

THE PARADISE ISLANDS

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ABSTRACT

The Paradise Islands is a semester-long simulation in which the students are faced with the challenges inherent with developing a third-world economy. The students are formed into several groups, each with a specific task and the authority to devise an appropriate solution. What the students do not know is that their different tasks are mutually exclusive so that the first solutions will not work for all participants. Subsequent negotiation is needed to develop a single plan which is then presented to a panel of outside experts.

INTRODUCTION

The Paradise Islands simulation was developed to present students with a complex, multi-faceted problem and give them the time to develop a solution. Simulations can be either short or long. Short simulations teach specific information and are a part of a larger course. They make take one or two class periods to conduct. Long simulations tend to augment and run parallel to an existing course. These simulations may only take a few minutes out of any class period, but they may last for the entire term. The Paradise Islands simulation is the entire course; it stands alone without reference to other course material. In this way, the Paradise Islands provides a type of experiential simulation.

A design feature of the Paradise Islands is that in its original presentation, there can be no common solution to the several problems faced by the participants. Different groups are assigned different tasks which while logical in their own right are mutually exclusive. For example, one group was assigned to protect an environment which includes endangered species while a second group is assigned to plan industrial development in the same area as the endangered species. While both groups can develop their specific solutions in isolation, neither solution will be acceptable to both parties.

This then requires the groups to negotiate in order to reach a compromise that neither group really wants. Since there are six different groups operating in the simulation, there are many different conflicts at different levels that must be resolved.

DEVELOPMENT OF THE SIMULATION

The Paradise Islands simulation was created as a seminar course for the university honors program. These seminars are conducted by two faculty members from different disciplines on a mutually interesting topic. Each of the authors had previous experience with simulations and games of varying degrees of complexity. The proposal to develop a semester-long simulation was approved, and there was a one year period available to develop the course.

The key to having the students suspend disbelief and buy into an artificial environment is to make that environment as real as possible. The two developers came from different academic backgrounds, finance and biology, and each brought a specific body of knowledge to the simulation. The focus of the simulation was economic development versus environmental protection.

The first task was to create a physical location. The Paradise Islands are located in a remote portion of the South Atlantic Ocean (Exhibit 1). Maps were drawn that could be rotated in three dimensions, and a series of angle shots was developed so that the students could build a mental image of the environment. Several hundred photographs were collected and attributed to various areas on the islands, so it was possible to give the participants a look and feel of a real set of islands. Certain areas of the islands were designed to abut other areas so that there would be conflicting recommendations from the various development teams. Examples of these maps are shown in Exhibits 2 - 5.

A history was developed for the islands that was accurate, except for the fact that the islands did not exist (Exhibit 6). All the names and activities mentioned in the 400 year

recorded history of the island occurred at the proper time. While this legend was simply used as background information, the existence of a coherent timeline added credibility to the scenario. It was possible for the students to consider where people had come from while planning where to go.

The economic system was modeled as a small third-world country. Though agriculture is the fundamental industry, there were several export crops that generated enough money so that some manufactured goods could be imported. The level of income was low, but it was not so low that poverty became a decision variable. Since the focus of the simulation was the balance between economic development and environmental protection, it was not deemed appropriate to create other tangential though important considerations.

Information on the country was presented in a format similar to the CIA Factbook (Exhibit 7). This provided a common structure that students could use for reference to other countries. Additional information concerning various aspects of the island such as the farming of specific crops, methods of power generation, disease vectors, and United Nations' documents on developing sustainable economies was provided. This material was downloaded from various web sites and made available to the students on a compact disc. This CD contained in excess of 22,000 pages of material, so students had to identify the information relevant to their particular needs.

The Paradise Islands, as first presented to the students, is a stable though poor society. In order to create a reason for change, two specific economic opportunities were introduced.

The first opportunity was the development of a trans-Atlantic cruise ship route that would pass near the islands. In order to induce these ships to stop and develop a tourism industry, it would be necessary to develop some of the remote, environmentally fragile areas. The second opportunity involved the development of a class of extremely large oil tankers that would be used to transport oil from the Persian Gulf to North America and Europe. Due to the size of these tankers, there were many ports they could not enter, and it was unlikely that many countries would allow them in their territorial waters due to the potential for a catastrophic oil spill.

To be viable, these tankers would need a port in which they could offload their cargo to smaller ships, and the Paradise Islands was on the sea route the tankers would take. Either or both opportunities were possible, but the costs of development and the effects on the environment had to be considered.

This was the situation presented to the students at the beginning of the simulation. The Paradise Islands is a small, relatively poor country that had been presented with opportunities for economic development. Whether and how these opportunities would be pursued was the responsibility of the students. They were the leaders of the Paradise Islands, and it was their job to identify courses of action that would benefit their country.

CONDUCTING THE SIMULATION

A simulation can be designed to promote either cooperation or conflict between the players. The Paradise Islands was designed to create conflict, and the instructors actively encouraged such behavior. The final goal of the simulation was to prepare a single report that would be presented to a panel of outside experts, but group tasks were set to be mutually contradictory. In this way, students at first invested their time and energy into developing what they thought to be a perfect answer to their problem only to find out half way through the term that everyone else had a different solution. The first half of the term focused on creativity, and the second half required negotiation.

