in 2006 to \$694.93 in 2010. Moreover, the total amount of benefits received by all food stamp recipients increased from \$78,829,247 in 2009 to \$96,695,105 in 2010. Table 14 shows the increasing rise in the number of individuals and households who participated in the Food Stamp program and benefits.

Table 14: Supplemental Nutrition Assistance Program (SNAP) Recipients and Total Bonus, Guam: Calendar Years 2006 to 2010

Description	Calendar Year				
	2010	2009	2008	2007	2006
Average monthly participation (persons)	36,926	31,511	27,874	26,614	27,724
Food Stamp Program Benefits (\$)	96,695,105	78,829,247	60,125,091	55,690,316	54,540,592
Average monthly benefit per person (\$)	218.22	208.47	179.76	174.38	163.94
Average monthly participation (households)	11,595	9,587	8,295	7,916	8,220
Average monthly benefit per household (\$)	694.93	685.23	604.01	586.26	552.96

Source: 2010 Guam Statistical Yearbook: Food and Nutrition Service, USDA. All data are subject to revision.

* The Supplemental Nutrition Assistance Program (SNAP) is formerly the Food Stamps Program

The number of persons participating is reported monthly. Annual averages are the sums divided by twelve.

Energy

Unstable oil prices and continued dependence on fossil fuels is a high concern. A recent report by the National Renewable Energy Lab (NREL) revealed that Guam is 100% dependent on fossil fuels for meeting its energy supply needs, except for a few small renewable energy projects. The primary sectors that consume fossil fuels in Guam include: 1) production of electricity; 2) transportation; 3) water heating and self-generation by the commercial sector (primarily hotels); and 4) propane for home cooking and small commercial operations.

Efforts have been underway since 2010 to develop a comprehensive energy strategy for Guam. Pursuant to Executive Order 2010-15, the Guam Energy Task Force was established and is responsible for creating a strategic energy plan for the island by developing and implementing a long-term Guam Energy Strategic Plan. The charge of the Guam Energy Task Force is to help Guam decrease its dependence on conventional energy source and to identify and explore alternative and innovative ways to supply the island's energy needs. In line with the executive order, the task force will tap into the expertise of Guam's energy, business, scientific, academic, non-profit, and government sectors. The membership includes representatives from the University of Guam, the Guam Energy Office, the Guam Power Authority, the Guam Chamber of Commerce, the Guam Hotel and Restaurant Association, and the Mayor's Council of Guam, with assistance by federal partners including National Renewable Energy Lab, the Department of the Interior, the Department of Defense, and the U.S. Environmental Protection Agency and the U.S. Department of Agriculture.

The *Guam Initial Technical Assessment Report* was produced by the National Renewable Energy Laboratory (NREL) through support from the U.S. Department of Interior Office of Insular Affairs. In addition to presenting an island initial technical assessment that would lay out energy consumption and production data and establish a baseline for Guam, the report presents energy efficiency and renewable energy opportunities for the island.

According to the report, the "baseline gathers various data points to establish a reference against which progress can be measured. It allows comparison across sectors through trend identification and provides a tool for goal setting and measuring success of those goals. Before a baseline can be established, a methodology is developed. This document summarizes data collected regarding

energy production, consumption, and efficiencies, and discusses renewable energy, energy efficiency technology potential, current barriers, and opportunities. The opportunities highlighted in this report can be used to formulate an energy plan. The following table highlights current energy efficiency and renewable energy opportunities designating them a low, medium, or high priority for impact.”

NREL provided an interdisciplinary team of experts in integrated wind-diesel generation, transmission and distribution, energy efficiency and building technologies, solar technologies, biomass and waste-to-energy, and geothermal, to cover each relevant technical area for energy assessments, system recovery, and upgrades. In addition to the above core disciplines, team capabilities also included expertise in program analysis, project financing, policy, and energy project, planning and Energy Committee facilitation.

Participants of this report included the NREL, with assistance from the Office of Insular Affairs, and participation by representatives of the Guam Energy Office, the Guam Power Authority, the University of Guam, the Guam Community College, the Department of Defense, Joint Region Marianas and NAVFAC Marianas, and Naval Base Guam), the United States Department of Agriculture, the Mayor of Dededo, the Guam Environmental Protection Agency, and US EPA Region 9.

The intent was to provide Guam with various scenarios and approaches to deploying cost effective energy efficiency and renewable energy technologies in a manner that will meet Guam’s energy objectives. The information compiled in this energy assessment will be used as input in the development of a strategic plan. The anticipated next step is to develop a strategic (energy) plan that will address cost effective energy efficiency and renewable energy technologies beneficial towards meeting Guam’s strategic intent towards reducing its dependency on imported fossil fuels.

In line with heightened awareness towards reducing Guam’s dependency on fossil fuels, the University of Guam established the Center for Island Sustainability to create an Islands-based model of renewable, sustainable and appropriate technologies focusing on indigenous energy alternatives and replicable research to meet the needs of Island communities in the broader areas of Environment, Economy, Society, and Education. In this capacity, the institution will “create partnerships with Organizations, Companies and Government Agencies to create and provide opportunities for research-based models of renewable and sustainable energy management.”

Power

Since 1968, the Guam Power Authority (GPA) has changed significantly in response to the development of the tourism industry, the implementation of a Customer Service Agreement with the Navy, and the growth of its residential and commercial customer base. In 1990, 701.6 million kilowatt hours of electricity were consumed by 32,353 users. By 1999, the island’s power consumption more than doubled, with a total of 1,711.5 million kilowatt hours consumed by 44,381 users. Currently, GPA’s organization, consisting of 584 employees, serves 47,333 customers and generates over 1.9 MMWH of electricity.

As a response to the growing environmental concerns, in 2006, GPA conducted a feasibility study on Sea Water Air Conditioning, which is a process of using deep cold sea water to condition the

buildings on the shores of Tumon Bay. GPA's operational strategic plan involves a stakeholder analysis and addresses the concerns of the customers, as well as the staff and governing commissions.

Currently, GPA is issuing the 2010 Senior Bonds in order to finance the 2010 Projects, which includes the construction of a new administration building and facilities, to ensure the amount in the Bond Reserve Fund Requirement is sufficient, and to be able to support the issuance of the bonds. The 2010 Subordinate Bonds are also being issued to fund the working capital of the GPA, to refinance existing loans, to ensure the Subordinate Bond Reserve Requirement is met and to support expenses incurred by the issuance of the bonds.

The 2010 bonds are financing numerous projects, which include:

- Marbo - Pagat 34.5 kV Transmission Line
- GPA New Main Office & Operation Facility Improvements
- Ambient Air Quality Monitoring
- Underground Fuel Pipeline Conversion and Fuel Metering
- Fire Protection Upgrades at GPA Facilities
- Automatic Generation Control
- Hågatña 34.5/115 kV Refurbishment and Upgrade
- Dededo Substation Upgrade
- Line Reclosing and Load Profiling
- Tumon Substation Upgrade
- Agana Substation Capacity Upgrade
- System Protection Relaying Improvements
- Distribution System Performance Improvements – as determined through Distribution Planning report
- P003 Underground Extension to Port Authority
- Tumon Bay Lateral Conversion
- Agat Village Pole Hardening & Hybrid

GPA has another ongoing project, the Smart Grid Project, which will be financed by bonds, as well as a grant from the American Recovery and Reinvest Act. GPA is working to employ this technology in order to be more efficient, functional, to allow customers to be able to control their electric bills, and to be able to resort to more renewable resources. GPA hopes to save an estimated \$5 million annually for 15 years by improving efficiency.

GPA is currently anticipating increased energy demands brought on by the Military Buildup. GPA is negotiating with the Department of Defense, the Navy, and other pertinent agencies to develop a Memorandum of Understanding, to outline what will be in the upcoming Utility Services Contract.

Water and Sewer

The Guam Waterworks Authority's (GWA) primary task is to produce, treat, transmit, and distribute water on Guam and to collect, treat, and dispose of wastewater. Prior to 1996, GWA operated as a line department of the Executive Branch called the Public Utilities Agency of Guam (PUAG). In that year, PUAG was abolished and GWA was created as an autonomous agency. As an autonomous agency, GWA ceased receiving annual subsidies from the General Fund while still retaining the responsibility for all of PUAG's outstanding debts. In 2002, the Guam Waterworks Authority was placed under the Consolidated Commission on Utilities as a result of P.L. 26-76.

The Consolidated Commission on Utilities (CCU) is an elected nonpartisan body that is responsible for oversight of GWA and the Guam Power Authority.

GWA provides water service to 39,014 customers and sewer service to 23,771 customers. For Fiscal Year 2008, the agency earned a total revenue of \$59.7 million. In the same year, water consumption was 7,231,927,412 gallons, a 3.72% increase from the prior year, while waste water collected was 4,116,450,681 gallons, a -8.03% decrease from the prior year.

GWA has created a five-year strategic plan, which will involve a 33% rate increase over a period of 5 years, borrowing an approximate amount of \$300 million to be used for improving facilities and employing new technology.

GWA is presently faced with acute problems. These problems include increasing energy prices, the reliance of water purchases from the United States Navy, limited funding for infrastructure improvements, and operating under limited financial and manpower resources. Additionally, the accelerated growth attributed to the military buildup continues to be a point of concern. The official timeframe reflects 2012-2014 time periods. However, many issues have yet to be addressed, and much ambiguity remains over the level of funding and assistance that the U.S. Department of Defense will provide to manage the direct impact of the increased military presence and the associated activities with the buildup.

In November 2010, the Authority's Capital Improvement Plan 2011-2015 was approved, initiating the first detailed plan to ensure GWA continues to provide quality services. The CIP estimates the 2011-2015 projects to cost \$236 million. Examples of capital improvements include water production facilities, water distribution systems, wastewater collection systems, wastewater treatment plants, and major one-time equipment acquisitions.

GWA also developed its first financial rate plan (the "Rate Plan"), outlining the framework needed to bring financial stability to GWA. It addresses certain investments in water and wastewater infrastructure required by a 2003 stipulated order, funding for the 2005 CIP Master Plan capital projects, and meeting performance standards (operating ratios) imposed by bond covenants. The plan also includes approximately \$300 million in short and long-term debt in FY2010 and FY2012, grants, and system development charges to finance capital projects and fully fund operating reserve requirements for the 2005 \$101 million Revenue bond.

Roads

Guam's road network is just less than 1,000 miles long. Of this total, 420 miles of roadway are classified as non-public. Of the 550 miles of public roads, approximately 144 miles comprise the primary and some secondary roads.

In order to maintain Guam's Territorial Highway system, the Government of Guam receives \$18.4 million from the U.S. Department of Transportation's Federal Highway Administration (FHWA). From 2008 to 2011, the Government of Guam has received \$246 million from various federal allocations.

The Government of Guam has entered into an agreement with FHWA to establish standards on how to utilize federal funds on various projects and implementation of policies. Guam Department of Public Works will be executing the programs agreed upon by the Government of Guam and FHWA. In 2008, in order to formulate the 2030 Guam Transportation Plan, the Guam Transportation Group was formed consisting of members of organizations such as Department of Public Works, Federal Highway Administration, Office of the Attorney General, the PB Americas, Parsons Transportation Group, and Galaide Group.

In 2010, the 2030 Guam Transportation Plan (GTP) was approved by the Guam Legislature and became an official component of the island's Comprehensive Development Plan. The 2030 GTP is a long-term strategy to improve Guam's transportation system, and it incorporates improvements of roadways and mass transportation, while accommodating pedestrians as well as bicycles. The 2030 GTP also addresses other issues such as the proposed Military Buildup.

Airport Transportation

Since 1945, all civilian air traffic arriving and departing from Guam have used the naval airfield and facilities at Naval Air Station (NAS), Agana. In 1974, a Joint Use Agreement was signed between the Navy and the Guam Airport Authority (GAA) allowing shared use and responsibility of the runway, taxiway, and aircraft rescue and fire-fighting facilities. As part of that agreement, the Navy also transferred 68 acres of land in the northeastern corner of the base to Guam.

For many years, the Government of Guam has petitioned the Navy to return the airfield to GovGuam ownership. The 1993 Base Reuse and Closure Commission ordered the closure of NAS Agana. On October 14, 1994, the Department of Defense issued a Notice of Surplus Determination declaring major portions of NAS to be surplus property. Having met the transfer criteria, NAS, now referred to as Tiyan, was deeded to the Government of Guam in September 2000. Of the 1,806 acres involved in the transfer, 1,417 acres fall under the purview of the Guam International Airport Authority (GIAA), which operates the Antonio B. Won Pat Guam International Air Terminal.

The net effect of this expansion was the increase in passenger processing capacity. Previously, passenger processing was 1,500 passengers per hour; now, processing capacity is 5,000 passengers per hour, easily accommodating projected arrivals. The airport also services nine air cargo carriers, which in 2010 moved more than 31,614 metric tons of cargo.

By 2007, the total economic contribution of Guam's airport totaled \$1.7 billion dollars in direct, indirect, and induced financial activity. In 2008, the airport was able develop its air cargo facilities through the investments of several firms, which totaled \$35.5 million. In 2009, GIAA officially opened its new Integrated Air Cargo Facility, housing office and warehouse spaces.

Seaport Facilities

The Port Authority of Guam's Commercial Port was initially established in March 1950 as a division of the Guam Department of Commerce. It was originally located on 24.5 acres of U.S. Navy property within Inner Apra Harbor. In 1966, the Commercial Port became a separate department of the Government of Guam; in October 1975, the Commercial Port was renamed the

Port Authority of Guam (PAG) and was reestablished as a public corporation, making it an autonomous agency.

In 2009, PAG had a total of 989 vessel calls, a majority of which were fishing vessels. In the same year, PAG handled over 94,000 containers and moved approximately 1.8 revenue tons. PAG's operating revenue for the FY 2009 was \$30.5 million.

Improvements and the modernization of PAG have been long overdue. In 2007, a plan was drafted regarding the development of the port, as well as in anticipation of the proposed military buildup, which include upgrading the Terminal Operating System, expansion of wharf space and existing facilities, acquisition of additional cranes. In 2009, the Commercial Port Master Plan, which guides port development, was approved by the Guam Legislature and became an official component of the island's Comprehensive Development Plan. By the end of 2009, parts of this plan have been realized, including acquisition of cranes, rail replacements and wharf upgrades. Improvements such as the installation of new lighting, surveillance systems, and fire pumps have also been made possible under the Port Security Grant Program.

Today the Port owns and operates four recreational boating marinas, four berths used for fishing vessels, container vessels, as well as general cargo and passenger vessels. The port also includes storage spaces for containers, automobiles and other cargo storage.

Housing and Land

In recognition that only through urban redevelopment would villages be rebuilt, the Guam Housing and Urban Renewal Authority (GHURA) was created in 1962 after the devastation caused by Typhoon Karen. GHURA is charged with the responsibility of undertaking and pursuing an active urban renewal program to eliminate and prevent the development and spread of slums and blighting influences on Guam.

One of GHURA's purposes is to provide "decent, safe, and sanitary" housing for low-income families. Some of its programs include: the "GHURA 500" project, which began in FY 1977; the Low Income Public Housing project under which 833 units have been built in various villages, including 82 units especially designed for elderly and/or for persons with disabilities; the Section 8 Housing Assistance Program, through which GHURA subsidizes rental payments for over 1,400 families; and the Guma Trankilidat project, which developed 50 units designed specifically for the elderly.

In 1965, the Guam Housing Corporation (GHC) was established in order to provide affordable housing for the community. In FY 2009, GHC has been able to obtain 115 houses and 24 apartments for low- to moderate-income families and generate operating revenue of \$2.8 million.

According to the Guam Real Estate Market Update, in the beginning of 2011, mixed signals dominated the housing sector as the median price of a Guam single family home soared 18 %from a year earlier to \$260,000, pushing the affordability index into increasingly unaffordable levels. The Guam median home price is now 53% higher than the national average of \$170,000. The median price has doubled during the past decade, "...partially due to market recovery and partially due to a change in product mix", according to Captain Real Estate Group President Nick Captain.

The median price increase occurred as transaction activity has slowed significantly with only 118 units closing during the first quarter of 2011, reflecting the slowest pace in 8 years (except for 113 units sold during peak of financial crisis in Q1 2009). Stricter lending guidelines are one factor contributing to what could be Guam's first major housing crisis in 20 years as federal regulators have proposed rules that will likely boost interest rates and fees on many low-down payment loans. Families looking to enter Guam's homeownership market have also been recently hit by massive utility connection fees and increasing utility costs, further eroding the ability to pay mortgage costs. As housing costs soar, the inventory of vacant housing becomes an increasingly critical component of projecting future demand. However, GHURA's recently completed Comprehensive Housing Study estimates the number of vacant housing units at 9,125 (2009) while the federal government's recent estimate reflects 2,800 units, a difference of over 300%.

As the number of housing units sold declines, the inventory of unsold units is increasing to unhealthy levels. Based on Q1 2011 sales volume and a Multiple Listing Service capture rate of approximately 40 percent, the inventory of unsold homes on Guam reflects nearly 15 months, compared to just 6 months on Oahu, Hawaii.

Condominium sales volume during the first quarter of 2011 surged to nearly \$13 million. In the past quarter, condominium sales included 9 units sold at prices above \$500,000, as the high-end market continues its recovery from the recent lows in 2009. The condominium sector has been reflecting less volatility due to increasing investor confidence in Guam's economic future.

During the first quarter of 2011, overall quarterly real estate sales volume on Guam exceeded \$100 million for only the second time since mid-2008, and quarterly island-wide sales volume reflected a 60% growth from a year earlier. The sales volume was boosted by the closing of the former Hotel Okura property in Tumon, which sold at a price over \$20 million. Future aggregate sales volume figures are likely to be impacted by foreign investment trends, which have been rebounding primarily due to progress on the military buildup. However, the impact of the triple disasters in Japan on Guam's real estate market remains unclear.

Excess Federal Lands

In September 2000, the U.S. Navy conveyed a total of 1,800 acres of excess federal lands, via quitclaim deed, to the Government of Guam. This transfer represented the single largest land transfer since 1950. Approximately 1,400 acres of this total was transferred to the Guam International Airport Authority for the airport expansion and is now being used for related economic purposes. Approximately 248 acres was transferred for economic development purposes and for use by former landowners to: a) provide opportunities to stimulate Guam's economy, b) create long-term employment, and c) maximize financial returns. The remaining acreage at the former Naval Air Station Agana was intended to be used for homeless shelters, park, and highway purposes.

