The Potential Role of FIU in a Future Cuba

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EXECUTIVE SUMMARY

This concept paper considers potential roles for FIU in a “future Cuba,” when all current federal and state restrictions that restrict and or prohibit exchanges between the United States and Cuba are no longer applicable. “Future Cuba’s” key anticipated needs are reviewed, and FIU’s capacity to provide relevant teaching, research, and technical resources to meet some of these challenges are tentatively identified. Recognizing that this endeavor will be mutually beneficial, this concept paper also outlines areas in which the mission of FIU will be advanced and enriched through development of relationships with academic institutions in Cuba.

It is important to note that this paper was prepared by an external consultant engaged by FIU. He is solely responsible for the content, and his opinions do not necessarily reflect those of FIU or its faculty and administrators. FIU provided information to the consultant and arranged interviews with 44 faculty members and administrators at all target FIU colleges, schools and departments.

The paper is divided into five sections:

I. Cuba’s Current Needs and Strengths
II. FIU Resources To Match Cuban Needs and Potential Contributions From Cuba
III. Viability Of FIU Involvement and Stages
IV. Potential Sources For Financing FIU Involvement
V. Conclusions and Recommendations

Among virtually all of the interviewed FIU faculty and administrators who have travelled to Cuba, there is consensus on three key points:

- Cubans are well trained in the basic disciplines and are competent in their fields.
- Cuba excels in some scientific areas, but the country faces many challenges.
- Cuba’s major challenges are the lack of access to up-to-date knowledge, equipment, and literature, both printed and digital.

Because it excels in numerous fields in which Cuba has important needs, FIU is exceptionally well positioned to share academic and technical resources with Cuba. Similarly, Cuba possesses considerable strengths of potential value to FIU. Therefore, future academic and technical exchanges will be mutually beneficial. To prioritize Cuban needs, align Cuban needs with FIU resources, and establish mechanisms for Cuba to share its expertise to benefit FIU’s mission, discussions need to ensue with Cubans.

Currently, FIU’s involvement in Cuba is barred by U.S. federal and state restrictions and consequent university policies, as well as obstacles imposed by the Cuban government. However, when such restrictions are lifted and when authorized by its Board of Trustees, FIU should be prepared to initiate partnerships with appropriate Cuban academic institutions and researchers. FIU cannot afford to wait until that moment arrives, because other U.S. universities, not bound by state restrictions, are already positioning their institutions in Cuba, placing FIU at a distinct disadvantage five or more years into the future.
It is recommended that the relationship between FIU and peer academic institutions in Cuba be developed gradually over three stages, in compliance with U.S. federal and state laws:

1. Short-term, lawful steps taken to develop contacts and exchanges that, consistent with the aforementioned restrictions, will establish the foundations for future collaboration with Cuban scholars, religious leaders, and other individuals receptive to reforms and qualified to play key roles in Future Cuba;

2. Medium term, when federal and legal restrictions are lifted, FIU should offer to share technical expertise in the areas in which it is strongest and in which it has the most substantial experience abroad, particularly in Latin America and China, to address projects of greatest need and highest priority for Cuba; and

3. Following success in the first two stages with the cultivation of relationships, establishment of trust, and effective resolution of major problems, it will be feasible to offer FIU expertise to address other needs of Cuba and to explore creation of an FIU campus in Cuba.

The viability and timing of the second and third stages will depend on the degree of openness of the Cuban government in the future.

At the start of this new relationship, Cuba will lack the financial resources of countries like China to invest in education and training; hence, substantial external funding will be needed. However, numerous funding sources will become available when existing federal and state restrictions on the funding of technical assistance and research projects in Cuba are lifted.

Some potential sources of external funding for exchanges with Cuba to be discussed with FIU’s Cuban counterparts include:

- International and regional financial organizations that Cuba chooses to join
- United States government agencies, (e.g., NSF, NIH)-
- State of Florida, in areas that are deemed beneficial to the State
- Private-sector, such as hotel chains, international cruise companies, and banks
- Foundations
- Cuban-Americans who choose to donate and/or invest in Cuba.

Recommendations are summarized in a matrix at the end of the document that depicts preliminarily identified Cuban needs, FIU resources to match such needs, and Cuban strengths of potential value to FIU across the three stages of relationship-building.
INTRODUCTION

The goal of this project is strictly technical-academic: the elaboration of a concept paper on FIU’s potential role in a future Cuba, when all federal and state restrictions are no longer applicable and its Board of Trustees deems it appropriate. Any initiative that FIU undertakes on Cuba will comply with U.S. federal and state laws. The consultant is solely responsible for this paper, and the opinions expressed herein are his only and do not reflect those of FIU or its faculty. FIU involvement has been limited to providing information to the consultant and arranging interviews with 44 faculty members and administrators at all target FIU colleges, schools and departments, which supplied very valuable data. This paper studies the potential use of FIU teaching, research, and technical resources to meet some of the main Cuban needs that have been tentatively identified. It also notes potential Cuban strengths that could enrich FIU.