There were 24 students in the class, and on the first day they were divided into two groups of twelve, one to work on economic development problems and the other to work with environmental and health problems. Each content instructor worked with his specific group of 12 students; during this first phase no collaboration was allowed. Each group of 12 was further divided into three groups of four students each, and each smaller group was assigned a specific function, such as Council of Mayors or Ministry of Public Health. The six specific group mission statements are shown in Exhibits 8 - 13. The responsibilities of each group were designed so that there would be conflict with at least one other group.

In addition to the two content instructors (finance and biology), a third individual worked with the groups on process.

This individual was titularly the supervisor of the two content instructors and so had the authority to review their work by talking to the students. The process instructor also served as a sounding board for the students and an indirect conduit for information between the students and the content instructors. The students were led to believe that there was little or no communication between any of the instructors, and so they often made candid comments concerning the simulation and the people involved. As might be expected, all three instructors were in close communications, and student comments helped to guide the actions of the content instructors.

The meeting times for all sections were identical, and the meeting rooms were in close proximity. It was thus possible to keep the students separated or allow them to mingle. During the first half of the term when the groups were devising their particular solutions, they were kept separate. During the negotiation phase in the second half of the term, the students were allowed to work together to find common ground for solving their specific problems.

The class pattern for the first half of the term was for the content instructors to meet with their groups on Monday and Friday to discuss progress and possible directions of investigation. During these sessions the instructors kept the various groups working in opposite directions. This effort was reinforced by scripted comments from the biology instructor like "You can't trust those business people because all they are concerned about is money" and from the finance instructor

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like Athose environmental types care more about bugs than they do people@. While such comments were never a major theme, they helped to create a bit of tension between the students.

On the typical Wednesday during the first half of the term, the process instructor would meet with both the business and environmental groups for half the class period. This allowed the students to give progress reports to someone who supposedly did not know what they were doing and consider comments from a supposedly neutral authority figure. The content instructor did not have a scripted role, but discussions among all three instructors occurred regularly, and suggestions made to the students by the process instructor were mutually agreed upon. Sometimes the comments were placating, and sometimes they were divisive. All were designed to keep the students working towards their individual but mutually exclusive goals.

The first key event occurred at midterm. The student groups had all developed solutions to their problems. A long session was held in which each group presented its solution to the other groups. Each group now became aware that all of its work might not be recognized as important as they thought it was. The image used by the instructors was a six-sided train wreck. It was now apparent that the groups working in isolation did not have the building blocks necessary to develop a single cohesive plan.

The second half of the term focused on team work and negotiation. During the Monday and Friday sessions, the content instructors worked with the students to identify areas of conflict, and the students were allowed to meet with other groups to develop a common solution. The content instructors quietly continued to disparage the ideas of the other groups in order to make students fight for their point of view rather than negotiate everything away in order to achieve harmony. It was necessary to develop a single, unified plan, but there was no reason that the process should be easy. Wednesday sessions were still run by the process instructor, but the focus was now on the preparation of the final presentation, both visual and written. These were the sessions structured to generate cooperative behavior.

During the final four weeks of the class, one student was selected from each of the two groups to act as editor for the final written document. These individuals had the task of gathering information from the other students and compiling it into a coherent document that explained the single plan for development. One of the content instructors worked with this group to help them organize and prepare the report.

The other content instructor and the process instructor worked with the remaining students to improve their communications and presentation skills. While all students had some level of training in making oral presentations, their level of proficiency was inconsistent, and all of them were able to improve their existing skills. For three weeks, this work was conducted during the regularly scheduled class times, but during the last week, the class moved to the tiered lecture room which was to be the site of the final presentation. This

allowed the students to get a feel for their environment and have some experience working in a large room.

Since it would not be possible for all students to participate directly in the presentation, it was necessary to develop a selection technique that would require all students to remain actively engaged until the last possible moment. The presentation had eight roles, an emcee, six area experts, and a presenter of the final plan. The students chose the emcee and final presenter two weeks before the presentation so that these individuals would have time to prepare their roles. The six students who would act as area experts were not chosen until the day of the presentation. Everyone arrived at the room three hours before the presentation. Each student had to make a three minute presentation on his/her area of expertise. The other students then voted on who they wanted to make the presentation, and there was time for a final rehearsal of those who would make the actual presentation. Since no one knew until the last few minutes who would be chosen, each student had to be ready.

The final presentation was made to a group of experts representing the World Bank. This panel would determine whether or not the plan was acceptable and would receive funding. The members of this six-member board were invited from the senior level of the university administration, college dean and higher. They were given some information regarding the history of the islands, but their role was to listen to the presentation and ask questions. They were instructed to allow the students to make their presentation, after which there would be a question and answer session.

This was where a wheel came off. The chairman of the panel was by profession a trial lawyer. Two minutes after the start of the presentation, he began cross-examining the individuals making the presentation, sometimes in a not-so-friendly manner. The other panel members figured that they could have some fun, too, so each of them asked pointed questions of the students. When this process began, the instructors looked at each other and shook their heads, because there was no way to intervene. The students were on their own.