According to P.L. 103-339, the Government of Guam is to receive 3,200 acres of land for civilian use. Much of this property has already been transferred to the Government of Guam, and it is expected that once properties have been transferred to their new owners as required by local law, additional economic activities will be implemented.

In 2002, an executive order states a series of public laws expressing excess public lands must be transferred to the Guam Ancestral Lands Commission (GALC), to be returned to their original owners. The duties of GALC extend not only to return the land to their owners, but also to assist ancestral landowners in utilizing their property.

In 2007, a Memorandum of Agreement between the U.S. General Services Administration and the Guam Historic Trust Officer initiated the return of 450 acres of land containing the historic village of Hila'an. In 2011, the agreement was fulfilled. The Harmon Cliffline is another area to be returned to the Government of Guam. Prior to the slated return of the Harmon Cliffline property, the United States Air Force authorized non-profit organizations to use these properties. As of 2008, the Government of Guam has entered into lease agreements with these non-profit organizations which will be relocated in order for the area to be surveyed in preparation for the return of the Harmon Cliffline properties.

While the return of Hila'an and the Harmon Cliffline may be an indication of a decreased federal footprint on Guam, the Department of Defense has certain lands as areas of interest for the proposed Military Buildup. The Department of Defense has declared Route 15 lands, holding the historic Pãgat Village within its perimeter as a possible location for a firing range.

Investment Incentives

The Government of Guam offers various incentives to attract economic activity from both overseas domestic and foreign business interests. Unfortunately, Guam's investment incentive programs have not kept pace with changes in international trade and commerce. Efforts are currently underway to address this situation in order to develop a Guam investment incentives package which can more effectively compete with investment incentive packages offered by other major domiciles.

Historically, Guam's status as a duty-free port allowed ample opportunity to import materials for manufacturing. Guam is a participant in two major trade programs that benefit export-oriented manufacturing, namely, Headnote 3(a) of the U.S. Tariff code and the Generalized System of Preference (GSP). For Guam to benefit from either of the two programs, it would have to attract an industry wherein the product normally has a high duty in the importing country and the component costs are considerably lower than in the country to which it is exported. Over the years, changes in Headnote 3(a) have resulted in the program being less attractive to domestic and foreign establishments that led to the demise of the light manufacturing sector of Guam's economy. Efforts are underway to review these changes and encourage amendments to the program to bring the program back into viability.

The Qualifying Certificate (QC) Program, created under Public Law 8-80 and amended under PL 20-178 and PL 22-159, is administered by the Guam Economic Development Authority (GEDA). It was conceived in 1965 as an economic incentive tool to encourage investment activities that would strengthen the island economy, enrich its growth, and enhance the quality of life in Guam. This program has proven to be highly successful, particularly in the development of Guam's primary industry – tourism.

QCs for tax incentives are granted to investors for business ventures on the basis of investment commitment, job creation and expansion of the island's industrial base, and are aimed primarily at hotel developers and tourism development firms, manufacturers, insurance companies, reinsurance companies, captive insurance companies, Guam-based trusts, telecommunications, Internet-based companies, commercial fishing, transshipment companies, and recycling companies.

Qualified businesses may be granted up to 75% rebate of corporate income tax for up to twenty years; up to 75% rebate of corporate dividends tax for up to five years; up to 100% abatement of real property tax for up to ten years on property utilized by the QC beneficiary to operate its business; and up to 100% abatement of gross receipt tax on income derived from the sale of alcoholic beverages and petroleum products manufactured in Guam for up to ten years. GEDA also offers special incentives for captive insurance, trusts and recycling (PL 23-109, PL 24-266, and PL 23-127).

In addition, as a means of reducing the tax burden and simplifying tax reporting requirements for small businesses, the "Dave Santos Small Business Enhancement Act" was adopted in 1997. The act reformed Guam's Gross Receipts Tax filing requirements by exempting the first \$50,000 of annual rental income, and exempting the first \$50,000 of gross annual income received from retailing services and other rental activities.

Planning and Economic Development Activities

In March 1990, Guam Public Law 20-147 created the Guam Planning Council. Public Law 26-76 transferred the responsibility for a Comprehensive Development Plan for Guam to the Bureau of Statistics and Plans (BSP). The Comprehensive Development Plan:

- Serves to guide the physical, social, and economic growth and development of the island;
- Reflects the goals and aspirations of the people of Guam as they relate to land use, physical infrastructure, social infrastructure, economic development; and the quality and standard of living desired by the people;
- Expresses the policy requirements and directives sought by the people of Guam as a means of achieving rational and balanced physical and socio-economic development that protects and sustains the present and future livelihood of the island's people.

The BSP is responsible for the development of a Guam Comprehensive Development Plan that incorporates four (4) major components:

- Land Use Component (Land Use, Public Facilities, Housing, Recreation, Seashore Reserves, Community Design, Public Buildings, Public Lands, Conservation, Safety—Hazard Mitigation—and Regulations);
- Physical Infrastructure Component (i.e., Transportation, Public Facilities, Utilities, and Capital Improvements);

- Social Infrastructure Component (i.e., Education, Health Services Support, Cultural Arts and Humanities, and Public Safety);
- Economic Strategy Component (i.e., Economic Development, Integrated Communications, Finance, and Tourism).

In 2000, the former Guam Planning Council received updated status reports on the following studies:

- The Guam Integrated Solid Waste Management Plan – a comprehensive study addressing the management of the island’s solid waste and methodology for disposal prepared for the Guam Environmental Protection Agency.
- The Department of Education 10-year Capital Facilities Plan – a comprehensive study of schools, inclusive of design types, through 2010; the location of these schools; student enrollment projections for the next 10 years; and an aggressive maintenance plan for the public educational facilities on Guam.
- The Guam 2010 Highway Master Plan – a short and long range study addressing the improvement of Guam’s thoroughfare system, concerns related to the completion of the plan, and timelines for each project identified in the plan.
- The Port Authority of Guam Master Plan – a comprehensive study of Guam’s only commercial seaport with analyses and recommendations related to the current market, existing port conditions, existing land use, and forecasts and demand-capacity.

With the announcement of the pending military buildup in 2006, plans to guide Guam’s development once again began going through the process of becoming official elements of Guam’s Comprehensive Development Plan (CDP). This process includes the review and approval by Guam’s Governor prior to the Governor transmitting the document to the Guam Legislature for final approval and inclusion in the CDP. Between 2006 and June 2011, the following master plans have been adopted as official elements in the CDP or are in the adoption process:

- Jose D. Leon Guerrero Commercial Port of Guam Master Plan Update 2007, Jose D. Leon Guerrero Commercial Port of Guam, adopted 2008
- 2030 Guam Transportation Plan, Department of Public Works, adopted 2009
- North and Central Guahan Land Use Plan, Bureau of Statistics and Plans, adopted 2011
- Guam Comprehensive Mitigation Policy, Bureau of Statistics and Plans, adopted 2011
- Village Streets Master Plan, Department of Public Works, going through adoption process 2011

- Stormwater Drainage Master Plan, Department of Public Works, going through adoption process 2011

Capital Improvements Projects

According to the Office of the Public Auditor, from fiscal years 2007 to 2009, the Department of Public Works (DPW) spent \$25.9 million on 566 Capital Improvement Projects (CIP). The Department of Public Works authorized the procurement of involving different agencies within the Government of Guam. The various CIP's include improvements to public school structures, such as emergency repairs as well the installation of typhoon shutters and construction of emergency shelters to ensure disaster-readiness. Other projects of the Department of Public School System include the reconstruction of F.Q. Sanchez Elementary and JFK High School.

The Department of Parks and Recreation (DPR) also had a number of projects included in the CIP. In 2009, the Guam Sports Complex Baseball Park had its groundbreaking ceremony. The completion of the Heritage Trail and improvements to the Santos Memorial Park were also a part of this project. The CIP also included improvements to the Merizo Pier and Agat Marina.

The Department of Agriculture (DOAg) is also undergoing improvements in existing facilities as well as the construction of new ones, such as a new Nursery. DOAg's projects include improvements to the Masso River Reservoir, with the addition of a generator and generator room to the DOAg establishment, the construction of a new Fisheries office building, and the holding enclosures for the endangered Guam Kingfisher.

Various agencies also received funding for renovations, such as Department of Health and Social Services, Guam Housing Corporation, and Department of Youth Affairs. Other projects under the CIP include fortifying the Department of Corrections Facilities in Hågatña and Mangilao, and the construction of the Guam Police Department's Forensic Crime Lab.

D. PRIVATE SECTOR

Agriculture

Guam's agricultural industry employed 340 people out of Guam's total workforce of 60,950 in 2009. According to the 2007 Census of Agriculture published by the U.S. Department of Agriculture, Guam produced a total of \$2,436,223 in crops, including root crops, vegetables, fruits, nuts, melons and nursery crops, and utilized 495 acres of land throughout 95 farms.

The Agricultural Board of Commissioners, created by Public Law 20-176 in 1990, reviews and makes recommendations regarding zoning, pest control, and preparation of an agricultural development plan, agricultural loans, and related matters. Plans and programs of the Department of Agriculture include Farmers' Registration, Agricultural Water Rate (P.L. 9-42), the Plant Nursery, and Agricultural Land Lease that consists of the administration of 48 agricultural land leases for commercial agriculture. In recent years, Guam has been infested by the rhinoceros beetle, which is a great threat to Guam's coconut trees. In response, the Department of Agriculture assembled two branches to partake in the eradication of the rhinoceros beetle.

Guam's agricultural activities extend outside the Department of Agriculture. The Guam Legislature introduced a bill to appropriate \$255,930 to the University of Guam to support the startup of the Farmers Cooperative Association of Guam. The 2009 action plan of the Farmers Co-op included developing strong internal operations, setting up a retail and office space, and establishing relationships with the Guam Restaurant and Hotel Association, Micronesian Chefs Association, Cooperative Extension Service, as well as the Department of Agriculture. The Farmers Cooperative Association of Guam's plan also included working with ancestral lands in order to define a site for a farmers' market, establishing outside support for the Co-op's efforts, and developing fiscal operations. In 2010, the Farmers Co-op launched their first night market in Dededo where local farmers sold their produce.

Aquaculture

Aquaculture represents a part of the economy that still has great untapped potential within Guam's economy. The aquaculture industry is relatively new to Guam with the first experimental and demonstration farm having been established in 1973. The first commercial operation began in 1975 and since then, the industry has grown significantly despite numerous obstacles.

As of 2005, the Guam aquaculture industry generated approximately \$7 million. In 2002, Guam had 6 commercial fish farms; while in 2007, Guam had 3 commercial fish farms. Examples of Guam's aquaculture produce are tilapia, milkfish, catfish, and marine shrimp. Furthermore, Guam has the potential to venture into offshore aquaculture using submersible cages, and the potential for giant clam and pearl farming. Guam has also begun culturing ornamental fish, such as clownfish and the neon goby.

In an effort to develop the aquaculture industry, the Guam Aquaculture Growers Association was established to form a cooperative to increase sales and lobby for less stringent processes when applying for power and water to support aquaculture activities.

Fisheries

The Guam Fisherman's Cooperative Association was established as a private, non-profit organization in 1977 to assist fishermen with promoting their catch. The Fisherman's Co-op has a 65-year government lease for two acres of land adjacent to the Hågatña Boat Basin. The annual sales of the Fisherman's Co-op are approximately \$1 million. It has introduced certain incentives to promote and develop a small-scale fishery, such as providing education on seafood safety and harvest handling of seafood, establishing safety-at-sea programs, providing discounted prices for fishing supplies while supporting local businesses, and purchasing all fish harvested by members.

The annual average amount of fish caught has been declining over the years as participation and number and duration of fishing trips continue to decline. Annual catch rates are 50,000 pounds for reef fish species, 10,000 pounds for shallow and deep fish, and 200,000 pounds for trolled fish. The Guam Fisherman's Co-op generates an annual revenue of \$750,000.

Currently, conservation measures are imposed on the Fishermen to ensure sustainability. Furthermore, the Fisherman's Co-op is facing challenges brought on by federal regulations, the

Marine Preserves, the Military Range Complex that restricts access to a large fishing area in the south, and the closing of Ylig Bridge that prevents access to eastern waters.

Construction

The construction industry accounted for a significant share of the island's economic boom in the early 1970s. Construction receipts accounted for approximately one-quarter of the Government of Guam's gross business receipts during this period. Following the economic recession in the mid-1970s, construction receipts fell 40% from \$109 million in 1974 to \$64 million in 1976.

Construction was once again on the upswing in 1977 and 1978 following Super typhoon Pamela in May 1976. Over \$200 million in federal funds were authorized for typhoon relief and reconstruction of damaged military, civilian, and government facilities during this period. Over \$70 million in defense construction projects were completed during fiscal year 1978 as compared with approximately \$48 million during the previous two-year period. Construction receipts rose to an estimated \$75 million in calendar year 1977 and \$111 million in 1978.

The construction industry's importance to Guam's economy continued through the 1980s with Table 15 showing its contribution in terms of employment growth, which averaged almost 47% per year between 1985 and 1990. During the same period, construction jobs averaged 10.57% of all jobs on the island.

Table 15: Construction Employment on Guam: 1985 to 2010

Five Year Period	Average Annual Growth Rate of Construction Jobs	Share of Construction Jobs to Total Employment
1985-1990	46.72%	10.57%
1990-1995	-1.15%	14.97%
1995-2000	-9.08%	9.91%
2000-2005	0.59%	7.57%
2005-2010	9.21%	9.72%

Source: Guam Department of Labor - Bureau of Labor Statistics, Annual Census of Establishments: Summary Tables March 1985-2009; Current Employment Survey (March 2011).

In 1993, Guam's building sector again began to grow with the opening of several new tourist facilities, including the 448-room Hyatt Regency Hotel (\$150 million); 291-room Parc Hotel, now the Holiday Resort (\$60 million); 381-room Leo Palace Hotel, now the Westin Resort Guam; and 200-room Leo Palace Resort (\$600 million). A new hotel is currently being built in Tumon by Tanota Partners. Various construction projects are also in the works, including affordable housing and gated communities, as well as beachfront properties. In Oka, Tamuning, construction has begun for high-rise condominiums, four in total costing \$100 million.

In 1995, the U.S. Department of Defense put out to bid more than \$124 million in naval construction projects. Over 300 family housing units were scheduled to be built in Apra Heights at an estimated cost of \$56 million. Other projects included a hangar apron (\$29 million) and child development center (\$2.9 million) at Andersen Air Force Base; a hazardous material storage

facility (\$14.8 million); a Tomahawk missile magazine (\$8.2 million); and an additional storage facility (\$5.2 million).

During the period from 1986 to 1997, foreign-owned companies dominated Guam's construction industry. Foreign contractors enjoyed favorable currency exchange rates and minimal enforcement of employment regulation laws. Until 1997, wages in the construction sector had been depressed mainly because of immigrant labor under the H-2 program that allows employment of temporary workers, especially when certain job skills are not available locally. In 1997, the U.S. Department of Labor initiated a series of increases in the minimum wage given to H-2 workers in the construction industry, which were expected to increase construction costs by as much as 40%, compared to an increase from the rising prices for construction materials.

Table 15 shows that during the period 1990-1995, rate of construction jobs slowed by -1.15% per year, although these jobs continued to make up a significant share (almost 15%) of all jobs on Guam. It was not until the period 1995-2000 when a significant decline in construction jobs occurred at 9% per year, thus reducing the total share of construction jobs (average of 9.91%). This decline reflected the negative impact of the Asian financial crisis and the crash of a Korean airliner, both occurring in 1997. Table 15 shows that the decline in construction jobs appears to be ending in the 2000-2005 period after reaching the lowest point where the share of construction jobs reached 5.8% in 2002.

In FY 2000, the total number of building permits issued was 1,278 (valued at \$152 million). Since then, the number of building permits issued has been decreasing, with the lowest number of building permits issued at 803 (generating only \$88.9 million). The number of building permits was at its peak in 2003, with 1,576 building permits issued. However, building permits in 2003 only generated \$120 million. In 2007, the value of building permits peaked at \$319 million, with 1,294 building permits issued. In FY 2009, only 889 building permits were issued (the second lowest number since 2000), valued at \$246 million. The types of building permits issued in FY 2009 included 257 residential, 1 apartment, 1 condominium, 18 commercial, 3, industrial, 54 Government of Guam, and 336 miscellaneous. Despite the decline in the number of building permits issued, the rate of employment in the construction industry has increased, from 3,950 workers employed in FY 2000 to 6,530 construction workers.

In FY 2000, the U.S. Senate also passed a military construction appropriation for Guam. That construction package (totaling \$103 million), included \$8.2 million for phase one of the Guam Army National Guard Readiness Center; \$17.5 million for the Army Reserve Center maintenance shop; \$8.9 million for closure of the Andersen Air Force Base landfill; \$44.1 million for the new Andersen Elementary School; and \$24.3 million for the Defense Logistics Agency fuel support point.

The 2006 U.S.-Japan Agreement that stipulated the military buildup sparked a new boom in construction on Guam, resulting in a 9.21% average annual growth of construction jobs between 2006 and 2010, restoring the share of construction jobs to 9.72% of all jobs on Guam. The military buildup has attracted the attention of construction companies outside of Guam. Furthermore, the anticipated construction boom had an effect on Guam's real estate. Sales have risen from \$130 million a year in 2000 to approximately \$687 million in 2007. Property values have increased drastically. The price of a home was approximately \$115,000 in 2003 and now has risen to about

\$260,000. The most significant increase in real estate prices, driven largely by speculation, occurred after the 2006 Agreement was announced and continued into the first part of 2008. Consequently, a market correction took place in 2008-2010 to restore real estate prices to more realistic levels.

The recovery of construction during 2006-2010 was also aided by an increase in contracts awarded by the Department of Defense for work on Guam. Table 16 shows the amount of military transactions awarded between 2000 and May 2011. A large portion of each amount constitutes awards for construction projects.