To the credit of the students, they did a very good job in responding to these unexpected questions. Due to the practice they had in the previous weeks, they were able to handle the hostile environment and complete the presentation in a professional manner. An interesting note here is that three of the eight presenters were freshmen who had only the most basic presentation skills and no experience with a hostile audience. The panel had thought that they would be dealing only with seniors, and when they were informed that they had been questioning lower division students they were impressed.

While the simulation was not designed specifically to develop public speaking skills, such skills were indeed a byproduct of the work.

CONCLUSIONS

The Paradise Islands was designed to be an experiential simulation that placed students in a complete environment and

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required them to make decisions that could affect many aspects of the islands and its people. The simulation was designed so that the various participants would be working towards mutually exclusive solutions, and the instructors actively encouraged dissension between the various groups. Students were presented with more information than they could possibly process, so they were forced to make decisions concerning the relevance and importance of various sources. Environmental and economic changes were introduced that required creative thinking and innovative solutions, and students were forced to reconcile their differences and agree on a common plan. This plan was presented to an

unexpectedly hostile group of outside reviewers, and the students successfully adapted to this environment.

The stated goal of the Paradise Islands was for students to create plans to develop a third-world economy and improve the lives of the people. The unstated goals involved conflict resolution and developing presentation skills. Though the students came from various backgrounds, they were able to work through the simulation and experience the success that comes from hard work and good preparation. The Paradise Islands was thus a successful exercise that allowed multiple goals to be achieved.