Table 16: Department of Defense Projects Awarded for Work on Guam: 2000-May 2011

Year	DoD Transactions Awarded for Work on Guam (in millions \$)
2000	\$234
2001	\$215
2002	\$285
2003	\$511
2004	\$345
2005	\$394
2006	\$424
2007	\$505
2008	\$620
2009	\$423
2010	\$634
Jan-May 2011	\$135

Source: <http://www.usaspending.gov>, retrieved May 20, 2011

Financial Institutions

The Twenty-Fifth Annual Report of the Banking Commissioner for the year ending December 31, 2007 has listed the following licensed financial institutions on Guam: one (1) national bank; three (3) state banks; three (3) state (territorial) banks; two (2) Guam chartered commercial banks; five (5) foreign banks; one (1) savings and loan association; three (3) foreign banks; three (3) offshore lending facilities and ten (10) finance companies. The combined total assets of these financial institutions as of December 31, 2007 to do business in Guam was \$2.879 billion, an increase of \$152 million which is a 5.56 percent increase compared to 2006 total assets of \$2.727 billion.

The system of U.S. State and Federal banking regulations is known as the dual banking system, which allows both State (i.e. Territorial) and Federal governments to charter and regulate banks. Federal regulators include the Federal Reserve that regulates banks and bank holding companies, and the Office of the Comptroller of the Currency that charters and regulates national banks. In addition, the Federal Deposit Insurance Corporation (FDIC) serves as the insurer of both national and state-chartered banks. National and territorial banks are automatically members of the Federal Reserve and must be insured by the FDIC.

Deposits for all financial institutions totaled \$1,948,070,000 as of March 2010. Total loans for the same period were \$2,711,408,000.

Healthcare

The Guam Memorial Hospital Authority (GMHA) is the only civilian in-patient medical facility that serves the public sector. GMHA has a capacity of 172 acute care beds and 30 long-term care beds. The U.S. Naval Hospital primarily serves the military sector. There are three community/public health centers – one located in the North, one in the South, and one in central Guam. Guam has 271 doctors in different fields of medicine and 92 medical clinics. The following table indicates the number and medical specialty of doctors on the island.

Table 17: Number of Physicians on Guam by Specialty: 2011

Medical Specialty	Number of Doctors on Guam
Acupuncture/Orient Medical Doctor	3
Aerospace/Preventive Medicine	1
Anesthesiologist	12
Behavioral Health	17
Cardiologist	3
Chiropractor	14
Dermatologist	2
Emergency Doctor	3
Endocrinologist	1
Family Practitioner	44
Gynecologist	1
Hand Surgeon	1
Hematologist	1
Infectious Disease Specialist	2
Internal Medicine Specialist	31
Maxillofacial/Oral Surgeon	1
Neonatologist	1
Nephrologist	9
Neurologist	4
Neurosurgeon	2
Obstetrician/Gynecologist	18
Occupational & Environmental Health	1
Oncologist/Hematologist	2
Ophthalmologist	9
Optometrist	14
Orthopedic Surgeon	6
Otolaryngologist	2
Pathologist	2

Medical Specialty	Number of Doctors on Guam
Pediatrician	21
Physical Therapist	5
Plastic Surgeon	1
Podiatrist	4
Preventative Care/Wellness	1
Psychiatrist	4
Pulmonologist	2
Radiologist	14
Rehabilitation/Physical Medicine	1
Sleep Medicine	1
Surgeon	8
Urologist	2
Total	271

Source: Guam Medical Association Directory

There are 44 dentists and 24 dental clinics on Guam. The following table indicates the number and dental specialty of dentists on the island.

Table 18: Number of Dentists on Guam by Specialty 2011

Dentist by Specialty	Number of Dentists on Guam
General Family Dentist	35
Oral and Maxillofacial Surgeon	1
Periodontist	1
Orthodontist	1
Endodontist	1
Pedodontist/Pediatric Dentist	5
Total	44

Source: Guam Medical Association Directory

Retail and Wholesale Sector

Guam's retail and wholesale sectors are components of Guam's economy that are heavily influenced by the growth of tourism and lifestyle improvements. In the last two decades, these sectors have developed remarkably. In 1999, they employed 13,660 persons out of a total of 60,340 (22.6%). By 2005, it was reported that tourism directly supported 10,412 full-time and part-time jobs. This economic activity generated \$378 million in local wages. Furthermore, according to the report, the total economic impact of visitors on Guam ranges from 20% to over one-third of the total island economy, a contribution totaling \$664 million in 2005 or 20% of GDP.

Shopping on Guam is one of the main attractions for tourists and is a significant contributor to the local economy. Retail spending accounts for an estimated 43% of all tourism spending. In 2008, the Guam Visitors Bureau (GVB) reported 1,179,246 visitor arrivals to Guam, with each tourist spending an average of \$600 on-island.

In 2010, the average local spending of the Japanese visitor dropped to \$499.40, a 33% decline from \$666.21 spent in 2006. Spending dropped substantially even with the stronger yen. Even though the average expenditure of Japanese visitors has declined, their expenditures significantly impact Guam's retail sales, as Japanese visitors comprise the vast majority of Guam's tourist market.

However, the average local spending of visitors from Korea and Taiwan has demonstrated a general increase: Korea - \$435 in 1998, \$449 in 1999, \$513 in 2000; Taiwan - \$430 in 1998, \$310 in 1999, \$630 in 2000. Furthermore, military and other temporary residents (i.e. contract labor from Asia or the United States) contribute substantially to Guam's retail sales by making a significant portion of their lifetime purchases on durables while on the island.

Telecommunications

Guam possesses the most advanced telecommunications infrastructure and systems in the western Pacific region. The island sits at the nexus of the Pacific's underwater fiber optics cabling network with more terminating cable connections than anywhere else in the world, making Guam a telecommunications hub for numerous international providers.

The Guam Telephone Authority (GTA) was initially created as an autonomous agency of the Government of Guam and had been in operation for over 40 years. In 2004, the privatization of GTA was approved after a six-year process. GTA was the sole landline service provider until Marianas Cable Vision (MCV) began providing telephone services.

As a result of the Telecommunications Act of 1996, Guam was included in the U.S. Domestic Rate Structure. As part of the North American Numbering Plan, long distance rates to the U.S. mainland now average between 5 and 30 cents per minute, depending on the time of day and day of the week. Due to increasing competition and the introduction of pre-paid calling cards, international rates are less expensive. Currently, there are seven companies that offer long distance services on Guam, five of which also offer cellular phone services as well as other wireless services, which allow users to talk, text and surf the Internet.

Tourism

Guam's visitor industry over the last two decades experienced a number of challenges after growing dramatically since its inception more than forty years ago. Despite these challenges and its relatively brief history, tourism clearly is Guam's leading economic sector, still accounting for up to 60% of the government's annual revenues and with services, including hotels and lodging, providing more than 26% of Guam's total payroll employment.

The year 1967 is generally recognized as Guam's first year of tourism when approximately 6,600 tourists visited the island. In 1994, visitor arrivals surpassed 1 million, grew by another 25% in 1995, and increased to almost 1.4 million in 1997. Late in that year, a fatal Korean Airlines crash, a major typhoon and a softening Asian-Pacific economy, suddenly brought to a halt the momentum of Guam's tourist industry.

Government and private sectors soon joined forces to augment promotional efforts in Japan, Korea, Taiwan, and other target markets in order to mitigate the downside effects of declining tourist arrivals. With the gradual recovery of Guam's major markets since 1997, the island's economy has managed to steadily rebuild visitor arrivals to over 1.2 million in 2000.

For nine straight years, visitor arrivals to Guam have surpassed the million mark. However, while visitor arrivals increased annually between 1997 and 2000, they declined in 2001 and 2002. Tourist arrivals have struggled in the midst of a worldwide economic slump, compounded by the September 11, 2001 terrorist attack on the World Trade Towers, the invasion of Afghanistan by the United States and its allies, the war with Iraq, and the fury of Typhoon Chata'an and Supertyphoon Pongsona in 2002.

The GVB Five-Year Strategic Plan introduced in 2007 outlined the need to develop a cohesive destination brand image for Guam. With the diminished forecast of visitors and increased competition, the need to promote a differentiated brand worth visiting with longer duration of stay and repeat visitors was determined as key to maintaining and increasing market share. Destination branding initiatives gained more traction in the community, anchored by active participation of the Mayors' Council, and emerging efforts of newly created events and festivals introduced in the villages. Examples of these efforts include colorful murals designed by village residents and products being showcased as specialty items in village festivals, such as the Mango Festival in the village of Agat and the Banana Festival in Talofofo. More than 5,000 employees in more than 50 companies and organizations are now participating in the Hafa Adai Pledge project, a program designed to promote and practice the island's cultural and hospitality spirit.

In all, 90% of all visitors to Guam are from Asia with the balance made up of visitors from the United States, neighboring Pacific islands and other areas. Visitors from Japan comprise the largest share of Guam's market mix with close to 80% of all arrivals to Guam. Guam's market share in 2010 was 5.4% of the Japanese tourist market of 16.6 million outbound travelers. Unfortunately, the Guam Visitors Bureau's purchasing power in source markets was impacted in recent years by the yen's +27% rise since 2008, thereby limiting its advertising and public relations expenditures, especially in Japan. The global economic recession of 2008 also played a part in diminishing international travel arrivals to Guam.

The latest Guam Restaurant and Hotel Association statistics show Guam's hotel room inventory at 7,695 hotel rooms, up from 6,797 rooms in 2007. One of the more anticipated hotel development projects will be the tallest building on Guam when it is completed in the spring of 2012. According to developer, Tanota Partners, this \$95-million hotel will create 400 new jobs in the hospitality industry. The new project will result in a thirty-floor hotel that will have 1,000 rooms, a five-level parking garage, and a 14,000-square-foot convention center that will hold up to 2,000 people. In the most recent fiscal year ending October 31, 2010, hotel room occupancy rose 10 percentage points to 70% (weighted average), and average room rates remained the same as the previous year at \$110. Hotel room taxes collected for the year was up +11.9% to \$21.7 million.

Visitor arrivals in 2011 are anticipated to further decline as a result of Japan's earthquake and tsunami events last March. The number of Japanese heading overseas has fallen from a year ago, reflecting the overwhelming mood of self-restraint among Japanese, discouraging activities such as travel. The tally of Japanese overseas travelers is expected to reach 15,659,000, off by -27.81% from the previous year. Higher fuel surcharges are also hitting outbound travel demand to destinations like Guam.

With the many hurdles facing Guam's tourism industry, businesses are challenged to focus on recapitalizing the island's tourism plant. Efforts are underway to restore and upgrade the island's deteriorated cultural and historic assets in order to validate and sustain Guam's differentiated brand identity, continue to be a competitive destination, and ensure the long-term viability of Guam's tourism industry.

ECONOMIC DEVELOPMENT CHALLENGES AND OPPORTUNITIES¹



An analysis of the environmental factors or conditions that are relevant to Guam's prospects for economic development is a good starting point for evaluating the challenges and opportunities that are available to Guam. In this regard, several descriptors have been identified to describe key characteristics of the Guam economy: (1) a small island economy that is relatively open that is (2) currently lacking economic diversification but (3) endowed with natural resources and a (4) multicultural society. It is (5) an unincorporated U.S. territory (6) located strategically in Asia-Pacific. Each descriptor presents Guam with challenges and at the same time opportunities.

A. SMALL ISLAND OPEN ECONOMY

Small Domestic Economy

Guam's smallness can be measured in several ways. First is in terms of its small population, which is estimated to be around 180,000 people and, consequently, a small labor force of around 74,950, of which 64,970 (86.7%) are employed and 9,970 (13.3%) are unemployed based on the latest unemployment report in March 2011 (Guam Bureau of Labor Statistics). During stronger economic periods when labor demand exceeds the available labor force, Guam has supplemented its local labor force with those from the U.S., neighboring islands that are freely associated with the U.S., and the use of foreign workers.

Guam is also small in terms of economic size. The latest estimate of its overall economy, its Gross Domestic Product, GDP (also referred to as Gross Island Product, GIP) is for the year 2009 and valued at \$3.9 billion (U.S. Department of Commerce-Bureau of Economic Analysis, 2010). Per Capita Income for 2010 was \$12,864, a decrease of \$225 or 1.7% from calendar year 2008.

Guam's small population and relatively lower per capita income have prevented many businesses from achieving economies of scale and producing goods and services to local residents at lower prices. Not surprisingly, the cost of living on Guam is high but not different from other small island economies, including Hawaii. Guam's lack of economies of scale also presents challenges to autonomous government agencies that provide utilities and is also an obstacle from current efforts toward recycling, which have required recyclable materials to be gathered and then shipped off-island for recycling.

Guam's smallness also manifests itself in terms of its limited productive resources. The prospects of significant economic growth from the pending expansion of the U.S. military presence on the island have created expectations of shortage in available resources, including labor of different skills (including construction-related) as well as physical, social and institutional infrastructure. In

¹ This section is based largely on Ruane, Maria Claret M. (2011). "Economic Development Prospects for a Small Island Economy: The Case of Guam", *Journal of Economics and Economic Education Research*, forthcoming.

addition, the limited productive resources available to Guam can be viewed as both cause and consequence for the island's lack of economic diversification.

Open Economy

Like many small economies, Guam is a relatively open economy, especially in trade of goods and services. Guam imports around 36% of its GIP, showing a high dependence on imported supply but not quite common among small island economies in the Pacific. Guam's exports have primarily come from services to tourists, which account for 16.5% of its GIP (U.S. Department of Commerce-Bureau of Economic Analysis, 2010). The heavy reliance on tourism makes Guam vulnerable to external shocks that affect its main tourist markets, primarily Japan, including most recently the March 2011 earthquake and tsunami that devastated the northeastern part of Japan and led to a significant decline in tourist arrivals from Japan. These external shocks could also be positive for Guam such as the appreciation of the Japanese yen and Korean won against the U.S. dollar, which made tourism on Guam more affordable to Japanese and Korean visitors.

To some extent, Guam's openness applies to its labor market and migration, allowing from a free movement of labor among other island economies in Western Pacific which have free association with the U.S. (i.e. the Commonwealth of Northern Marianas, Federated States of Micronesia, Republic of the Marshall Islands and Palau) and the fifty states of the U.S. As already noted, this labor market arrangement has supplemented Guam's small labor force during times of high labor demand.

Island Economy

Guam is the largest island in the Micronesian region and is located in the Western Pacific region. Being an island is significant in that it implies some level of geographic isolation and distance from larger markets. It also suggests exposure to natural disasters such as typhoon, earthquakes and tsunamis.

Guam's smallness, openness and island-setting suggest benefits from attracting more resources, including foreign investments, which supplement its limited productive resources and also balance out the island's high imports. This descriptor of Guam, especially its implication for the lack of economies of scale, points to the absence of mass production of many products but suggests opportunities for niche markets and for small business participation. Although the government sector (a combination of U.S. Federal government agencies and local government agencies) continue to make up a significant share of the economy (48% of Gross Island Product in 2007, U.S. Department of Commerce-Bureau of Economic Analysis), the economy has made a notable shift toward a larger role of the private sector, including small businesses. Recent employment estimates show that 75% of jobs are provided by private businesses, 19% by the local government and 6% by the U.S. Federal government (Guam Bureau of Labor Statistics, December 2010). In terms of numbers, the private sector is comprised of 3,143 business establishments (U.S. Bureau of Census, 2007), with more than 90% of them classified as "small businesses" using the U.S. Small Business Administration definition.

B. LACK OF ECONOMIC DIVERSIFICATION

Guam's limited productive resources and lack of economies of scale prevent it from achieving the type of economic diversification that larger economies are able to enjoy. It would not be much of an over-simplification to view Guam's economy as a triad, comprised of three industries (tourism, military and local economy), or serving three groups of customers (tourists, military personnel and families, and local residents).

Tourism

Tourism was very strong in 2010, with approximately 1.2 million tourists who visited Guam (Guam Visitors Bureau, December 2010). As already noted, tourism decreased this year, largely to the lower number of Japanese visitors. Prospects for tourism-related economic activities are not optimistic for the remainder of the year. It is unfortunate that Guam's comparative advantage as an island is so heavily dependent on tourism, which happens to be very unstable because it is hostage to factors outside of Guam's control and to external shocks. Tourism is an industry that is very sensitive to the income of the tourists' origin economy (one of the first activities to be cut out when times are tough) as well as health and safety threats (9-11, SARS, H1N1, etc.). It is in many economies, not only on Guam, a relatively low-paying, low-productivity service sector with little opportunity for innovation. It also puts Guam in direct competition with neighboring islands as well as Hawaii, although Guam's national tourism organization, the Guam Visitors Bureau, has not fallen short of exploring ways to further develop and diversify the tourism sector. While these efforts must be recognized and encouraged, other viable economic activities should be developed to provide the island with an alternative source of income, especially during times when the tourism sector is on a decline.

Military

The military market is also significant in Guam. Expectedly, it claimed a larger share of the economy in the aftermath of World War II but has since decreased, although still notable. It usually reflects itself in construction and engineering services industries, although there are opportunities to get involved in military bases' maintenance and operation. The concern here is that decisions affecting the military presence on Guam are made externally, in this case, by the U.S. Federal Government, in consultation with foreign government(s). For instance, the U.S. and Japan entered an agreement in 2006 to realign U.S. military forces in Asia. Of particular interest to Guam is the proposal to relocate 8,000 military personnel and their families from Okinawa, Japan to Guam. Such military buildup on Guam was originally valued in excess of \$10 billion (2.5 times the size of the current Guam economy) and was originally planned to take place over a short four-year period, after which the military-related construction boom would be expected to decline. More recently, there has been uncertainty regarding the terms, magnitude and timing of this military buildup, in part due to the recent natural disasters in Japan as well as to new developments in the U.S. Congress. Much depends on the fiscal health of both the U.S. Federal Government and the Government of Japan, which initially agreed to share the cost of the military buildup on a 40-60 basis (approximately). Any delay of the military buildup will likely increase earlier estimates of costs.

Local Economy

The instability of tourism, the unpredictability of the military buildup and the inability of Guam to significantly influence both economic sectors have made the third sector, which caters to the local residents, the more attractive sector. This sector provides strong support for retail trade and many different services including health, education, financial, legal, etc. This is also the most promising area for the strong majority of local businesses, which are small businesses.

All of the above brings to light the importance of self-reliance: the need to rely on the local economy, to develop it by identifying new industries, to enhance its purchasing power so that it will be the engine of growth that propels the entire economy into a sustainable and participatory development path that improves Guam residents' standard of living.