EXHIBIT 1

Location of The Paradise Islands

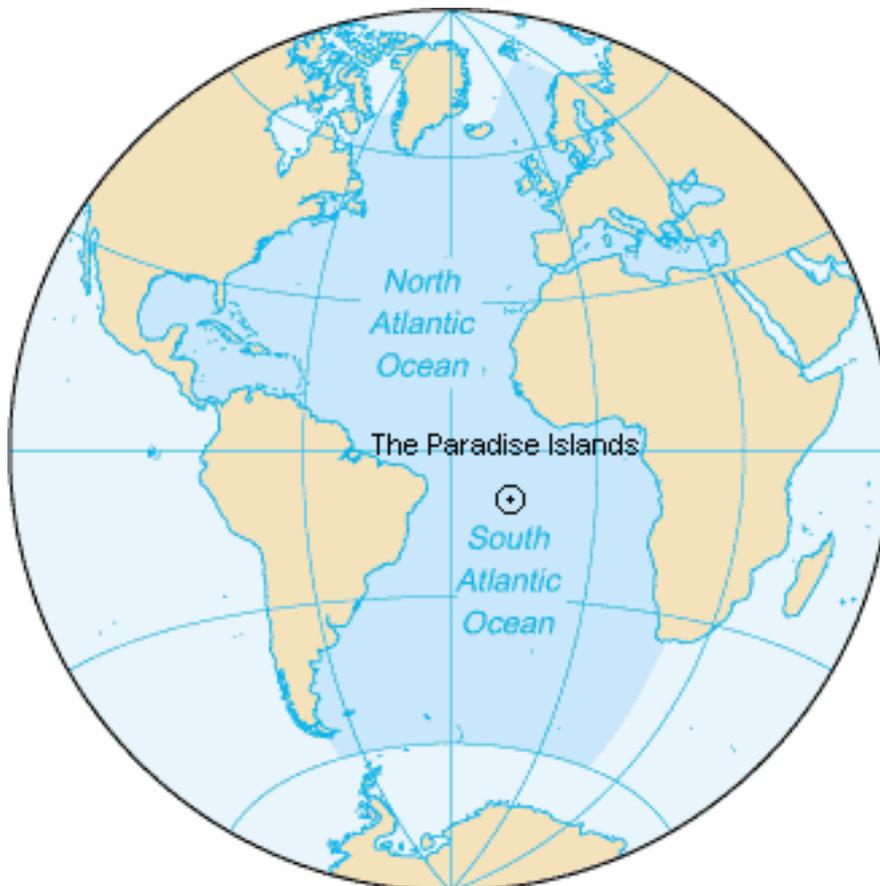


EXHIBIT 2

The Paradise Islands

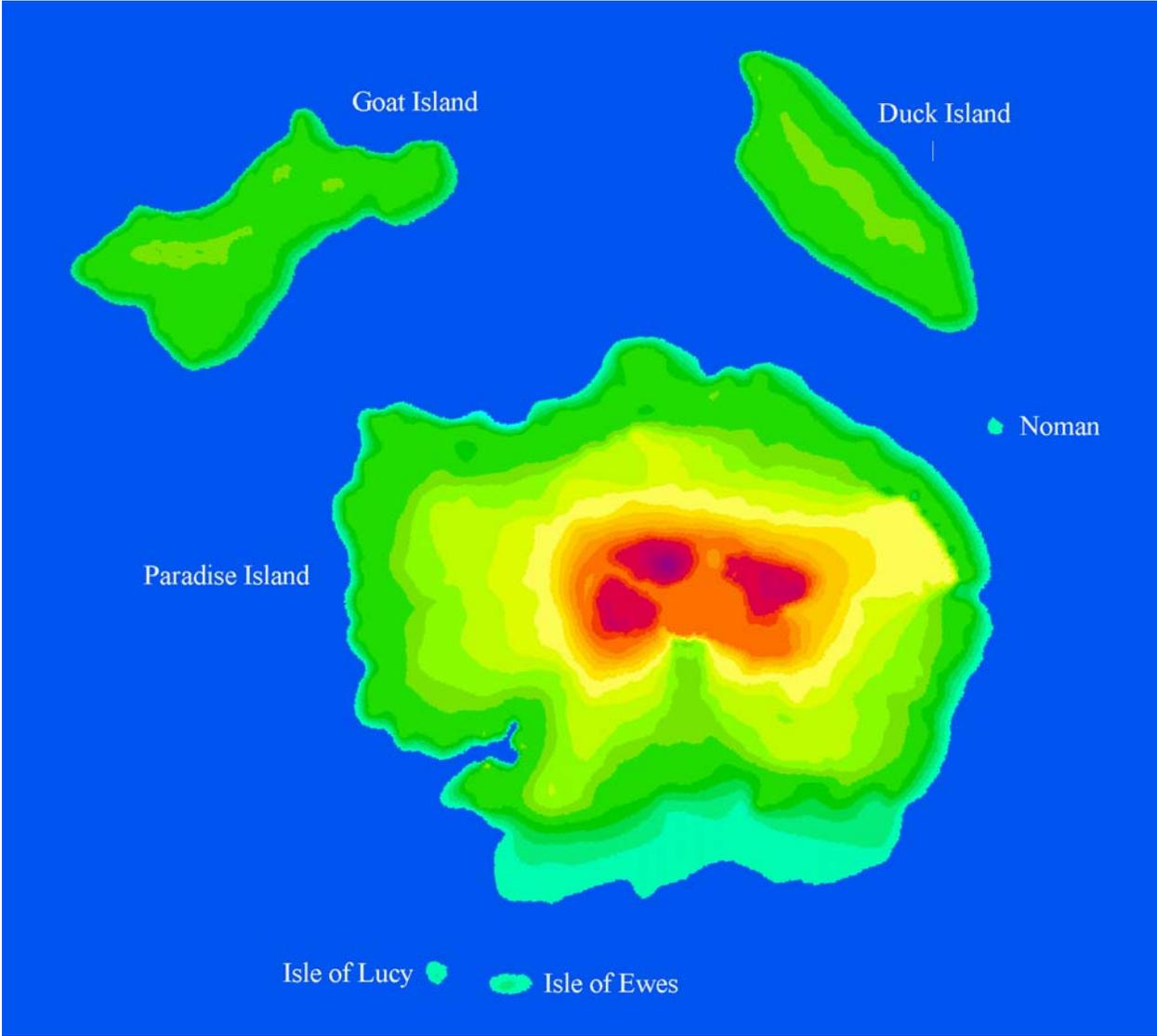


EXHIBIT 3

The Paradise Islands from the Southeast

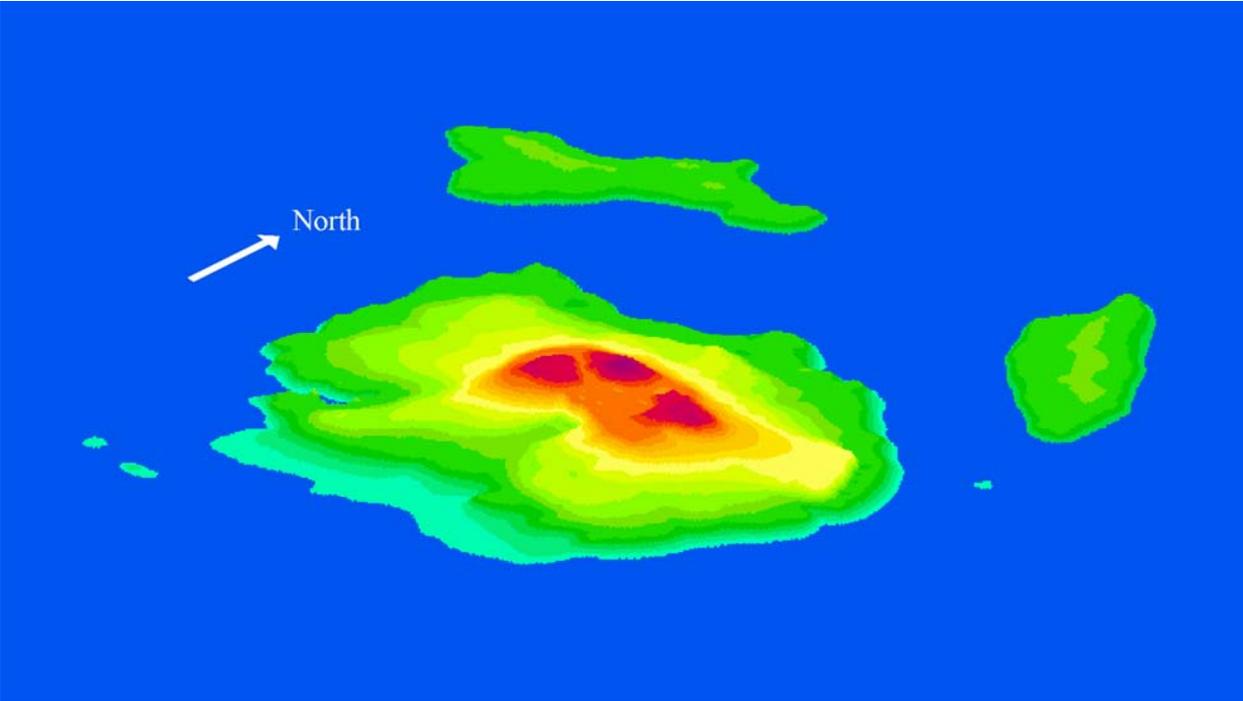


EXHIBIT 4

The Paradise Islands - Water Levels

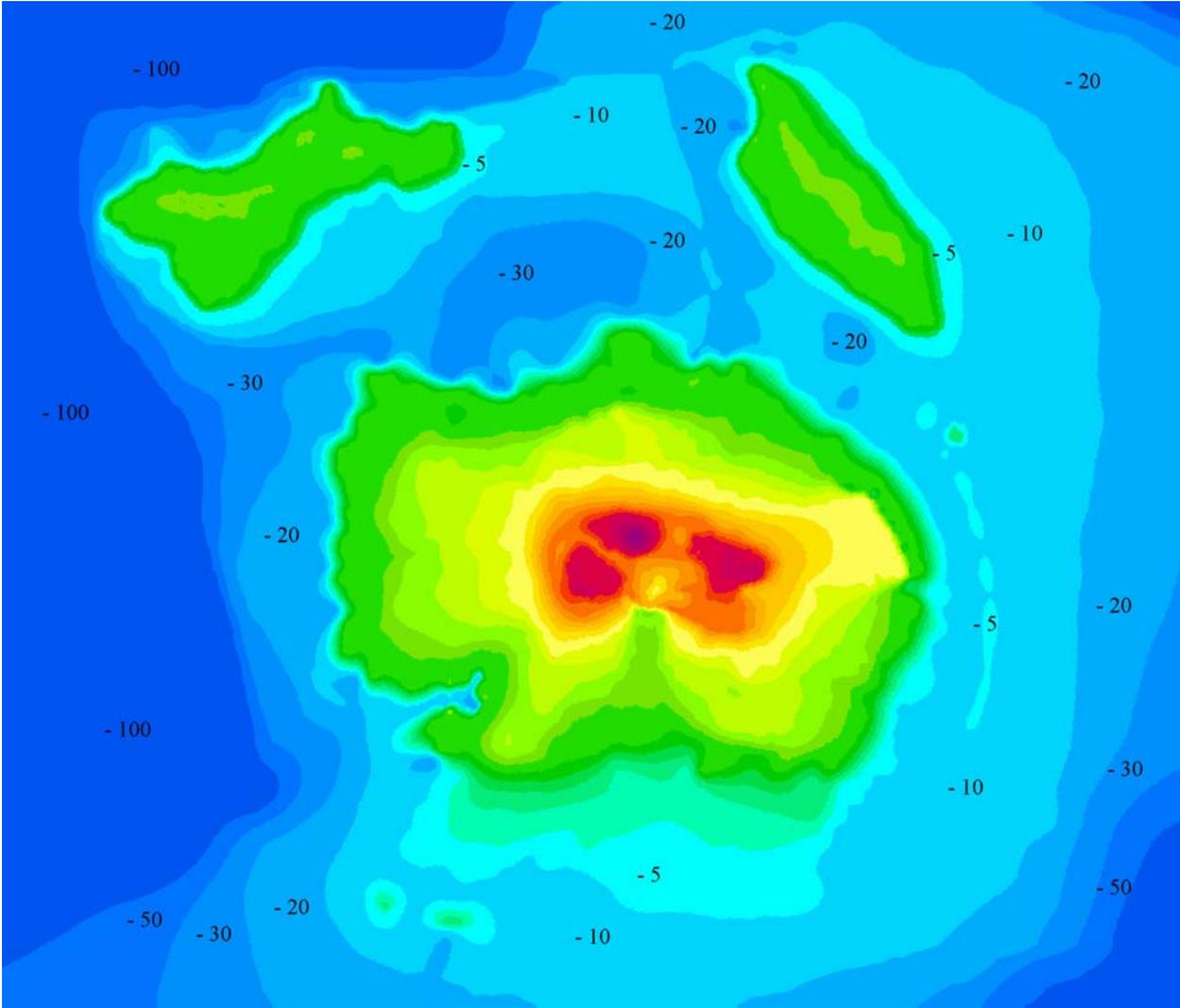


EXHIBIT 5

The Paradise Islands - Cities

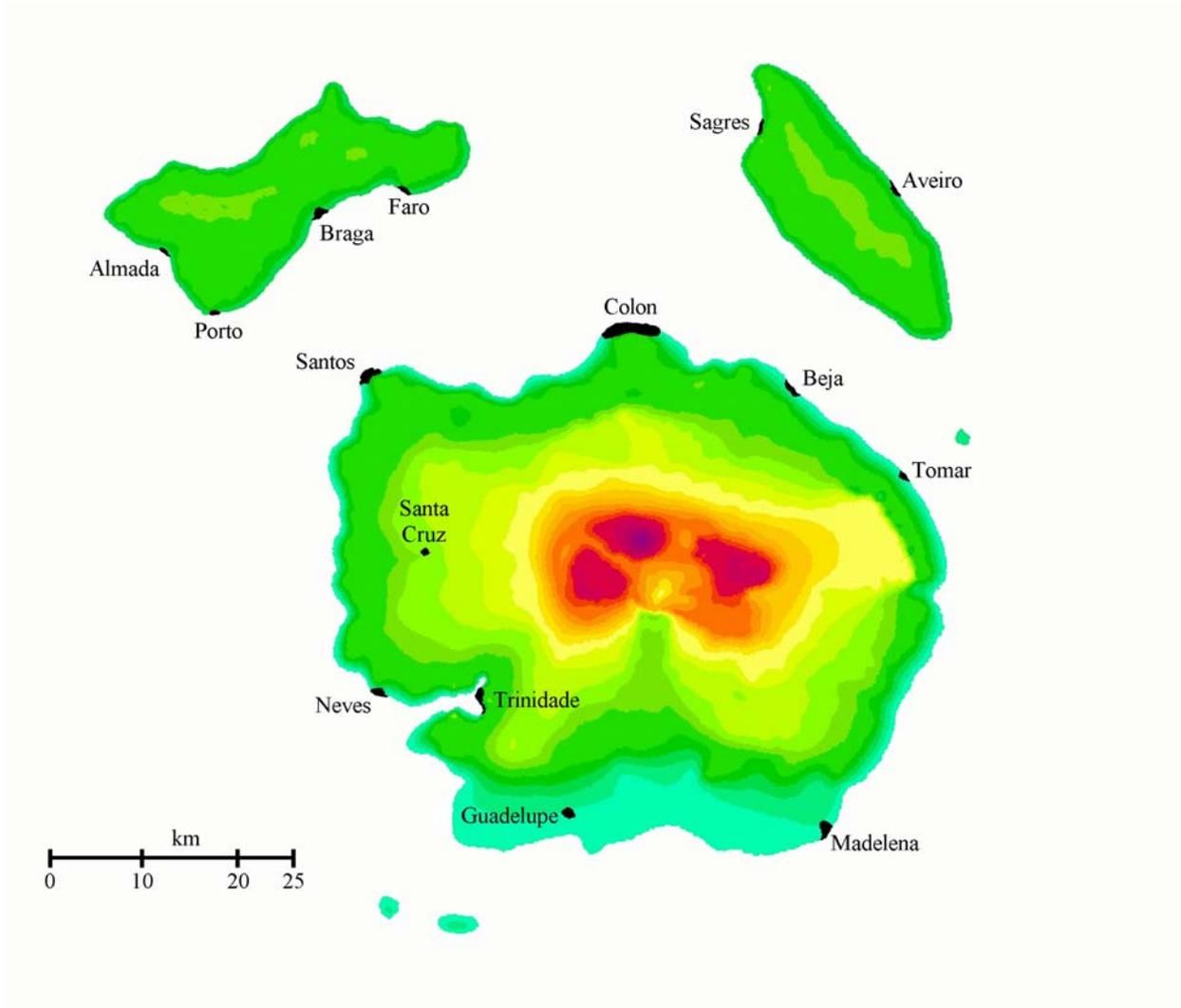


EXHIBIT 6

The History of the Paradise Islands

Description

The Paradise Islands are formed by the top of an extinct volcano that rises from the mid-Atlantic Ridge. While Goat Island and Duck Island are fairly flat, Paradise Island has a mountainous central highland area. The highest point is Pico João at 815 meters. Companion peaks Mt. Gonçalves to the west and Mt. Isabel to the east rise to heights of 756 meters and 688 meters, respectively. The central bay is fairly shallow with depths of up to 35 meters. To the east of the main island is a barrier reef, Recife Principal, which rises to within 5 meters of the surface at low tide. The rookery island of Noman marks the northernmost point of the reef. West and north of the islands the ocean floor drops rapidly, achieving depths of over 1,000 meters within five kilometers of Goat Island. The ocean floor east and south of the islands shelves more gently due to the reef, but at a distance of roughly 15-20 kilometers from the islands, it descends to depths of over 2,000 meters. The littoral area around the islands contains some small uncharted rocks, but all of these lie within two kilometers of the shore.

Discovery and Exploration

The Paradise Islands lie south of the equator midway between Africa and South America at latitude 16 32 S, longitude 15 18 W. The three major islands surround a central lagoon and are actually the peaks of an ancient volcanic seamount that rises from the Mid-Atlantic Ridge. The islands were first sighted in 1501 by Portuguese explorer João da Nova Castelia. Castelia reported finding a native population A...of visage and stature unlike the natives of the mainland.@ The Portuguese traded goods for food and fresh water before departing the islands. Cave drawings found near Colon have been radiocarbon dated and indicate that the island was inhabited by at least 200 BCE.