Opportunities for economic diversification would include those products that have potential to be exported but Guam's territorial status and the high transaction costs (including shipping) have presented challenges in this area. The more realistic option appears to be on the import side of trade where a search for ways to produce goods and services locally to reduce the current dependence on imported supply offers more promise. As discussions continue regarding the prospects of new industries on Guam, it would be helpful for these discussions to be guided by what emerged to be truly important to the island community:

- Increase in the standard of living and ability to provide materially for families
- Smart management of the environment to ensure sustainability
- Resurgence of pride in indigenous culture and resources

and pursue those new industries that are not economically viable but also encourage:

- High productivity and value-added, intensive use of human capital and technology
- Use of "green" technology and practices, non-carbon printing and, if possible, carbon-reducing
- Intensive use of indigenous resources including human talents and local materials.

Efforts to replace imports in a cost-effective manner will provide a boost to the local economy. Assuming a spending multiplier of 1.5, one is able to illustrate how significant the economic impact would be of shifting 10% of what is currently imported to a local source in terms of an increase in GIP by 25% (or \$1 billion), an increase in the local government's revenue in terms of Gross Receipts Tax by 4% of \$1 billion (or \$40 million), and an increase in local jobs by 23% (or 14,000 jobs).

C. NATURAL RESOURCE ENDOWMENT

Guam's abundance in beaches, beautiful scenery, natural forests and marine life has made it an attractive site for tourism, military operations and for research and development. Opportunities exist in developing ecotourism that cater to all three segments of consumers, tourist, military and local residents. The availability of land, along with government incentives to use them

productively, points to a continuous evaluation of prospects for expanding the agricultural sector. Of course, as natural resources are used to support economic activities, there is a need for effective management of natural resources in order to preserve their quality and sustain their usefulness. Guam has a long history of community activism to ensure that uses of natural resources are kept in check.

D. MULTICULTURAL SOCIETY

Guam's population is composed of 37% Chamorro (Guam's native culture), 27% Filipino, 7% other Pacific Islander, 6% non-Filipino Asians, 7% Caucasian, 2.2% all others (Guam Bureau of Statistics and Plans, 2010). One advantage of having a multicultural society is that the island becomes a melting pot of different ideas and talents. It also possesses richness in culture, which provides opportunities to incorporate "experience" in tourism, and a greater understanding and appreciation for diversity. All of these create flexibility and economic resilience. On the other hand, challenges arise as there are many differing opinions, perspectives and approaches, thus making reaching a consensus more difficult and time-consuming.

E. UNINCORPORATED U.S. TERRITORY

Guam's status as an unincorporated U.S. territory is both a blessing and a curse. On the positive side, it provides an attraction for both tourists and foreign investors, who benefit from having an English-speaking population, the presence of U.S. legal infrastructure, an economically free environment to do business, a democratic political structure and the presence of labor protection (e.g., minimum wage laws). As a territory, Guam receives funds from the U.S. Federal government that finances a significant portion of its physical infrastructure that are conducive for business. Guam also uses the U.S. tax system and is able to keep taxes collected from local residents as well as from U.S. military personnel who are stationed on Guam.

The downside of being a U.S. territory includes limits on the economic policy tools available to local policymakers and economic planners. As regards fiscal policy, Guam has its own elected legislatures that make budget decisions, with a lot of flexibility on spending decisions but have less flexibility on making revenue decisions because the primary source of revenue (income taxes) are set to follow the U.S. Federal system. Unlike politically-independent economies, Guam has no monetary policy to use to effectively manage the local economy and is subject to decisions made by the Washington, D.C.-based central bank, the Federal Reserve. This policy limitation extends to currency matters and exchange rate determination. In addition, being a U.S. territory has made Guam ineligible to access financial and technical assistance from international organizations, resources that other countries have used to support their economic development. For better or worse, Guam's minimum wage laws have priced it out of the of many labor-intensive industries in nearby Asian economies, effectively limiting the number of possible industries it could develop and, to some extent, forcing it to look at higher-paying industries that often require higher levels of human capital.

F. STRATEGIC LOCATION IN ASIA-PACIFIC

Guam's location in the Asia-Pacific region has been described to be strategic, thus making it an attractive site for military operations. In fact, the 2006 military forces agreement between the U.S. and Japan is motivated largely by Guam's strategic location. This attractiveness to military operations brings with it both benefits and costs and hence requires a careful balance of these two effects. For example, the proposed military buildup on Guam has received numerous scrutiny from those in favor of it as well as those opposed to it that achieving the balance has called for a need for strategically pacing the resulting economic development (e.g., adaptive program management) in order to match up the required resources (infrastructure, human capital) with their availability. Evaluating the benefits and costs of the military buildup (as well as other proposals for economic changes) have brought to light the need for current, reliable and relevant socio-economic data and models that can be used to accurately estimate the benefits and costs of military (as well as non-military) proposals/projects and to serve as evidence for effective policymaking.

Guam's location puts it in close proximity to the dynamic Asian markets, with several of them within a 3-5 hour direct flight distance. These point to opportunities to enhance travel infrastructure, for example, to explore additional air routes between Guam and important regional markets, thus having the effect of increasing competition among air carriers and potentially making travel more affordable to local residents as well as to tourists. On the other hand, proximity to Asia brings with to Guam the challenge of competing with other tourist destinations in Asia. It also causes a leakage from the local economy as local residents travel to the neighboring Asian destination to shop at much lower prices and enjoy a wider variety of goods and services.

Table 19 summarizes the challenges and opportunities associated with each characteristic / descriptor of Guam's economy.

Table 19: *Summary of Challenges and Opportunities in Guam's Economic Development*

Summary of Challenges and Opportunities in Guam's Economic Development		
CHARACTERISTICS/DESCRIPTORS OF GUAM	CHALLENGES FACED BY GUAM	OPPORTUNITIES AVAILABLE TO GUAM
(1) Small, island, open economy	• Economic instability/vulnerability or exposure to external factors and external shocks • Small labor force and limited productive resources • Inability to engage in mass production has led to higher cost to operate business, provide utilities, recycle	• Increased outward orientation with regards to tourism, imported goods and services, foreign investment and military hosting • Opportunity for niche markets and greater small business participation

Summary of Challenges and Opportunities in Guam's Economic Development		
CHARACTERISTICS/DESCRIPTORS OF GUAM	CHALLENGES FACED BY GUAM	OPPORTUNITIES AVAILABLE TO GUAM
(2) Lack of economic diversification	Heavy reliance on three sectors: tourism, military and local economy and increase exposure to shocks that negatively affect at least one sector	- Opportunity to explore new industries to supplement, complement and/or substitute existing industries - Opportunity to incorporate island community values to “designing” new industries
(3) Endowed with natural resources	Need for effective management of natural resources	- Opportunity for more ecotourism - Opportunity to further develop the agricultural sector and other natural resources
(4) Multicultural society	Many different opinions and difficulty to reach consensus	Different ideas and talents, richness in culture, an understanding and appreciation of diversity, economic flexibility/resilience
(5) An unincorporated U.S. territory	- Limited economic policy tools - Ineligibility for international development assistance - Inability to compete directly with low-waged Asian countries in many labor-intensive industries	Opportunity to strengthen Guam's image as an attractive business/investment site and tourist destination
(6) Located strategically in Asia-Pacific	- Need for strategically pacing economic development - Need for current, reliable and relevant socio-economic data and models to accurately evaluate impacts of military and other economic changes - Direct competition with Asian markets	- Opportunity to benefit from hosting existing and increased military operations - Opportunity to access nearby Asian markets and to enhance travel infrastructure

G. CONCLUSION

This section presented an in-depth evaluation of the environmental factors that affect Guam's economy and its future development prospects. Challenges and current realities were presented to see what might be obstacles to transforming Guam's economy but opportunities for future economic development were also highlighted to see what Guam's economy could be and where options are available. One thing is clear: the island community needs to make the choice to be willing to work collectively toward addressing the challenges in developing its economy and to

forging ahead. Perhaps an obvious point but one that is worth stating: Guam is not unique in as far as having to face challenges, but its population can distinguish themselves from those in many economies facing similar challenges in the way that it collectively responds to these challenges and to bring about improvements in their economic and social conditions.

ECONOMIC DEVELOPMENT GOALS AND OBJECTIVES



For years, strategies have been investigated to develop the economy, but Guam has yet to clearly define a strategy that it can be committed to, especially in light of having had a stagnant economy since 1996 and faced with the challenges associated with the impending military buildup.

This is an opportune time to seriously evaluate what economic development strategies might work well on Guam in terms of economic growth that would be sustainable for a long period (beyond the military buildup) and where the benefits would be shared more broadly on Guam. What is the way forward for Guam?

In July 2009, a vision for Guam was proposed: Guam CAN be the first Pacific Tiger. To turn this vision into reality is a well-thought out economic development strategy, the Pacific Tiger strategy.²

A. BACKGROUND

The Pacific Tiger strategy is a plan to move the island's economy and society forward. Although it borrowed some elements from economic tigers in Europe and in Asia, it has been written specifically for Guam. Hirsch, commenting on Ireland's economic growth in 2009, stated, "It went a totally different direction, getting into the globalization game and proving it could win."³ A similar theme can be voiced for Guam... "Guam's becoming the Pacific Tiger will not happen on its own. It will require a well-thought out, broadly supported strategy toward a sustainable and participatory economic development as well as a long-term commitment by leaders and by all to see the strategy through its completion."

Because of the surprisingly striking similarities between Ireland and Guam, after careful scrutiny, it appears that the strategies that had been used by Ireland represent nothing but "sensible policies" for enhancing economic growth. Guam can employ those elements of Ireland's strategy that worked, modify those elements that did not, and avoid those strategies that are now negatively impacting its economy. By doing so, Guam can transform itself into the Pacific Tiger. However, the road to becoming the Pacific Tiger would require strong leadership and political will toward deliberate policymaking and planning and making tough choices and the support and participation of the island community. Changes are always tough to make but are necessary. Timing is also very important since a delay in action is tantamount to a continuation of the current state, which

² Ruane, Maria Claret M., Anita Borja Enriquez & Vanessa Lee Williams (2009). The making of the Pacific Tiger: Lessons from the Celtic Tiger. Forthcoming in the *Journal of Economics and Economic Education Research* but can be accessed at http://www.uog.edu/admin/assetmanager/images/sbpa%20pcei/pcei%20technical%20report%20issue%204%20_the%20pacific%20tiger_%20070609.pdf

³ Hirsch, Todd (2008). Celtic tiger is caged: Lessons for Western Canada. Retrieved June 15, 2009, from http://www.cwf.ca/V2/cnt/commentaries_200811060906.php

deprives the community of the benefits of opportunities to improve Guam's livelihood and standard of living.

Why act now? First, Guam has momentum. The economy has been through a long period of stagnation since the 1990's, owing largely to BRAC in the early 1990s, the Asian crisis in the mid-1990s, and a number of natural disasters suffered in the 1990's and early 2000's. In addition, the impending military buildup has already provoked some serious dialogue and deep thinking by many in the community about the island's future socio-economic prospects.

Second, as the future continues to be discussed, a consensus has in fact been reached: that change is upon Guam – it is inevitable. In short, to resist change is already out of the question. It is no longer an option nor would it be a realistic response. However, discussion continues regarding the nature of the change that the island community would like to see happen on Guam and the choice on how best to respond to that change.

Third, although it would appear in discussions that Guamanians disagree a great deal, in the final analysis, Guamanians all want the same thing: for the island economy to develop in a sustainable and participatory way. Sustainability would require a balanced approach toward the smart use of island resources (natural, human, fiscal), the continued regard for culture and tradition, and the pursuit of economic development over a long period of time in order to provide ample opportunities for a steady increase in quality of life. Participatory development suggests a process of decision-making and taking actions that involve the entire island community since Guamanians are all stakeholders of the island's future. It also calls upon all Guamanians for hard work and sacrifice, from which benefits come and can be shared.

B. GOALS AND OBJECTIVES

The 2011 Guam Comprehensive Economic Development Strategy is based on the concept of economic tigers in general and on Guam becoming the first Pacific Tiger in particular. The Pacific Tiger strategy is based on six overall economic goals that are designed to bring about a sustainable and participatory economic development process for Guam:

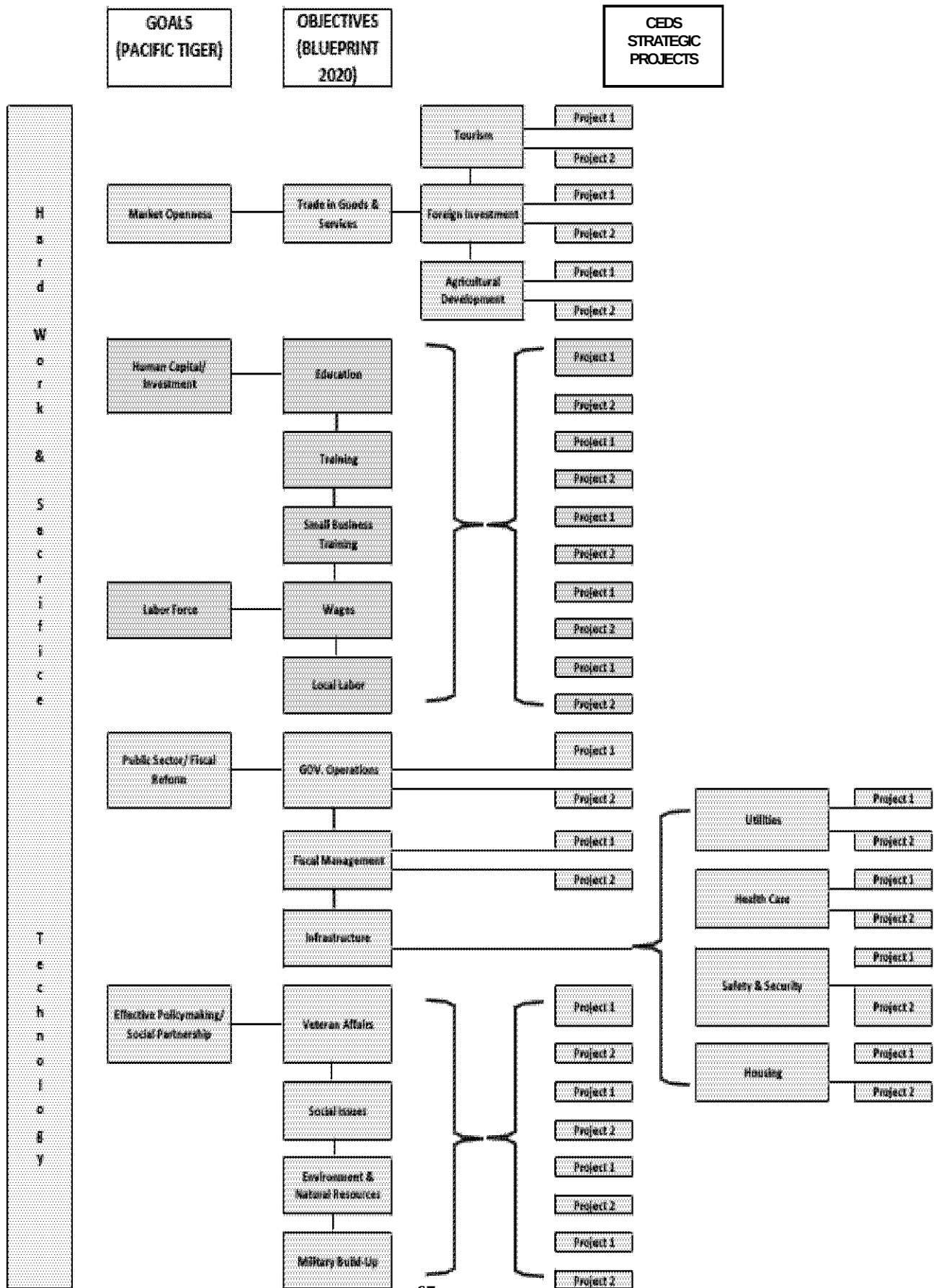
- *Openness of economy to global markets for goods and foreign investments*
- *Investment in human capital*
- *Availability of young, productive and creative labor force*
- *Public sector reforms and fiscal discipline*
- *Effective policymaking and social partnership*
- *Hard work and sacrifice*

It was first proposed in July 2009 and received favorable response from policymakers, local media, and the island community. The Pacific Tiger strategy found its strongest supporters in the current Calvo-Tenorio Administration whose economic platform "Blueprint 2020" provides details on how to begin the operations of the six Pacific Tiger goals into objectives in the following areas of concerns:

- *Trade in Goods & Services*
- *Education*
- *Training*
- *Wages*
- *Local Labor*
- *Government Operations*
- *Fiscal Management*
- *Infrastructure*
- *Veteran Affairs*
- *Social Issues*
- *Environment & Natural Resources*
- *Military Buildup*

The link between the Pacific Tiger goals and the “Blueprint 2020” objectives is summarized in Figure 2. Examples of projects that support them are schematically presented in the figure and are detailed in the Strategic Projects section of this report.

Figure 2: Linkage Between Pacific Tiger Goals, Blueprint 2020 Objectives and CEDS Strategic Projects



PRIVATE SECTOR AND COMMUNITY INVOLVEMENT



A CEDS Strategy Committee was formed to guide the development of the island's Comprehensive Economic Development Strategy. Individuals from a variety of industries, Government of Guam, the federal government, military-related businesses, civic and professional organizations and the education community were brought together to form the Committee. The individual members were selected based on their professional credentials and years of experience in their industry or field and their reputation as industry, government, business or community leaders.