It has been speculated that the natives could have been descendants of the Phoenician fleet sent by Pharaoh Necho II in 600 BCE to circumnavigate the African continent, as reported by Herodotus. It is also possible that Hanno the Carthaginian=s voyage of 500 BCE discovered and settled the islands. The voyage of Thor Heyerdahl and the Ra II demonstrate another possible source of the original population. There can be no answer to this question, however, since when Portuguese colonists arrived in 1593 they found the islands to be deserted. The new colonists had been told to expect a native population, but there was no obvious sign that the islands had ever been inhabited.

One tantalizing clue to the mysterious disappearance of the native people was uncovered in Brazil in 1983. Humberto Gomes, a professor at the Universidade Federal do Pará in Belém, Brazil, was conducting ethnological research on the Galibi tribe in the state of Amapá. The oral tradition of this tribe holds the story of people sailing in from the sunrise. These strangers told of a strange disease that killed the majority of their people, and the survivors had fled after burning their villages and throwing the dead into the sea.

(The complete History continues for seven more pages.)

EXHIBIT 7

The Paradise Islands – CIA Factbook



Introduction	The Paradise Islands
	<p>Background: Discovered and claimed by Portugal in the early 16th century, the islands' sugar-based economy gave way to fishing and timber in the 20th century. Independence was achieved in 1956, and the government has proven remarkably stable. The political environment has been one of cooperation between the leadership and all constituencies. The recent development of megatankers and expansion of the commercial cruise industry could have a significant impact on the country's economy.</p>
Geography	The Paradise Islands
	<p>Location: South Atlantic Ocean midway between Brazil and Angola</p> <p>Geographic coordinates: 16 32 S, 15 18 W</p> <p>Area: <i>total</i>: 6,542 sq km <i>land</i>: 6,522 sq km <i>water</i>: 20 sq km</p> <p>Area - comparative: about 25% larger than Rhode Island</p> <p>Land boundaries: 0 km</p> <p>Coastline: 6943 km</p> <p>Maritime claims: <i>territorial sea</i>: 12 nm <i>exclusive economic zone</i>: 200 nm</p> <p>Climate: tropical; marine; mild, tempered by trade winds; one rainy season (October to May)</p> <p>Terrain: Paradise Island - volcanic, mountainous; Goat and Duck Islands - flat with a few hills</p> <p>Elevation extremes: <i>lowest point</i>: Atlantic Ocean 0 m <i>highest point</i>: Pico Joao 815 m</p> <p>Natural resources: fish, timber, white sandy beaches</p> <p>Land use: <i>arable land</i>: 46.8% <i>permanent crops</i>: 21.3% <i>other</i>: 24.6% (2001)</p> <p>Irrigated land: NA</p> <p>Natural hazards: NA</p> <p>Environment - current issues: deforestation; soil erosion and exhaustion, limited natural water resources</p> <p>Environment - international agreements: <i>party to</i>: Biodiversity, Climate Change, Desertification, Endangered Species, Environmental Modification, Law of the Sea, Ozone Layer Protection, Ship Pollution <i>signed, but not ratified</i>: none of the selected agreements</p> <p>Geography - note: three islands around a central caldera of an extinct volcano that are fairly flat with mountains on the main island</p>

People	The Paradise Islands
Population:	187,410 (July 2005 est.)
Age structure:	0-14 years: 26.6% (male 25,922; female 23,929) 15-64 years: 67.6% (male 62,075; female 64,611) 65 years and over: 5.8% (male 4,348; female 6,525) (2004 est.)
Median age:	total: 27.4 years male: 26.7 years female: 28.2 years (2004 est.)
Population growth rate:	1.1% (2005 est.)
Birth rate:	17.8 births/1,000 population (2005 est.)
Death rate:	- .51 migrant(s)/1,000 population (2005 est.)
Sex ratio:	at birth: 1.03 male(s)/female under 15 years: 1.03 male(s)/female 15-64 years: 0.94 male(s)/female 65 years and over: 0.85 male(s)/female total population: 0.97 male(s)/female (2005 est.)
Infant mortality rate:	total: 30.66 deaths/1,000 live births male: 34.47 deaths/1,000 live births female: 26.65 deaths/1,000 live births (2004 est.)
Life expectancy at birth:	total population: 71.41 years male: 67.45 years female: 75.57 years (2004 est.)
Total fertility rate:	1.71 children born/woman (2005 est.)
HIV/AIDS - adult prevalence rate:	NA
HIV/AIDS - people living with HIV/AIDS:	NA
HIV/AIDS - deaths:	NA
Major infectious diseases:	degree of risk: low food or waterborne diseases: bacterial diarrhea, hepatitis A, and typhoid fever vectorborne disease: malaria (2004)
Nationality:	noun: Paridian(s) adjective: Paridian
Ethnic groups:	white (includes Portuguese and other Europeans) 55%, mixed white and black 38%, black 6%, other 1%
Religions:	Catholic 78.6%, Protestant 12.3%, Jewish 6.2%, other 2.9%, (2001 census)
Languages:	Portuguese (official)
Literacy:	definition: age 15 and over can read and write total population: 92.4% male: 95% female: 90.1% (1995 est.)