CEDS STRATEGY COMMITTEE MEMBERS

The following individual representing Guam's public, private and civic sectors served as members on Guam's CEDS Strategy Committee:

- Robert "Bob" Barber, Jr., Farm Management, Marketing Specialist, University of Guam
- Manuel Duenas, President, Guam Fishermen's Cooperative Association; Member, Western Pacific Regional Fisheries Management Council
- Anthony Godwin, President, Guam Association of Realtors
- Dan Moffat, Chief Executive Officer, GTA TeleGuam
- Joaquin Cook, Vice President, Bank of Guam
- Tom Maxedon, Director, Marianas Cable Vision Business; Member, Guam Young Professionals
- Dana Gutierrez, Attorney, Mair, Mair, Spade & Thompson; Member, Guam Young Professionals
- Jessica Leon Guerrero, Managing Partner, Planate Management Group Guam LLC; Life and Group Benefits Manager at Cassidy's Associated Insurers; Member, Guam Young Professionals
- Andrew Mariano, Engineer, A&E Engineering; Member, Guam Young Professionals
- Beatrice "Tricee" Limtiaco, President, Guam Cornerstone; Member, Guam Young Professionals
- Sammy Sotelo, Strategy and Business Development Manager, Atkins Kroll;
- Noel Enriquez, Director, Micronesia Region, AECOM;
- Len Isotoff, General Manager of Guam & Micronesia , Matson Navigation
- Lourdes Sanchez, Sales & Marketing Manager, Continental Airlines
- David Leddy, President, Guam Chamber of Commerce
- James Martinez, President, Guam Contractors Association
- Bert Johnston, Education Director, GCA Trades Academy.
- Kenneth Lujan, Guam Branch Manager, Guam Small Business Administration
- Casey Jeszenka, Network Director, Guam Small Business Development Council

- Ramona L.E. Jones, Chief Operating Officer, Jones & Guerrero
- Joseph Diego, Area Director, US Department of Agriculture
- Anthony Barcinas, Business Program Specialist, Rural Development, US Department of Agriculture

These CEDS Strategy Committee members also represented the following professional and civic organizations:

Professional Organizations

- Guam Chamber of Commerce
- Guam Contractors Association
- Guam Hotel and Restaurant Association
- American Marketing Association (Guam Chapter)
- Society for Human Resource Management (Guam Chapter)

Civic Organizations

- Rotary Clubs of Guam
- Lions Club International
- Red Cross
- Make a Wish Foundation

STRATEGIC PROJECTS



The 2011 Comprehensive Economic Development Strategy will be realized through the implementation of a series of specific projects. These projects are intended to address the core development objectives of the Six Point Action Plan and to meet both near and longer term objectives for Guam's economy. Each project was evaluated against Economic Development Administration's Investment Policy Guidelines and against Guam's needs.

A. EDA POLICY INVESTMENT GUIDELINES

The following are EDA's Policy Investment Guidelines criteria:

1. The proposed investments are market-based. The investment should capitalize on the community's unique regional assets and strengths to build comparative advantages for future business investment.
2. The proposed investments are proactive in nature and scope. The investment should support and advance innovation and increased productivity. It should enhance a community's success in achieving a high and rising standard of living.
3. The proposed investments look beyond the immediate economic horizon, anticipate economic changes, and diversify the local and regional economy. The investment should be part of an overarching, long term regional strategy that includes expanding existing industry clusters and developing emerging, new clusters. Investments should create the conditions for sustained productivity.
4. The proposed investments maximize the attraction of private sector investment and would not otherwise come to fruition absent EDA's investment. EDA should serve as a unique public sector source of "venture capital" to assist distressed communities that otherwise would be at a distinct competitive disadvantage in attracting the higher levels of private capital investment in facilities and equipment that drives the creation of higher skilled, higher wage jobs.
5. The proposed investments have a high probability of success. The investment should have high level of local matching funds; should have high degree of local political capital (support); should have significant commitment of human resources talent to ensure achievement; and should have strong local leadership.
6. The proposed investments result in an environment where higher skill, higher wage jobs are created. The jobs created or retained should have a higher than average wage and skill level than that of the community.
7. The proposed investments maximize Return on Taxpayer Investment. Investments should generate a return for the taxpayer by attracting private capital investment and high wage jobs that promote regional prosperity through consumer demand they create. Successful

economic development investments promote economic self-sufficiency; provide the resources for building safe, healthy, and attractive communities; and minimize poverty.

The following projects are presented in order of priority based upon an evaluation that was conducted of each project against EDA's Investment Policy Guidelines and against Guam's needs:

INFRASTRUCTURAL DEVELOPMENT: PREREQUISITES FOR ALL PROJECTS										
CEDS PROJECT		EDA Policy Investment Guidelines Criteria							Total	Priority
		1	2	3	4	5	6	7		
HIGH	Maritime Development	X	X	X	X	X	X	X	7	H
	Hågatña Revitalization	X	X	X	X	X	X	X	7	H
	Education Tourism	X	X	X	X	X	X	X	7	H
	Planning	X	X	X	X	X	X	X	7	H
	Agriculture	X	X	X	X	X		X	6	H
	Information Technology	X	X	X	X		X	X	6	H
	Green Technology	X	X	X	X		X	X	6	H
MEDIUM	Business Hub: Industrial Park	X	X	X	X	X			5	M
	Business Hub: Conference Center	X	X	X	X	X			5	M
	Business Hub: Cottage Industries	X	X	X	X	X			5	M
	Ecotourism	X	X	X		X			4	M
	Sports Tourism	X		X	X	X			4	M
LOW	Manufacturing & Exporting	X	X	X					3	L
	Financial & Legal Services	X					X	X	3	L

INFRASTRUCTURAL DEVELOPMENT: PREREQUISITES FOR ALL PROJECTS									
CEDS PROJECT		EDA Policy Investment Guidelines Criteria						Total	Priority
		1	2	3	4	5	6		
	Medical Tourism	X					X	2	L
	Film Industry			X				1	L

B. OVERVIEW OF INDUSTRIES AND DETAILS OF PROJECTS

HIGH PRIORITY

Maritime Development

The purpose of the Guam Fisherman's Cooperative Association's master plan is to establish goals by which the local fishing capacity could be enhanced. Guam imports on average, over \$30 million of marine-harvested food products a year. Nearly 75% of the imports are processed fish species available in the waters surrounding Guam.

Project Name: Construction of New Wharf and Land Reclamation

Situation Statement: The Base Realignment and Closure (BRAC) decision of '95 resulted in the closure of the former Naval Ship Repair Facility which was to have been transferred to the Government of Guam, thereby increasing wharf space by 3,251 linear feet. Navy has since decided to retain the lands, wharves and buildings associated with this facility due to the strategic value of Guam. In addition, the Navy has decided to dredge the inner Apra Harbor to accommodate additional vessels in 2006. This proposal is intended to create new wharf space at the Port Authority of Guam to replace those wharves that will not be returned under the Base Realignment and Closure (BRAC). The additional wharf space will be available for Navy use.

Objectives: Construction of new wharfage totaling 2,900 lineal feet and 3,000 lineal feet of reclaimed land at the Commercial Port of Guam under the auspices of the Port Authority of Guam.

Description: The Port Authority of Guam is developing architectural and engineering plans under a grant from the Economic Development Administration, for the construction of new wharfage totaling 2,900 lineal feet of sheet piles with tie-rods anchored to sheet pile dead-men, and 3,000 lineal feet of reclaimed land at the Commercial Port of Guam. Funding is needed for wharf construction and purchase and installation of cranes at the new wharf.

Anticipated Impacts and Benefits: Upon completion of the project, congestion at the Port would be alleviated, room for additional economic activity would be created, thereby generating additional

jobs. New wharf construction, especially in the proposed area which is characterized by deep water draft will also provide the U.S. Navy with the opportunity to utilize wharf facilities that can accommodate larger military vessels, such as aircraft carriers that cannot enter the inner harbor even after Navy's dredging project is completed.

Deliverable: 2,900 lineal feet of new wharf space; new cranes for cargo off-loading; and reclamation of 3,000 lineal feet of land for industrial development.

Timing and Responsibilities: Construction of the new wharf and installation of cranes will be completed within 36 months of receiving funding.

Budget: The project is estimated to cost \$35,000,000.

Project Name: Guam Fisherman's Cooperative Association Marina Authority

Description: To revitalize the Agat Marina and expand the Greg D. Perez Marina in Hågatña under a public-private partnership. Each marina will have a council (community-based oversight) to manage the marinas along with the GFCA Board of Directors.

Current Conditions: Both the Agat Marina and the Hågatña Marina have suffered numerous typhoons and years of neglect. The conditions are hazardous and the main concern is that the next major typhoon will not only destroy the docks but a large majority of the vessels as well.

Estimated Cost: \$7,500,000

Funding Source: GEDA Fishery Development Program/Department of Agriculture Sportfish Restoration Funds

Revenue Forecast: \$500,000 annually; user fees

Revenue Potential: \$15,000,000 for tourism and domestic activities annually

Project Name: Marina Development

Situation Statement: With Guam's current economic difficulties, there is a need to enhance economic opportunities within its fisheries industry through the expansion of marina facilities. The current facility is inadequate and is unable to withstand typhoon conditions. The construction of typhoon-proof docks and additional boat slips and services will enable Guam's marine tourism activities and its local boating and fishing industry to expand, flourish and prosper.

Objective: To design and construct a 150-boat-slip marina and shore-line facility to promote marine industry, stimulate job growth through the revitalization of Guam's capital city of Hågatña, and to promote long-term economic benefits that will advance Guam's efforts to diversify its economy and stimulate growth.

Description: The project has two phases. Phase I: The Hågatña Revitalization Authority, in conjunction with the Guam Fisherman's Cooperative Association, would issue a Request for

Proposals to contract the services of an architectural and engineering (A/E) firm to prepare the design for the marina and facility, prepare the Environmental Impact Statement (EIS), secure all federal and local permits, and serve as contract/construction manager during the construction phase of the project. Phase II: Construction of the 150-boat-slip marina and shore-line facility.

Anticipated Impacts and Benefits: The project will create additional jobs. In addition, the economy will realize \$25 million in annual revenue from tourism activities within the marina, alleviate over-crowding and provide for an opportunity for larger scale domestic commercial fishery, not to mention, global exposure as a marine activity destination.

Deliverable: The completion of an EIS and A/E design for the complex, the securing of all federal and local permits, and the construction of the facility.

Timing and Responsibilities: The Hågatña Revitalization Authority, in conjunction with the Guam Fisherman's Cooperative Association, will oversee the contracts for the Environmental Impact Statement (EIS), the A/E design, and the construction of the facility. The total project is anticipated to take 36 months to complete the A/E design and EIS, secure permits, and complete construction.

Budget: The project is estimated to cost \$4,500,000.

Project Name: Guam Fisherman's Cooperative Association Building Complex

Description: 20,000 sq. ft., 2-story building. GFCA headquarters, fish market, marina offices, multipurpose room, restaurant, snack bar, dive and tackle shop, and gift shop.

Current Conditions: The GFCA is operating out of a 1,200 sq. ft., 30-year-old rusted structure. The refrigeration and freezing systems are in need of upgrading. The processing room as well as the retail space are no longer adequate to accommodate the growth in membership and consumer base.

Estimated Cost: \$3,500,000

Funding Source: U.S. Housing and Urban Development (HUD) Section 108/GEDA Fishery Development Program

Revenue Forecast: \$10,000,000 annually

Project Name: Guam's Limited Entry Longline Fleet (5 Longline Ice Vessels)

Description: To establish a longline fleet to operate in Guam's waters. These vessels shall be limited to ice for on-board handling and storage of harvested fish. This project shall assist in capacity building of the domestic fishery and provide the community with fresh, locally harvested fish.

Current Conditions: There are no vessels operating out of Guam. The foreign vessels currently fish in outside areas.

Estimated Cost: \$1,750,000

Funding Source: GEDA Fishery Development Fund

Revenue Forecast: \$2,000,000 annually

Growth Potential: 5 vessels by year 2015

Project Name: Marine Small Loan Revolving Fund

Description: Establish a revolving low-interest loan fund to assist small-boat fishermen with making necessary repairs to their vessels or purchasing needed equipment.

Current Conditions: No such program exists, resulting in fishermen obtaining loans from institutions other than recognized banks. Often the interest rates are cost-prohibitive that fishermen either lose their vessels or quit fishing altogether.

Estimated Cost: \$500,000

Funding Source: GEDA Development Program

Revenue Forecast: Fishing ability \$5,000 to \$50,000 based on reduced down fishing time. $100 \times \$5,000 = \$500,000$

Project Name: Multipurpose Vessel Development

Description: To establish a vessel that is able to perform multiple missions. To establish a baseline survey of Guam's off-shore seamounts and other research programs. This vessel could augment the rescue operations of the Guam Fire Department while fostering support and development of the community-based fishery.

Current Conditions: The Guam Fire Rescue and the Guam Police Harbor Unit both have multiple missions and often responding to none life or death requests may conflict with a more serious request. The services also are limited in range which also limit the fishing areas. The community lacks the ability to further explore or address the scientific concerns.

Estimated Cost: \$500,000

Funding Source: GEDA Fishery Development Fund

Revenue Forecast: \$200,00 annually

Growth Potential: 2 vessels by year 2015

Project Name: Guam Domestic Fisheries (Inclusive of Aquaculture and Domestic Ocean Fisheries)

Situation Statement: Guam's domestic ocean fisheries consist of a few hundred small-scale fishermen operating personal trolling and bottom fishing boats. The Guam Fisherman's Cooperative Association coordinated the maiden efforts of this industry and grosses approximately \$1.5 million annually. A key issue for Guam fisheries identified by the Western Pacific Regional Fisheries Management Council is that there are no domestic purse seine operators. Guam's aquaculture fisheries operate mostly on a small-scale basis and consist of roughly 100 farmers, with less than 25 farmers comprising the most of the \$300,000 to \$750,000 in gross annual sales. The main species farmed are tilapia, freshwater shrimp, catfish and milkfish. Information is difficult to obtain due to the seemingly uncoordinated efforts of the farmers and lack of technical business expertise.

Objective: Diversify the Guam economy and create jobs uncorrelated with tourism and military spending.

Description: Identify assistance needs of the industry; facilitate needed financing of projects; coordinate outreach to remote farmers and fishermen; assist in compliance with federal environmental regulations.

Anticipated Impacts and Benefits: There is capacity for increase of Guam's ocean fisheries. The opportunity for the development of a Guam longline fleet, the further development and increased capacity of the Guam Fisherman's Cooperative Association are a few possibilities. This industry is underutilized and Guam relies heavily on imported seafood. There is also much room for development in Guam's aquaculture industry. Farmers can take advantage of technical advice and business expertise provided by the development of this facet. The low cost of entry into this industry makes this a viable opportunity.

Deliverable: Develop and implement a fisheries feasibility study.

Timing and Responsibility: 24 months by GEDA, the Guam Fisherman's Cooperative Association, and Guam Aquaculture Growers Association.

Budget: The project is estimated to cost \$200,000.

Hågatña Revitalization

Discussion: The city of Hagåtña has served as downtown, a central location for the Chamorros - the indigenous people of Guam - dating as far back as the sixteenth century before Spanish settlers arrived on Guam. As its capital, Hagåtña serves an important role as the center of government. In 1668, Padre San Vitores, a Spanish missionary, was instrumental in establishing the first Spanish (Catholic) church in Hagåtña, forcing most of the indigenous population of Guam to relocate to the city.

Hagåtña has been the capital of Guam since the Spanish-American War of 1898 when the United States captured Hagåtña from the Spanish. The result of World War II, from the Japanese

occupation of Guam to its recapture by the U.S. military, left many of Hagåtña's historical sites and the city itself damaged. However, there are still a number of historical monuments and remains that can be viewed, including sections of buildings left over from the time of Spanish rule, such as the Plaza de Espana near the cathedral of the Archdiocese of Agaña, and Latte Park, where visitors can see pre-Spanish stone pillars referred to as Latte Stones. The devastation of the city, however, forced the once most populated village prior to World War II, to the least populated area that serves primarily as a center for government and business.

In the past decade, many loosely related efforts have been made towards the redevelopment of the once vibrant capital. A serious commitment towards the need to restore and redevelop Guam's capital was first codified in Guam Public Law 24-110, known as the Hagåtña Restoration and Redevelopment Act ("the Act"). The Act created an autonomous agency, the Hagåtña Restoration and Redevelopment Authority ("HRRA"), to carry out the purposes of the legislation. Other government agencies have also addressed redevelopment efforts for Hagåtña. The Guam Economic Development Authority, charged with economic development initiatives for Guam, has directed redevelopment efforts toward Hagåtña, via Kottura. The Guam Visitors Bureau, responsible for developing Guam's visitor industry, has also addressed the development potential of downtown Hagåtña. Additionally, market forces evidenced through private organizations such as the Guam Chamber of Commerce, have made it a priority in recent years to redevelop the flailing downtown as a counterpoint to the tourist attraction of Tumon.

The Hagåtña Restoration and Redevelopment Act, Title 21 Guam Code Annotated Chapter 79, was enacted with the dual intent to protect and promote restoration and development of Hagåtña. The overarching concerns for protection of downtown were to remedy the injurious conditions of homeless in the area and the poor subdivision and zoning layouts of the village that had led to serious deterioration and disuses. The intent to redevelop Hagåtña was simply stated so that it would be better put to public use and purpose. Projects included towards these purposes include the alteration, improvement, modernization, reconstruction, rehabilitation, or any combination of these, of existing structures in Hagåtña. It also calls for the provision for open-space types of use, such as streets and other public grounds and space around buildings, and public or private buildings, structures and improvements, and improvements of public and private recreation areas and other public grounds. Also included is the re-planning or redesign or original development of areas in Hagåtña as to which either of the following conditions exist: (1) The areas are stagnant or improperly utilized because of defective or inadequate street layout, faulty lot layout in relation to size, shape, or accessibility, or usefulness, or for other causes; and (2) The areas require re-planning and land assembly for reclamation or redevelopment in the interest of the general welfare because of widely scattered ownership, tax delinquency, or other reasons.

Within the same act, it cites that the Guam Legislature deems a fundamental purpose of redevelopment is to expand the supply of low- and moderate-income housing, to expand employment opportunities for the jobless, underemployed, and low-income persons, and to provide an environment for the social, economic, and psychological growth and well-being of all citizens.

The Hagåtña Restoration & Redevelopment Authority, a public corporation and autonomous instrumentality of the Government of Guam, was established to carry out and perform the purposes and provisions of Chapter 79, except the power to levy and collect taxes or special assessments. It

is charged to develop a Plan to carry out the purposes of Chapter 79, to include the planning, preparation, development, construction, acquisition, lease disposition, reconstruction, improvement, alteration, extension, repair, maintenance and operation of the Hagåtña Restoration and Redevelopment Project; shall include the terms and conditions for the reuse of the properties; shall include standard of eligibility for ownership or occupancy of housing, dwellings and facilities; shall include installation, construction or reconstruction of streets, utilities, parks, playgrounds and other public improvements. In developing the Plan, according to public law, the Authority is authorized to conduct surveys, appraisals, surroundings, test borings or any other technical investigations.

A draft Hagåtña Land Use Plan 2006 served as an important part of the broader planning process in the Hagåtña Restoration and Redevelopment Authority's (HRRA) Hagåtña Master Plan effort. The Land Use section of the plan focuses on the arrangement and types of land use types, their impact upon the environment, and relation to community development. This is opportune, in light of the potential to expand Guam's tourism base by capitalizing on the Hagåtña attraction as a historic center of religion, government and cultural heritage. Many existing land uses in Hagåtña, however, do not comply with Guam's Zoning Law.

Another serious effort towards the restoration or revitalization of Guam's capital is through a proposal developed by the Guam Economic Development Authority, entitled *Kottura: Cultural Destination Development*. This document has a threefold focus which addresses economic development, cultural preservation, and artistic accessibility. It is intended to convert Guam's downtown area to a cultural destination for residents, visitors, and tourists. It is designed to integrate economic zoning in its layout, which will then provide incentives to entice businesses to locate or relocate to Hagåtña.

Another strategic view of Downtown Hagåtña's restoration is captured in the Guam Visitors Bureau's Five Year Strategic Plan (2007). It cites the need to execute the Hagåtña Master Restoration Plan. According to this document, Hagåtña, the seat of government for over 400 years during the Spanish, U.S., and eventually Guam's elected government administration has deep rooted historical and cultural significance. The document implies that the city of Hagåtña should be developed not only as good counter-balance to Tumon's attractiveness but also, more importantly, for the people of Guam to regard their capital city as one of the most beautiful capitals in the world. Further, it proposed a partial list of the many significant landmarks and visitor attractions to be highlighted in Hagåtña.

Hagåtña's restoration offers the following:

- Creation of another village attraction to complement Tumon
- Historical significance of Guam's capital city
- Home of colonial Spanish government
- Cultural and social center of pre-war Guam
- Location of Governor's Office, Legislature, Supreme Court
- Location of U.S. District Court, U.S. Post Office, and other Federal offices
- Government House overlooking Hagåtña skyline
- Houses most of Government of Guam offices
- Site of the Catholic Archdiocese of Agana

- Site of Dulce Nombre de Cathedral-Basilica Catholic church
- Establish a historic walking tour of Hagåtña with interpretive signage
- Has many historic preservation sites
- Future home of Guam National museum
- Historic sites, parks, cemeteries, and monuments
- Y Seng Song Chamorro and Wednesday night market
- Hosts many shopping and dining establishments.

A recent initiative to restore Downtown Hagåtña is to capitalize on its unique package of historical sites. The launch of the Hagåtña Heritage Walking Trail, which comprises 17 historical sites, in March 2010 is hoped to transform what one person coined a “ghost town” to a bustling center. One way of restoring the capital city of Hagåtña is by bringing back government agencies downtown. The 2.5 mile Hagåtña Heritage Walking Trail is anticipated to provide economic stimulus through increased local government revenue, through tourists who spend an extra half day to experience the walk. This will be a result of increased hotel and tax revenues.

There are many attributable factors for the stalling of revitalization efforts. The anticipated military buildup on Guam has surfaced is the highest priority with the local government, given the need to prepare the island’s infrastructure for a 40 percent population growth and resulting social-cultural, economic, and environmental impacts to the civilian community. However, it is these very same factors that necessitate more immediate action for implementation. One of the problems may have been that there was a lack of direction in which way to move. Government intervention, by its very nature, is not market driven. It seeks to drive the market. However, it is still necessary to know what the demand is in order to meet the supply. Therefore, a study gathering informational/generational/xxx factors was necessary to provide the impetus for revitalization.

Education Tourism

Discussion: Education tourism is a fairly new phenomenon as a revenue option, but it is beginning to gain a great deal of universal popularity. It is the concept in which students travel to other academic institutions to study abroad. It is similar to student exchange programs yet much more expansive since it encapsulates bringing revenue to the economy as a whole rather than just to the sponsoring institution. Education tourism has grown into an industry that is highly marketed and sold as an overall attractive package promising education, culture, travel, and recreation. Travelers spend money for leisure activities, food and beverage, housing, and shopping.

Currently, tourism in general is a market that earns billions of dollars per month. According to the Department of Commerce, International Trade Association (2011), 55 million people traveled to the United States and spent over \$11.4 billion in the month of November 2010 alone. The top five places in which visitors are coming from, listed in order of precedence, are People’s Republic of China (excluding Hong Kong), South Korea, Brazil, Australia, and Argentina. In an analysis report that compares monthly and year-to-date figures of current to previous year, there is consistent percentage growth in travelers to the U.S. as well as visitor spending. These figures are reflective of registered, non-resident, countries with double-digit increases to the U.S. as compared to the previous year. Clearly, there is an evident market and demand for this industry

with tons of potential for growth and development. Additionally, there are opportunities for specialized or niche tourism markets such as education tourism.

Economists and analysts have forecasted very positive growth statistics for inbound travel to the U.S. It is anticipated that the U.S. will return to positive growth mode in 2010 and continue to increase six to nine percent throughout 2015. This rebound will definitely offset the five percent decline in 2009, which marked the first decline since 2003. The forecast for 2010 through 2015 predicts that international travel will attract 83 million visitors, which would be a 51% increase from 2009-2015. Increases are expected to come from China (40%), Brazil (35%), Korea (35%), Hong Kong (27%), New Zealand (24%), and Australia (19%). These trends were prepared by the staff of the Department of Commerce, Office of Travel and Tourism, using economic, demographic, social factors, historical visitation trends, input from overseas staff, and other numerous and varied sources. Visitor spending is not forecasted but typically moves in the same relative direction as changes in visitor arrivals.

Just as tourism is increasing and forecasted to continually increase in the U.S., the same can be expected for Guam. In fact, it is plausible to speculate that this increase will be phenomenal for Guam since it is a highly desired location for experiences in tropical weather, ethnic heritage, local foods, and customs. It is less populated than the more common destinations such as Hawaii and we have the privilege to offer pristine beaches as well as a warm, unique, culture. According to the Guam Tourism Economic Impact report, a summary of the key findings state that the total spending in 2005 was \$1.15 billion in revenues. There are further details of this figure as it is analyzed by direct, indirect, and induced spending as well as expenditure categories of transportation, lodging, food and beverage, shopping, and entertainment. Specifically and more pertinent to this research, a total of \$26.8 million was spent in education and health services. This figure certainly provides support that there is a noteworthy economic impact and value-added service we can further develop for Guam. Moreover, according to the recent Calvo-Tenorio Blueprint 2020, there is notable interest from leaders to capitalize on this potential market for Guam. Calvo-Tenorio's (2010) plan states the following:

Education Tourism: We must work with the University of Guam and explore the potential of partnering with Asia to market educational exchange programs. We must also explore the potential of establishing Guam as a destination for learning English as a second language (ESL) for Asian markets.

Planning

Project Name: Consolidated Survey Center

Description: The University of Guam's Consolidated Survey Center will serve as a comprehensive technical assistance center that will provide assistance to key local government agencies who regularly collect data for the purpose of reporting, evaluation, and support of technical assistance studies on Guam and to the Guam State Data Center.

The objective of this project is to assist in the modernization of the Guam State Data Center and the Government of Guam's data collection efforts. The Consolidated Survey Center will establish agreements and provide technical assistance to key local government agencies that are responsible

for collecting and reporting data, but that require enhanced capacity to keep data current, conduct surveys, and make readily available regular reports and/or studies that support policy development and planning at all levels.

The Consolidated Survey Center will provide technical assistance to the Guam State Data Center and to other data generating and reporting entities. This technical assistance can include assistance in automating the data collection efforts by various entities in order that they can transmit electronically their data to the Guam State Data Center in real time. It includes providing technical assistance in the develop and design of a web sites that hosts all data products produced by the Government of Guam, including the State Data Center's web site that data users can readily find and access data products in one location. It includes providing statistical analysis. Lastly it includes providing data survey assistance for collecting and reporting data.

Anticipated Impacts and Benefits: A modernized State Data Center will ensure more current and reliable data sets and regular reports that the community and the public can readily access. Approximately 14 direct and indirect jobs will be created through leveraged trained capacity from the University of Guam.

Deliverable: The Guam State Data Center will have a modernized, automated collection of current economic, demographic, social and environmental data that is readily available to data users. Data products that included indepth analysis will be readily available. Entities that lack capacity to conduct surveys will be able to have them conducted through the Consolidated Survey Center.

Budget: The project is estimated to cost \$500,000.

Agriculture

Objective: To further develop Guam's agriculture industry through organization and expansion of current resources and the introduction of new technology.

Discussion: Guam has traditionally been an agricultural society. Ironically, Guam now imports a majority of its agricultural products. There are still a good number of farmers on island and there has also been a movement and renewed interest in aquaculture and mariculture. P.L. 30-228 provides an authorization for bond funding, "for the design and construction of a Guam Farmers Cooperative Association facility and the relocation of the Dededo Flea Market."

Strengths:

- Large domestic market for farm-raised products
- Farming and exporting are favorable for Guam as it is a domestic U.S. port
- Farming experience with vegetable and fruit crops
- Existing facilities, such as the University of Guam's Hatchery at Fadian Point and other farms around Guam
- Guam is duty-free (import and export)
- Tax incentives are available
- Tropical climate is conducive to farming

Weaknesses:

- Funding
- Centralized distribution
- Limited technical expertise
- Limited government support
- Limited acreage/resources

Opportunities:

- Increased demand due to population increase and transportation costs
- New farming technologies (e.g. hydroponics)
- Growth opportunities include domestic market, hotel and restaurant network, and export (American markets)

Threats:

- Regulatory concerns
- Collaboration of all parties involved
- Inclement weather
- Increased competition from established markets and nearby upstarts
- Sustained funding

Recommendation: Continue the development of agricultural cooperatives to their fullest potential by providing funding and support. Promote expansion into new fields and technology in agriculture, with the cooperation of the UOG College of Agriculture and the Department of Agriculture.

Information Technology

Project Name: Telecom Industry Training Program

Situation Statement: To insure Guamanians benefit from the development of the telecom industry as expected as a result of other proposed telecom projects, a training center would be established jointly at the University of Guam and the Guam Community College to accommodate the various levels of skills necessary to fulfill the needs of the IT and telecom industries that will surely develop in the immediate future.

Objectives: Obtain a funding source to conduct a program development study that would identify the program training needs in the telecom industry and prescribe a step-by-step program to accommodate those needs, utilizing the training environment and facilities currently available at the local college institutions mentioned above.

Description: Issue a request for proposal (RFP) to obtain the services of a consultant to develop the program development study. Assess the University of Guam and Guam Community College's contribution to providing technical assistance in this type of industry, conducting applied research, and disseminating program results.

Anticipated Impacts and Benefits: Project would create 50 - 100 certified technicians.

Deliverable: Program Development Study for the proposed Telecom Industry Training Program.

Timing and Responsibilities: The selected consultant would be required to complete the project within six (6) months from time of grant approval.

Budget: The project is estimated to cost \$205,000.

Project Name: Regional Software Support Center

Situation Statement: Interest has been raised by several U.S.-based software companies interested in exploring the possibility of using Guam as a hub for their software support and marketing activities. These companies have existing clients in Asia and would like to use Guam as a software support center for these clients. Guam needs to assess the potential for this type of activity.

Objective: To assess the potential for this type of activity and to evaluate the benefits and costs for the development of such an industry.

Description: Feasibility study and cost-benefits analysis for the development of Guam as a center for software support for U.S.-based software companies doing business in Asia.

Anticipated Impacts and Benefits: Creation of jobs in the field of information technology.

Deliverable: A report analyzing the feasibility of such an endeavor, inclusive of costs and benefits.

Timing and Responsibilities: As interest has been expressed, Guam needs to complete this study in 6 months.

Budget: The project is estimated to cost \$150,000.

Green Technology Research, Development and Manufacturing

Objective: To market Guam as a destination for the research, development and manufacturing of green technologies.

Discussion: The need to reduce the usage of energy, water and waste has prompted the need to look into green technology. Projects that involve ocean thermal energy conversion, solar power, and the use of environmentally responsible building materials help reduce energy usage and the depletion of Guam's limited natural resources. Promoting the research, development and manufacturing of green technology on island would not only reduce consumer costs for energy, but may provide regional exporting opportunities for Guam.

Strengths:

- Promotion of economic development activities in the research, development and manufacturing of green technology
- Guam's proximity to the Northern Mariana Islands, Federated States of Micronesia, and Asia should exporting become feasible

Weaknesses:

- Lack of professional personnel on island to fill the manufacturing and research positions
- Prevailing wage requirements versus other regional and Pacific Basin wage scales
- Cost of transporting and maintaining specialized machinery

Opportunities:

- The lack of competition increases success of venture
- The need to retrofit homes and offices with energy efficient materials
- Creation of jobs
- GEDA Qualifying Certificate available for manufacturing

Threats:

- Sourcing of similar products abroad at lower prices may undercut the market for locally produced goods

Recommendations: GEDA and the Guam Energy Office should work collaboratively and attend international trade expos focusing on renewable energy or green technology, and market Guam as a destination for the research, development and manufacturing of green technologies in the Asia-Pacific region.

MEDIUM PRIORITY

Business Hub

Project Name: Industrial Park

Discussion: 12 GCA Section 50103(h) provides that the Guam Economic Development Authority (GEDA) is authorized to obtain land owned by the Government of Guam as required to carry out its purposes and objectives, under such terms and tenures as the Legislature through appropriate legislation may prescribe.

Since the 1970s, GEDA has managed three industrial parks, the E.T. Calvo Memorial Park, the Harmon Industrial Park and the Cabras Industrial Park, and then in the late 1990s, the Guam Shipyard. Annually, on average, the leases on these properties have generated about 740 jobs, \$21.7 million in gross payroll, over \$55.7 million in gross sales and \$2 million in Gross Receipts Tax. Leveraging GEDA's Industrial Park Program in 2006, GEDA's Real Property Division engaged in a management Memorandum of Understanding (MOU) with the Guam Ancestral Lands Commission (GALC) to lease and manage 135 acres of Spanish Crown properties. As a result of this management agreement, for the period October 2007 to February 2011, GEDA leased 49 acres and collected \$768,882 in ground lease and participation rents of which \$656,719 was remitted to GALC, while the balance was retained by GEDA as provided for in the MOU. Remaining properties will be leased as the market improves. GEDA is currently looking into similar management agreements with other GovGuam agencies with land inventory that could generate lease revenues at fair market value rates.

Some of the services provided by GEDA's Real Property Division include:

- Management of leases and licenses
- Evaluation of real property opportunities
- Advertising availability of properties for commercial leases and licenses
- Evaluation and negotiation of lease agreements

Project Name: Conference Center

Discussion: With the construction of a small conference facility that can accommodate 1,500 to 2,500 conference attendees, Guam has the ability to compete and market the island to companies and organizations throughout the Pacific Asia region. This offers job opportunities in destination marketing as well as conference planning and event coordination.

Project Name: Cottage Industries

Consolidation of miscellaneous business opportunities that may not have an impact on the island but have the potential to create business niches and small business opportunities.

Ecotourism

Discussion: Ecotourism is a growing segment of the global tourism industry that is making significant positive contributions to the environmental, social, cultural and economic well-being of destinations and local communities around the world. It offers long-term solutions by helping protect natural and cultural heritage. It appeals to travelers of all ages who are interested in social, economic and environmental sustainability. These travelers seek authentic local experiences and opportunities to give back to the communities they visit.

During a PATA Micronesia chapter quarterly membership meeting, Duncan Morris, CNN vice president of research, presented some significant highlights of a 2006 CNN Guam Tourism Survey. Most respondents (50% or higher) were aware of Guam's beautiful beaches and scenery, and agree that it is a desirable destination for diving. However, most did not know that Guam is eco-friendly, good for hiking, rich in culture/heritage, and has good food. Sustaining or growing Guam's market share will be difficult in the future as other competing destinations increase in number and marketing sophistication. The proliferation of many beach and cultural destination resorts in the Asia-Pacific region pose a challenge to Guam. To meet the challenge of existing and emerging destination competitors, Guam must deliver a brand promise supported by destination improvements.

Tumon is the center of leisure activity on the island. It is internationally recognized for the white sandy beach and blue waters of Tumon Bay, and the variety and quality of activities and attractions available to visitors. For instance, the Guam Zoological, Botanical and Marine Garden (better known as Cushing Zoo) is located in the heart of Tumon, surrounded by a high-rise hotel on one side and a high-rise condominium unit on the other. Despite the difficulties of its location, Cushing Zoo owners have worked hard to maintain the tranquil setting. A large variety of Guam's indigenous species of plants and animals can be found here, including some marine life. Gun

Beach lies north of Tumon Bay. Although less developed than Tumon Bay, it is a good getaway for those who do not mind less traveled spots. Fai Fai (part of Gun Beach) is a private eco-cultural retreat that features a beautiful sandy beach, a reef worth snorkeling, and coconut trees for shade. For an even more isolated beach experience, low tide allows for a trek around the rocks at the north end of Gun Beach.

In addition, Gun Beach will now be the home of Lina'La, a new cultural and eco-adventure park. Mark Baldyga, owner and founder of Tumon's SandCastle entertainment complex, wants to bring a unique tourist attraction that showcases Guam's culture. "This is a living, interactive, highly immersive, very exciting Chamorro cultural center," Baldyga said. The highlight of the project will be the "living village" that will resemble an ancient, pre-contact village. The park will also include a history and nature eco-walk along an outdoor trail, building that will feature artifacts and a theater, exhibits of animals native to Guam, Chamorro cultural demonstration area, and proa canoe rides. Furthermore, the cultural park will include a beach bar, volleyball court, and zip line from the top of a hillside behind the cultural park for thrill seekers. The extensive archaeological work on the project has contributed to a two-year time frame for the project. According to Baldyga, the clientele for the beach bar will mostly be local, while the demographic for the cultural village and eco-park will be off-islanders and tourists.