(The complete Factbook continues for four more pages.)

EXHIBIT 8



Mission Statement

The Council of Mayors is the elected representative of the people of The Paradise Islands. The people are its first priority, and to this end the Council will enhance the quality of life for those who live in, work in, or visit The Paradise Islands by:

Creating a safe, fulfilling, and unique environment that will preserve and enhance the quality of our lives and the lives of our children;

Building on our history and working in harmony with our natural environment to provide diverse opportunities for the highest quality of life for all citizens;

Developing educational, cultural, and leisure opportunities for our citizens;

Preserving the physical and capital resources that support the residential and economic health of the community through well-planned maintenance and development of streets, highways, harbors, drainage, utilities, and developmental regulation;

Encouraging an atmosphere that will promote, develop, retain, and encourage economic development;

Supporting an array of long range planning activities for growth in the community; and

Delivering responsible, cost-effective, and courteous service with professionalism and integrity.

EXHIBIT 9



Mission Statement

"We are the catalyst for ensuring that The Paradise Islands place first in the rankings of global competitiveness of nations."

The Economic Development Council is dedicated to the growth and development of both the people and the natural resources of The Paradise Islands. To achieve this goal it shall:

Create a viable business atmosphere that will attract compatible and diverse sustainable economic development opportunities while focusing on major assets, retention / expansion projects, the quality of life, and job creation;

Develop a climate in which businesses and people can be successful;

Build environments characterized by partnerships among private enterprises, community organizations, and government agencies that can work together for the betterment of all;

Assist local governments in identifying and developing their economic potential;

Promote effective, creative community development strategies at all levels;

Influence public policy decisions affecting economic development;

Mobilize the knowledge, skills, information, and technology of The Paradise Islands to promote productive employment, a competitive economy, and a sound environment; and

Ensure compliance with national and international laws.



Mission Statement

The Tourism Board of The Paradise Islands is dedicated to the following principles:

To promote The Paradise Islands as a safe, stable, unique, and welcoming destination;

To assure the industry offers value for money and achieves maximum economic returns while coordinating the joint efforts of the national government, national agencies, and the private sector at all levels of tourism's broad-based structure, and develop synergies between the industry's principal stakeholders and supporting players;

To ensure that tourism is a primary contributor to the nation's Gross Domestic Product;

To achieve new heights in creativity and accomplishment for culture and the arts in a manner that is enjoyable and accessible to all segments of society;

To ensure that our cultural heritage is protected and made accessible to the public;

To identify tourism opportunities and encourage our citizens to participate in these activities;

To encourage and support tourism development which is environmentally, socially, and economically sustainable;

To support and strengthen existing and new tourism operators; and

To provide forums for the exchange and dissemination of ideas.

The Paradise Islands



The Ministry of Agriculture and Fisheries

Mission Statement

The Ministry of Agriculture and Fisheries is dedicated to the protection and enhancement of existing agriculture, timbering, and fisheries stocks. The Ministry seeks to assure the sustainability of commercial agricultural, timbering, and fisheries enterprises and encourages the responsible expansion of such enterprises by:

Evaluating existing agriculture, aquaculture, and mariculture initiatives;

Identifying new external markets for agricultural and fisheries products;

Assessing the potential for new agricultural and marine-based economic initiatives;

Enforcing safety standards in all subject enterprises;

Encouraging the modernization of all subject enterprises;

Enhancing the infrastructure for all industries to allow more product to reach the international markets; and

Assuring the sustainability of all agriculture, timbering, and fishing industries.

The Paradise Islands



The Ministry of Environmental Protection

Mission Statement

The Ministry of Environmental Protection is responsible for the management and implementation of the state's programs to protect, regulate, preserve and enhance water and land resources, thereby preventing degradation of the islands' natural beauty and loss of habitat for extant and endangered or threatened species of plants and animals. The Ministry will undertake programs that assure that The Paradise Islands enjoy a clean and safe environment for today and the future by:

Developing clear and understandable goals and standards for environmental protection;

Assisting municipalities in the development of local environmental plans;

Developing and administering national environmental programs;

Developing regulations and permitting standards for natural resources; and

Enforcing the environmental regulations in a manner consistent with the overall well-being of The Paradise Islands.

The Paradise Islands



The Ministry of Public Health

Mission Statement

The Ministry of Public Health is dedicated to the maintenance of the public health care program infrastructure and to guard against deterioration of existing care. The Ministry seeks to assure that public health services in The Paradise Islands will be of the highest quality and to that end commits itself to the following endeavors:

To provide adequate staffing of existing hospitals and clinics and adequate maintenance and operating budgets for those facilities

To maintain an aggressive disease surveillance program complemented by a comprehensive reporting system.

To identify new disease threats in a timely manner and take appropriate and decisive action against such threats.

To assess the extent of World Health Organization (WHO) disease concerns such as
Malaria,
Onchocerciasis, and
Schistosomiasis (or MOS diseases).

To address this mission component on MOS diseases, the Ministry will:
Determine those etiologic agents involved,
Identify all appropriate vector species,
Outline disease surveillance and reporting methodologies, and
Propose effective treatment and control strategies.