Visitors may opt for eco-cultural attractions located in the northern and southern area of Guam as well. Ritidian Point lies on the northernmost tip of Guam and is the sight of the Guam National Wildlife Refuge, which is dedicated to the conservation of Guam's indigenous animals and plant life. This 772-acre refuge consists of 371 acres of native limestone forest, home to the endangered Mariana fruit bat, and 401 acres of marine habitat for the endangered hawksbill and green sea turtles. Visitors can arrange a guided tour of the limestone forest and caves where ancient Chamorros once lived and decorated cave walls with petroglyphs (cave drawings). Ritidian Point is also open to the public for fishing, picnicking, swimming, and snorkeling.

The Guam Historical Village at Gef Pa'go Park in Inarajan is known for its buildings made solely of natural materials. Bamboo and other woods serve as pillars of many shelters, each topped by a traditional thatched palm roof. Visitors can learn about Guam's history and culture through exhibits, dances, and demonstrations. For instance, demonstrations reveal how natives use coconut for something more than just food. Talofofo Falls Park is another favorite day-long excursion for the entire family. Ugum River waters cascade into a deep pool framed by steep bluffs and level rock ledges. There is a cable car to transport visitors while enjoying stunning views of the landscape. In addition, there is a museum, wild pigs and geese, children's rides, and a replica of Sergeant Shoichi Yokoi's cave. A leisure boat ride through Talofofo River can expose visitors to more of the island's beauty. Family and friends can explore the jungle and creatures that use it as their natural habitat. The Jungle River Boat Cruise will take visitors to the ruins of an ancient Chamorro village, and they will be able to enjoy demonstrations of traditional craft making.

Guam has an array of accommodations including luxury hotels and resorts that have the latest in amenities, including boutiques, restaurants, swimming pools and water parks. Hilton, Westin, Hyatt Regency, Outrigger, Nikko, Marriott, Pacific Islands Club, and other international and regional hotel chains have beach front properties on the island. Visitors can also stay at the Guam Garden Villa, Guam's only licensed bed and breakfast establishment located in Ordot. It is a

unique form of travel accommodation because it provides guests with an opportunity to meet people from Guam who are happy to share their home and knowledge of the island. Guests have free access to living and dining areas, patios, and garden grounds where there are exotic fruit trees, such as mango, banana, jackfruit, sour sap, breadfruit and coconut. Although Guam currently offers a number of eco-cultural attractions, it lacks unique travel accommodations like the Guam Garden Villa B&B Homestay where guests are fully immersed in the cultural and environmental life of Guam. As ecotourism continues to establish itself in the global economy, the demand for environmentally sound lodging facilities like ecolodges is at an all time high. Ecolodges enable the visitor to interact with the natural and cultural surroundings of Guam.

Sports Tourism

Objective: Develop Guam as a destination for sports tourism

Discussion: Guam's temperate climate encourages major sports teams throughout Asia to visit for spring training exercises, as well as an opportunity for the enjoyment of outdoor sports on a year-round basis by locals and visitors alike. In an effort to promote such activities, the University of Guam (UOG), in cooperation with the University of Guam Endowment Foundation (UOGEF) have embarked upon the development of an outdoor multipurpose sports complex. The UOG physical master plan calls for a UOG Sports Complex to meet the physical education, athletic and sports needs of the UOG student population, general public and international athletes. The site for this development is a parcel directly adjacent to the UOG Fieldhouse. Outdoor sports, such as football, soccer, rugby, track, tennis, baseball, softball, volleyball and basketball are envisioned to be accommodated at the UOG Sports Complex. The direct adjacency of the existing UOG Fieldhouse and its amenities, such as locker rooms, weight and aerobic rooms, meeting rooms and a 4,000-seat Fieldhouse complement and enhance the viability of this project.

Strengths:

- Guam's temperate climate, adjacency of the proposed Sports Complex to the existing Fieldhouse, passage of P.L. 27-130 that provides seed funding via the issuance of \$1 million in tax credits should be sufficient for the A&E design and construction of the first phase of the project.
- Existing recognition of Guam as a venue for training and the hosting of sporting events from major sports teams throughout Asia.
- Recent construction of the outdoor sporting facilities at Okkodo High School (NCS road in Dededo), with brand new lights surrounding the baseball, softball, football, soccer and track field.

Weaknesses:

- Inability to maintain sports venues, such as Southern High School's Olympic swimming pool.
- Inability to consistently maintain the sports fields on island, such as the Eagles field in Mangilao.

Opportunities:

- Sports tourism is a growing segment of the entire travel market and is in support of Guam's efforts to enhance the island as a vacation destination and promote local sports enthusiasm.

- P.L. 30-228 supports funding for improvements to the Hågatña Pool and Tennis Court, and the Community Sports Recreational Improvement Fund for the construction and/or renovation of sports and community recreational facilities.
- Guam Visitors Bureau funding in the form of approved grants that support sports tourism.
- Construction of a new JFK High School campus in Upper Tumon will also include a new outdoor sporting facility surrounded by lights and a seating section.

Threats:

- Possible competition with existing destination resorts, such as Leo Palace, and the development of similar projects that could erode the potential for securing full use and the maximizing of revenues derived from the use of the UOG Sports Complex.

Current Status: The UOG Outdoor Sports Complex tax credit rules and regulations have been approved by the Governor, and is now undergoing Legislative review in accordance with the Administrative Adjudication Law.

LOW PRIORITY

Medical Tourism

Objective: To further develop and expand medical initiatives for Guam, including increased education, services and capacities, and the utilization of the visitor industry to attract new and innovative medical technologies and services.

Discussion: The medical industry has been identified as having exceptional potential for Guam, as it will provide continued diversification of the economy, increased stability for our environment and improve the quality of life. Guam's civilian population has grown steadily over the years and is expected to surpass 180,000 by the end of the decade. Population in the secondary market (Saipan, Palau and the Federated States of Micronesia) is estimated to be around 196,000. The growth in the island's population and visitor industry indicates a need to develop and expand Guam's healthcare services, facilities and education. In addition, current medical insurance statistics indicate that approximately 35% of medical cases leave off-island for in-patient services (surgeries or procedures not available on island). For out-patient services (includes annual physical examination, secondary medical opinion, etc.), approximately 20% travel off-island. Guam's medical community is also currently experiencing a shortage of physicians in the field of family medicine. In addition to the shortage, the average age of these physicians is 55+ years. The additional resident doctors would create a larger resource for this discipline on island. There are still other critical physician shortage areas within the community that need to be filled, such as orthopedics, neuro-surgery, cardiac surgery and urology. The University of Guam (UOG) and the Guam Community College (GCC) are the only primary educational institutions in this region that provide training and support for healthcare professionals. GEDA has also met with representatives of James Cook University (JCU) in Cairns, Australia who are interested in setting up a student exchange program where Guam interns could be sent to JCU to participate in its medical programs.

Strengths:

- Community of doctors (family practitioners) is adequate to support academic initiatives
- Available working facilities (Guam Memorial Hospital, Skilled Nursing, Public Health)
- Institutional resources (UOG, GCC, Guam Medical Society)
- Attractive location to Asia

Weaknesses:

- No existing professional programs locally
- Limited resources
- Venture has no feasibility study or business plan to support claims
- Capital-intensive industry

Opportunities:

- Guam residents will further benefit from the development of the healthcare industry due to the following advantages:
 - Easier and increased access to quality, specialized healthcare services
 - Reduction in expenses associated with going off-island for medical diagnosis and treatment
 - Availability of a larger pool of physicians with the most current medical knowledge
 - Increased exposure to large healthcare corporations and industry professionals
 - Adequate healthcare is a requirement for sustainable economic growth; healthier workers result in reduced absences and higher production levels
 - Guam's close proximity and low cost fares to major Asian markets, combined with U.S. standards, could influence increased medical business activity
- Attract a pool of physicians (private and military) that might opt to remain on or return to Guam
- Supportive component for Guam Memorial Hospital and Public Health
- Will provide alternative careers and employment opportunities, and promote the creation of an educated, qualified workforce
- Creation of new business/clinics
- Importation of new technology

Threats:

- Lack of financing interest or grants for such funding
- Tendency of local government to interfere and over-regulate
- Depressed economy
- Guam Memorial Hospital Authority issues

Recommendation: By further developing Guam's healthcare industry, the local population would then receive enhanced and expanded medical services usually sought off-island. Additionally, these added services will also act as an enticement for investors and visitors as they look to Guam as a Pacific Rim destination. It would also add a new dimension to the visitor industry other than strictly leisure. In order to expedite the educational component of this initiative, GEDA along with UOG and GCC, should aggressively pursue the offer by James Cook University to set up a student exchange program.

Manufacturing and Exporting

Objective: Identify potential areas of high-tech, light manufacturing applicable to Guam's unique environment in an effort to further diversify Guam's economy.

Discussion: While Guam faces stiff competition within the Pacific Basin in accessing affordable labor and materials necessary to establish and maintain profitable production and manufacturing facilities, niche areas do exist that allow for the local production of goods needed in the construction industry whose cost is comparable or below prices for the same items sourced abroad. A good example of successful light manufacturing is the current production of typhoon shutters, locally produced doors and windows, and the recent investment in a steel rebar forming company. Another venture is the production of steel framing for use in the installation of drywall for construction and renovation projects.

Strengths:

- Proven ability to find areas of profitable manufacturing/production
- Ability to leverage the influx of labor associated with the military buildup
- Geographic proximity to the Northern Mariana Islands, Federated States of Micronesia, and Asian nations should export become feasible

Weaknesses:

- Lack of trained labor force
- Prevailing wage requirements versus other regional and Pacific Basin wage scales
- Cost of land and transport of specialized machinery

Opportunities:

- Lack of competition adds to increased success of venture
- Military buildup will assist in initial success of such ventures given the tremendous amount of work necessary to accommodate the Marine relocation from Okinawa
- GEDA Qualifying Certificate available for manufacturing

Threats:

- Similar products could be sourced abroad and undercut market for locally produced goods
- Timeframe for committing to projects, as further delay could result in the inability to sell locally manufactured products for use in the military buildup

Recommendation: Suggest that GEDA work with the Chamber of Commerce and other private sector partners and participate in international trade expositions, in an effort to identify viable manufacturing opportunities. GEDA will continue to promote the Qualifying Certificate program as a means to incentivize entrepreneurs in pursuing local manufacturing ventures.

Financial & Legal Services

Discussion: Guam provides the economic cluster of American stability and soil. The biggest components of that are the military buildup/construction, American dollars (banking and financial services), and American legal infrastructure (alternative dispute resolution and court services). Together, these components meet the common cluster development objectives - creating an

internationally attractive destination for Asian countries that would like to utilize American economic and legal infrastructure. Meanwhile, federal resources for the military buildup will be maximized as a result of Guam's proximity to Asia.

Film Industry

Objective: To create the first Guam Film Commission that will become the lead entity in the development and organization of Guam's film industry, overseeing all film, video and photographic projects and activities on Guam.

Discussion: U.S. and international film markets are always looking for new locations to film motion pictures, TV shows or commercials, and production events. Additionally, in light of global security issues, production companies are also looking for scenic locations that are safe for visiting talent and crews and that feature supporting service infrastructure and business-friendly environments. Directors, specifically, are looking for locations that allow for shooting a variety of scenes in one location. Guam was the location for the 1970's feature film "Noon Sunday," and has since been a common filming location for Japanese and Korean television and production companies. Guam's domestic infrastructure has also grown to support a more sophisticated local market and the growth of the niche foreign production market. Identified target markets include the U.S., Japan, Hong Kong, Korea, India and the Philippines. In 2004, Guam hosted the filming of "Max Havoc: Curse of the Dragon" which featured David Carradine and Carmen Electra. Guam has received inquiries from large Hollywood production companies and the Philippines about filming in Guam, how to contact the Guam Film Commission, and how to purchase a "Guam Film Guide" (a resource guide for local production infrastructure).

Strengths:

- Guam is a virtually new filming location
- Guam is a safe destination protected by U.S. laws
- Guam has talent, technology and facilities to support activities
- Guam has experienced professionals that can contribute to this industry
- Guam has the support of private and corporate sponsors

Weaknesses:

- Currently no commission and regulatory body
- No "Film Guide"
- No film school or professional technical school
- Limited equipment (rental houses, lighting rigs, trailers, etc.)
- Limited support facilities (sound stage, film processing, editing, etc.)

Opportunities:

- Guam can become a centralized hub for stateside productions and Micronesian area productions
- Guam offers a mix of tropical, urban, domestic and Asian nuances for a multitude of filming options to include:
 - Tropical rainforest
 - Urban city setting
 - Resort and beach

- o Underwater
- o Military
- Guam can develop more professional service infrastructure (technical sectors, equipment, talent and labor hiring, catering, logistical support, and others that lead to job creation)
- Growth in foreign (Asian) film market
- More global recognition of Guam through visual and artistic promotion
- New revenue center for the island (film guide sales, fees and indirect tax collection)

Threats:

- Commitment of local professionals
- Regulatory concerns
- Inclement weather
- Increased competition from established markets and nearby upstarts

Recommendation: Create a Guam Film Office, under the Government of Guam or GEDA, as the one-stop central coordinator for film and photographic use of government-administered parks, beaches, roads, and facilities. The office will work closely with local government agencies to assist filmmakers with acquiring the necessary permits and resources to shoot on Guam. The creation of a Guam Film Office website that can inform interested parties of the opportunities and incentives available on Guam is recommended. This website will serve as the main marketing center for interested investors; it will feature pictures of locations, incentives and tax credits, permit requirements, information about Guam, contact information, and other necessary resources.

PLAN OF ACTION



The 2011 Guam Comprehensive Economic Development Strategy is based on the concept of economic tigers in general and on Guam becoming the first Pacific Tiger in particular. The Pacific Tiger strategy is based on six overall economic goals that are designed to bring about a sustainable and participatory economic development process for Guam:

- *Openness of economy to global markets for goods and foreign investments*
- *Investment in human capital*
- *Availability of young, productive and creative labor force*
- *Public sector reforms and fiscal discipline*
- *Effective policymaking and social partnership*
- *Hard work and sacrifice*

It was first proposed in July 2009 and received favorable response from policymakers, local media and the island community. The Pacific Tiger strategy found its strongest supporters in the current Calvo-Tenorio Administration whose economic platform “Blueprint 2020” provides details on how to begin the operations of the six Pacific Tiger goals into objectives in the following areas of concerns:

- *Trade in Goods & Services*
- *Education*
- *Training*
- *Wages*
- *Local Labor*
- *Government Operations*
- *Fiscal Management*
- *Infrastructure*
- *Veteran Affairs*
- *Social Issues*
- *Environment & Natural Resources*
- *Military Buildup*

PERFORMANCE MEASURES



A Performance Measure Matrix was developed using projects that were selected by the Strategy Committee to put into action and applying job creating factors to the project. These projects were evaluated against the Economic Development Administration's Policy Investment Guidelines and Guam's requirements. The job creation numbers were based on a ratio of 1 direct job created and 0.7 indirect job created per \$100,000 total investment into the project.

Priority	Project Name	Description	Estimated Cost	Estimated Direct Jobs	Estimated Indirect Jobs	Total Jobs
INFRASTRUCTURAL DEVELOPMENT						
*Non-exhaustive list of projects follows:						
High	Power c/o Guam Power Authority	See Appendix A	\$15,859,000	159	112	271
High	Water and Sewerage c/o Guam Waterworks Authority	See Appendix B	\$203,934,000	2,040	1,428	3,468
High	Roads, Highways, and Other Physical Structures c/o Guam Department of Public Works	See Appendix C	\$80,400,830	805	564	1,369
High	Airport c/o Guam International Airport Authority	See Appendix D	\$21,268,393	213	150	363
High	Seaport c/o Port Authority of Guam	See Appendix E	\$149,053,411	1,491	1,044	2,535
High	Hospital c/o Guam Memorial Hospital Authority	See Appendix F	\$32,800,000	328	230	558
MARITIME DEVELOPMENT						
High	New Wharf and Land Reclamation	Build new wharf, reclaim land, purchase cranes	\$35,000,000	350	245	595
High	Guam Fisherman's Cooperative Association Marina Authority	Revitalize the Agat Marina and expand the Greg D. Perez Marina in Hågatña ; each marina will have a council	\$7,500,000	75	53	128
High	Marina Development	Design and construction	\$4,500,000	45	32	77
High	Guam Fisherman's Cooperative Association Building Complex	Build 20,000 sq. ft. two-story complex	\$3,500,000	35	25	60

Priority	Project Name	Description	Estimated Cost	Estimated Direct Jobs	Estimated Indirect Jobs	Total Jobs
High	Guam's Limited Entry Longline Fleet	Establish a longline fleet to operate in Guam's waters	\$1,750,000	18	13	31
High	Marine Small Loan Revolving Fund	Establish a revolving low-interest loan fund to assist small boat fishermen in making necessary repairs to their vessels or purchasing needed equipment	\$500,000	5	4	9
High	Multipurpose Vessel Development	Establish a vessel that is able to perform multiple missions	\$500,000	5	4	9
High	Guam Domestic Fisheries	Develop and implement fisheries feasibility study	\$200,000	2	2	4
HĀGATÑA REVITALIZATION						
High	Hāgatña Revitalization	Master plan development and design	\$3,000,000	30	21	51
EDUCATION TOURISM						
High	Education Tourism	Develop feasibility study	\$300,000	3	3	6
PLANNING						
High	Consolidated Survey Center	Establish comprehensive center tied with key agencies to modernize data strategies and reports.	\$500,000	4	10	14
AGRICULTURE						
High	Guam Farmers Cooperative Association Complex	Build complex	\$3,960,000	40	28	68
INFORMATION TECHNOLOGY						
High	Telecom Industry Training Program	Prepare training program	\$205,000	3	3	6
High	Regional Software Support Center	Develop feasibility study and cost-benefit analysis	\$150,000	2	2	4
GREEN TECHNOLOGY						
High	Green Technology	Develop feasibility study	\$300,000	3	3	6
BUSINESS HUB						
Medium	Industrial Park	Develop feasibility study to explore various industry options	\$200,000	2	2	4
Medium	Conference Center	Develop marketing study to maximize enhancement of the tourism feature	\$200,000	2	2	4

Priority	Project Name	Description	Estimated Cost	Estimated Direct Jobs	Estimated Indirect Jobs	Total Jobs
Medium	Cottage Industries	Develop feasibility study to explore various cottage industries that are viable for Guam	\$100,000	1	1	2
ECOTOURISM						
Medium	Feasibility Study	Explore the viability of Guam entering the ecotourism market	\$200,000	2	2	4
SPORTS TOURISM						
Medium	Feasibility Study	Explore the viability of Guam entering this tourism market	\$200,000	2	2	4
GUAM IMPROVEMENT PROJECTS						
Medium	From <i>One Guam Report</i>	See Appendix	\$1,817,167,482	18,172	12,721	
MEDICAL TOURISM						
Low	Feasibility Study	Explore the viability of Guam entering this tourism market	\$200,000	2	2	4
MANUFACTURING & EXPORTING						
Low	Feasibility Study	Explore the viability of Guam entering this market	\$200,000	2	2	4
FINANCIAL & LEGAL SERVICES						
Low	Feasibility Study	Explore the viability of Guam entering this market	\$200,000	2	2	4
FILM INDUSTRY						
Low	Feasibility Study	Explore the viability of Guam entering this market	\$200,000	2	2	4

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APPENDICES



Appendix A

GUAM POWER AUTHORITY Generation Capital Improvement Projects for New Bonds FY 2011 - FY 2014 (x \$1,000)						
Item	Capital Improvement Project Name	FY1 1	FY12	FY1 3	FY14	Project Total
1	Cabras 3&4 Facility Improvements - New Storage Building, HVAC Replacement, Plant Security System	460		550		1,010
2	Provide Fire Protection for Transformers and Fire Detection System for Boiler Burner Area - Cabras 1&2	650				650
3	Cabras 1&2 Facility Improvements - New Plant Maintenance Shop, Plant Paging System, A/C for Office and Lab, New Chemical Storage Facility	838	200			1,038
4	Replace Existing Yard Fire Hydrant System - Cabras 1&2	420				420
5	Install Generator On-Line Monitoring System for Unit 1&2 and Provide Electrical Testing and Measuring Equipment	165		63		228
6	Fire Alarm / Suppression System Upgrade Phase 2 - Cabras 3&4	640	160			800
7	Waste Oil Facility Improvements - Cabras 1&2	150				150
8	Cabras #2 Reheater Tubes Replacement	1,113				1,113
9	Replace Cabras Unit #1 Feedwater Heater #2 and Unit #2 FWH #4	1,090				1,090
10	Replace Cabras Unit #2 Hydrogen and CO2 piping	75				75
11	Replace Cabras Unit #1 Instrument Air Compressor 1B & Cabras Unit #2 Service Air Compressor	85	180			265
12	Cabras Unit #2 Heater Drain Pump & Motor Replacement	240				240
13	Replace one (1) Boiler feed Pump Motor for Cabras Unit #1	275				275
14	Replace Battery Bank "A", "B" & "C" - Cabras 3&4	50		100		150
15	Governor Control System Replacement - Cabras 3&4	600				600

GUAM POWER AUTHORITY Generation Capital Improvement Projects for New Bonds FY 2011 - FY 2014 (x \$1,000)						
Item	Capital Improvement Project Name	FY1 1	FY12	FY1 3	FY14	Project Total
16	Homogenizer Replacement - Cabras 3&4	500				500
17	Sea Water Travelling Screen A,B, C Replacement - Cabras 3&4	400	800			1,200
18	CEMS Replacement - Cabras 3&4		150			150
19	New Hydraulic Press for Waste Oil Recovery - Cabras 3&4		50			50
20	Lube Oil Storage and Maintenance Facility for WSD					0
21	Replace One (1) Forced Draft Fan Motor for Cabras Unit #1		275			275
22	Design and Construct Chemical Storage Facility for Cabras Unit #1&2		250			250
23	Generator Protection Relay Panel Replacement - Cabras 3&4		250			250
24	Distributed Control System(DCS) Replacement - Cabras 3&4		1,200			1,200
25	Turbochargers Replacement - Cabras 3&4		1,400			1,400
26	Air Cooler 2 sets Replacement (Phase 1) - Cabras 3&4		250			250
27	Replace Service Water Cooler for Cabras Unit #1			500		500
28	Replace Unit #1 Auxiliary Transformer - Cabras 1&2			500		500
29	Exhaust Gas Silencer Replacement - Cabras 3&4			150		150
30	Fuel Oil Purifier Feed Pumps Replacement - Cabras 3&4			150		150
1	Installation of Vent Fan for Turbochargers - Cabras 3&4			300		300
32	Debris Filter Replacement - Cabras 3&4			250		250
33	Cabras #3 Bearing Temperature Monitoring System			380		380

Appendix B

Guam Waterworks Authority Capital Improvement Projects	
PW 05-01 Ground Water Disinfection	
PW 05-02 Water Reservoir Condition Assessment	
PW 05-03 Santa Rita Springs Booster Pump Rehabilitation, Phase II	
PW 05-04 Ugum Water Treatment Plant Refurbishment	
PW 05-05 “A” Series Well Transmission Line	
PW 05-06 Water Booster Pump Station	
PW 05-07 Meter Replacement Program	
PW 05-08 Barrigada Tank Repair/Replacement	
PW 05-09 Leak Detection / Line Replacement	
PW 05-10 Potable Water System Planning	
PW 09-01 Ugum Water Treatment Plant Intake Modifications	
PW 09-02 Water Wells	
PW 09-03 Water Distribution System Pipe Replacement	
PW 09-04 Pressure Zone Realignment/Development 2005	
PW 09-05 Northern System Water Distribution System 2005 Improvements	
PW 09-06 Central Water Distribution System 2005 Improvements	
PW 09-07 Southern Water Distribution System 2005 Improvements	
PW 09-08 Mechanical/Electrical Equipment Replacement	
PW 09-09 Water Reservoir Internal/External Corrosion Asmt	
PW 09-10 Water Reservoir Internal/External Corrosion Rehabilitation	
PW 09-11 Water System Reservoirs 2005 Improvements	
PW 11-01 Distribution System Upgrades	
PW 11-02 Ugum Water Treatment Plant Reservoir Replacement	
WW 05-01 Old Agat Wastewater Collection (I/I reduction)	
WW 05-02 Collection Line Upgrade/ Collection System Upgrades	
WW 05-03 NDWTP Diffuser Installation	
WW 05-04 Wastewater System Planning	
WW 05-05 Wastewater Vehicles	
WW 05-06 Wastewater Pump Station Upgrades	
WW 05-07 NDWWTP - Chlorine Tanks	
WW 05-08 Umatac-Merizo STP Improvements	

Guam Waterworks Authority Capital Improvement Projects
WW 09-02 Moratorium
WW 09-03 Old Agat Collection Continuation (III)
WW 09-05 Agat Manhole Rehabilitation
WW 09-06 Wastewater Collection System Replacement/Rehabilitation
WW 09-07 Tumon Bay Sewer Upgrades
WW 09-08 Facilities Plan/Design for Baza Gardens STP Replacement
WW 09-09 Facilities Plan/Design for the N. District STP Bio-solid
WW 09-10 Facilities Plan/Design for Agat-Santa Rita STP Replacement
WW 09-11 WWTP Priority 1 Upgrade
WW 11-01 Priority 1 Sewer Upgrades – Agat District
WW 11-02 Priority 1 Sewer Upgrades – Baza Garden District
WW 11-03 Baza Gardens STP Replacement
WW 11-04 Facilities Plan/Design for the Umatac-Merizo STP Improvements
WW 11-05 Facilities Plan for Hågatña STP Improvements & Effluent WWPS
WW 11-06 Hågatña STP Improvements and Effluent WWPS
WW 11-07 Northern District STP Expansion – Biosolids Electrical
MC 05-01 Laboratory Modernization
EE 05-01 Well Electrical Protection
EE 05-02 SCADA Pilot Project
EE 09-01 Wastewater Pumping Station Electrical Upgrade
EE 09-02 Electrical Upgrade - Water Wells
EE 09-03 Electrical Upgrade - Water Booster Pump Stations
EE 09-04 Electrical Upgrade -Water Booster Pump Stations
EE 09-05 Electrical Upgrade - Other Water Booster Pump Stations
EE 09-06 SCADA Improvements – Phase 1
EE 09-07 SCADA Improvements – Phase 2
EE 09-08 SCADA Improvements – Phase 3
EE 09-09 SCADA Improvements – Phase 4
DOD FUNDED PROJECTS
WW 05-02 Collection Line Upgrade/ Collection System Upgrades
WW 05-03 NDWTP Diffuser Installation
WW 05-06 Wastewater Pump Station Upgrades
WW 09-01 LS Priority 1 Upgrades
WW 09-02 Moratorium
WW 09-04 Manhole Frame Seal Repair
WW 09-06 Wastewater Collection System Replacement/Rehabilitation
WW 09-09 Facilities Plan/Design for the N. District STP Bio-solids

Guam Waterworks Authority Capital Improvement Projects
WW 11-05 Facilities Plan for Hågatña STP Improvements & Effluent WWPS
WW 11-06 Hågatña STP Improvements and Effluent WWPS
WW 11-07 Northern District STP Expansion – Biosolids Electrical

Appendix C

Department of Public Works Capital Improvement Projects	
Construction of Emergency Shelter/Tanks @ Astumbo Elementary School	
Construction of Emergency Shelter/Tanks @ Wettengel Elementary School	
Construction of Emergency Shelter/Tanks @ Maria Ulloa Elementary School	
Construction of Emergency Shelter/Tanks @ George Washington High School	
Construction of Emergency Shelter/Tanks @ MU Lujan Elementary School	
Construction of Emergency Shelter/Tanks @ Carbullido Elementary School	
Construction of Emergency Shelter/Tanks @ Talofoto Elementary School	
Construction of Emergency Shelter/Tanks @ Inarajan Elementary School	
Construction of Emergency Shelter/Tanks @ Harry S. Truman Elem. School	
Construction of Emergency Shelter/Tanks @ Merizo Elementary School	
Construction of Emergency Shelter/Tanks @ FQ Sanchez Elementary School	
Construction of Emergency Shelter/Tanks @ Machananao Elementary School	
Construction of Emergency Shelter/Tanks @ J.M. Guerrero Elementary School	
Construction of Emergency Shelter/Tanks @ UPI Elem. Sch.	
Construction of Emergency Shelter/Tanks @ Chalan Pago Ordof Elem. School	
Construction of Emergency Shelter/Tanks @ F.B. Leon Guerrero Middle School	
Construction of Department of Parks & Recreation/ Historic Preservation Guam Sports Complex Baseball Park (Design-Build)	
Renovation and Miscellaneous Repair at DPHSS (Design-Build)	
Typhoon Shutters @ GUAM DOE HMPG-GU-DR-1446, PW # 12 for M.U. Lujan	
Construction of Guam Heritage Walking Trail	
Emergency repairs at various facilities of GUAM DOE, Maria Ulloa Elementary school	
Emergency repairs at various facilities of GUAM DOE, Finegayan Elementary school Boys and Girls Bathroom	
Emergency repairs at various facilities of GUAM DOE, Finegayan Elementary School Perimeter Fence	
Emergency repair at various facilities of GUAM DOE, JM Guerrero Elementary School	
Emergency repair of various facilities at GUAM DOE, Simon Sanchez High School (Roof Repair)	
Construction of New Nursery at Dept. of Agriculture (Design-Building)	
Construction and Restoration of Masso River Reservoir, Piti, Guam	

Department of Public Works Capital Improvement Projects
Santos Memorial Park Improvements
As-Atdas Apartment Complex- Renovation of Bldg A
Renovation of Guma As-Atdas Apartment Complex Bldg 5, A & B, Yigo
Guam Heritage Walking Trails
Procure/Construct Generator Room and Generator at Dept. of Agriculture (Design-Building)
Construct Guam Sports Complex Baseball Park (Design-Building)
Construction of New Fisheries Office Building @ Department of Agriculture
New Chain Link Fence at Masso River Reservoir
Repair of Merizo Pier and Merizo Boat Ramp
Renovation and Upgrading of Building "E" @ the Dept. of Youth Affairs (Design-Building)
F.B. Leon Guerrero Middle School Roofing (Under Contractor's warranty)
Agat Marina Public Boat Ramp
Building Renovation of WIC Facilities (Electrical), Tiyan
Building Renovation of WIC Facilities , Tiyan
Building Renovation of WIC Facilities (Electrical), Santa Rita
Construction of New John F. Kennedy High School Finance, Demolition, Design, Build, Maintain & Leaseback (FDDDBML)
Construction of Guam Forensic Science Laboratory in GCC Campus, Mangilao
King Fisheries Holding Enclosures, DOAG,
Upgrade and Installation of Electronic Locking System @ the Dept. of Correction Facilities (Design-Building)
Retrofitting Public Buildings
LED Streetlights in Marine Drive

Appendix D

Guam International Airport Authority Capital Improvement Projects	
Extend Runway 6L/24R	
Rehabilitate Runway 6L/24R	
Install Instrument Landing System Runway 6L	
Noise mitigation for residence	
Improve Airport Utility Infrastructure (Sewer and storm water design only)	
Collect airport data for the Airports Geographic information system (AGIS)	
Install Instrument Landing System Runway 6L Phase II	
Conduct Environmental Assessment for Sewer and Storm drainage	

Appendix E

Port Authority of Guam Capital Improvement Projects
Port Modernization - Acquisition of Two (2) New Container Cranes
Port Modernization -Operating Systems for Terminal ad Gate/OCR Canopy Portals
Port Modernization: Container Yard and Existing Reefer Upgrade
Port Modernization - Building Renovation & Construction
Port Modernization - Wharf Rehabilitation and Dredging for F4, F5 & F6

Appendix F

Guam Memorial Hospital Authority Capital Improvement Projects	
Chiller Replacement	
Fire Sprinkler System Upgrade	
Infusion Pump Replacement Project	
3rd and 4th floor A-wing wall hardening	
A/E design services to replace electrical power distribution system	
Portable X-Ray Machines	
Procure & Install (by Owner) Touchless Faucets and Water Closets	
Replace Laboratory Information System (LIS)	
Replace Ultrasonic Cleaning System	
Replace Patient Room Doors	
Vertical Transportation Elevator Modernization Project	
ER & CCU/ICU Expansion/Upgrade Project	
Replace Main Electrical Distribution System & one (1) 1.6 Megawatts Generator Set	
Medical Equipment and Furnishings for the ED and CCU/ICU Expansion	
Medical Equipment for the various inpatient and outpatient Nursing Units	
The 1 st & 2 nd Floors HVAC Upgrade (A/E & Construction)	
Removal and replacement of built up roofing system 3 rd & 4 th floors	
Replace the Hospital and SNU Nurse Call / Code 72 / Intercom Systems	
Replace the SNU Chiller System	
Replace the SNU Fire Alarm System	
Office and interior furnishings for general care areas	
Replacement of various air handling units throughout facility	
Upgrade typhoon shutters from panel type to roll up SNU	
Replacement of roof coating system SNU	
Replacement of hot water system SNU	
Replacement of water softener system SNU	
Replacement of dishwasher system SNU	

Appendix G

One Guam Report of Capital Improvement Projects

Tier	Department	Prioritization of Government of Guam Projects
1 FY 2012 2014	DPW	School Bus Fleet & Maintenance Facility
	DMHSA	Mental Health & Substance Abuse Facility
	DPHSS	CDC Lab & Medical Healthcare Campus Master Plan
	GCA	Cultural Repository
2 FY 2013 to 2015	OOG	Program Management Office
	GWA	Sixteen (16) New Production Water Wells
	PAG	Port Modernization - Acquisition of Two (2) New Container Cranes
	GC&QA	Biosecurity Enforcement Needs
	GEPA	Military Buildup Related Resource Needs
	DPW	Highway Maintenance & Construction Enhancements
	BSP	Capacity Assistance for Project Review & Monitoring
	PAG	Port Modernization -Operating Systems for Terminal ad Gate/OCR Canopy Portals
	PAG	Port Modernization: Container Yard and Existing Reefer Upgrade
	PAG	Port Modernization - Building Renovation & Construction
	PAG	Port Modernization - Wharf Rehabilitation and Dredging for F4, F5 & F6
	GEDA	Polaris Point Infrastructure Improvements
	DPW	Information Technology Systems Infrastructure Enhancements/Upgrade
	DPW	Fleet Management and Inventory System
	DPW	Warehouse Inventory & Fixed Asset System
	DRT	Department and Revenue Tax Building (New)
	GPD	GPD Headquarters
	GMHA	Guam Memorial Expansion
	DPHSS	DPHSS Facility & Central Health Clinic
	DOL	Labor Resource Needs
3 FY 2014 to 2016	GPD	Crime Laboratory Expansion
	GPD	Vehicle Fleet Augmentation
	GFD	New Fire Stations & Equipment for Military Growth Areas
	GIAA	Passenger Concourse Construction - Gates 1, 2 & 3
	GFD	Fire Apparatus-Ambulance Fleet Upgrade

Tier	Department	Prioritization of Government of Guam Projects
	UoG	School of Engineering Annex Expansion
	DOE	Construct Four (4) Schools
	GIAA	Outbound Baggage System Improvements
	GPD	Central Precinct Facility (Relocation/New)
	DPR	Expansion of Historic Preservation Office
	GPD	Yigo Precinct Command Facility (New)
	DYA	Construction/Expansion of Youth Correctional Facilities - NEW
	GPD	Marine Enforcement Facility - Boat House
	DPW	New School Buses
	DPHSS	Improvements for the Office of Vital Statistics
	GIAA	Integrated Cargo Aprons
	GIAA	North & South Ramp Pipeline and Hydrant System
	DOC	Adult Correctional Facility Phase One
	SCOG	Hagatna Judicial Center
4 FY 2015 to 2016	UOG	Triton Engagement Center
	GIAA	Military Specifications Runway Retrofit
	DPR	Construct Olympic Pool Facility
	DPR	Paseo Stadium Upgrade/Renovation
	DPR	Guerrero Field Upgrade/Renovation
	DPR	Dededo Sports Complex Upgrade/Renovation
	DPR	Hagatna Pool Upgrade/Renovation
	DPR	Tennis Centers Upgrade/Renovation
	DPR	Inarajan Pool Upgrade/Renovation
	DPR	Support Equipment Acquisition
	DPR	Construct/Expand Warehouse



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