The paper is divided into five sections: I) identification of current Cuban needs and strengths; II) inventory of FIU resources that could meet those needs, as well as potential Cuban contributions; III) viability of FIU participation; IV) potential funding sources; and V) conclusions and recommendations.¹

I. CUBA’S CURRENT NEEDS AND STRENGTHS

In the last half-century, numerous Cuban universities have developed considerable human capital in virtually all fields. For instance, total enrollment in higher education in 2011-2012 was 351,116 (out of a total population of 11 million), albeit declining from 743,979 in 2007-2008 (ONE, 2012). Cuban universities do not offer undergraduate programs, as in the United States but “licenciaturas” that require five years of study (six for medicine); master’s degrees take two additional years, and doctorates from two to four years more. The University of Havana, the most important in the country, currently offers 66 master’s programs (with 4,000 students enrolled) and 40 doctoral programs, some in collaboration with other universities (with 700 students enrolled). A large percentage of FIU faculty and staff are Cuban Americans, some of whom were trained in Cuba and currently excel in their fields. In interviews conducted by the author with FIU faculty members and administrators, some of whom have visited Cuba in the past, there was a consensus that Cuban researchers are well trained in basic disciplines (e.g., mathematics, physics, chemistry, biology, engineering) but they may not be up-to-date in recent technological advances in their fields, may lack new equipment and tools, and have limited access to the Internet. This concept paper will document Cuban academic and technical strengths that could be beneficial to FIU, as well as Cuba’s most important academic/technical/research needs that FIU could meet based on its capabilities and priorities. Some examples follow, though not necessarily ranked by order of importance or priority.

¹ General sources on Cuba in Section I of the paper, unless otherwise specified, are Mesa-Lago, 2012 and 2013; and Mesa-Lago and Pérez-López, 2013. The author is solely responsible for what is said herein but gratefully acknowledges: important information gathered from interviews with FIU faculty members and administrators; valuable comments on the entire paper by Luis Salas (Director of the Center for the Administration of Justice FIU and Professor of Law); comments on Section I of the paper by Pavel Vidal-Alejandro (formerly at University of Havana, Professor of Economics at Pontificia Universidad Javeriana, Cali, Colombia); and final editing by Marifeli Pérez-Stable (Professor of Sociology and Political Science).
1. Hospitality and Tourism

Tourism is Cuba’s second largest source of foreign currency. In 1989-2011, the number of foreign tourists increased 10 fold, revenue increased 14 fold, and hotel rooms tripled (ONE, 2012). The island has wonderful beaches, new luxury golf courses, a well restored segment of colonial Havana, hospitable people, and safety for tourists compared with other Latin American countries. Medical tourism paid in hard currency is also on the rise. Located in colonial Havana, the School of High Studies on Hospitality and Tourism (Escuela de Altos Estudios de Hotelería y Turismo) is the main center of the National System for Professional Training on Tourism. The School has more than 100 faculty members (25 percent have master’s degrees and five percent have doctorates), plus adjunct and visiting professors, combining classroom learning and practical experience. There are 14 smaller hotel-tourism schools to train mid-level workers, located in most provincial capitals, as well as in Trinidad, the oldest colonial town. Three universities offer a B.A. in tourism (http://www.eaeht.tur.cu/quienesSomos.htm). In addition, many foreign hotel firms operating in the island also offer training. Spanish hotel managers train native personnel onsite, while some Cuban managers have been trained in Spain. And yet, with the notable exceptions of some resorts, state hotel services and restaurants are below Caribbean standards and, in recent years, the hotel bed occupancy rate for foreign tourists has declined sharply. Nonetheless, many of those rooms are now occupied in the summer by Cubans, who were previously not allowed to do so. Rooms rented at private homes (15 percent of the total) and small private restaurants (paladares) provide much better lodging, food, and service, but they are overburdened with excessive restrictions, taxes, and government inspections. Car rental is quite expensive, and very few tours are offered. Driving a rental car in Cuba entails the risk of prison if a serious law violation is committed or harm is caused. So far, no overall technical aid is available to improve these problems.

2. Business Administration, Accounting, and Banking

There is a need for a full-fledged, state-of-the-art school of business administration. From the 1990s to the early 2000s, the University of Havana offered a licenciatura in business administration (for state enterprises), as well as an MBA, but these programs were dismantled with the re-centralization of the Cuban economy after 2003. Cuba’s Catholic Church supports the Cuba Emprende training program for micro-entrepreneurs and the self-employed, projected to number 1.8 million by 2016. Trainees receive four weeks of instruction, design a business plan, and have access to legal and accounting advice. Half of the program participants have university degrees in engineering, law, accounting, and other fields. The Church also supports a small MBA program in Havana conducted in Church-owned facilities by Spain’s Universidad de Murcia.

The banking system is virtually all state owned and operated. State banks collect the population’s savings and use them to provide loans to state enterprises and agricultural cooperatives. There are 15 branches of international banks but they only service foreign clients (Cubans cannot bank there). They provide loans to foreign or mixed enterprises, which are not eligible for government

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2 During the crisis of the 1990s, the government introduced modest market-oriented reforms that aimed at decentralization of decisionmaking, expansion of self-employment, re-authorizing open agricultural markets, and other reforms. Several of these measures were reversed or curtailed when Venezuela started to support the Cuban economy.
loans. Debit cards, but not credit cards, are available for Cubans. The banking system is also hindered by the poor development of the telecommunications infrastructure and the low quality of the ATM voice and data network. In 2008-2009, the credibility of Cuban state banks suffered due to their freezing bank accounts of foreign investors and international suppliers, because of a liquidity crisis in hard currency. Recently, the self-employed, members of cooperatives, as well as private and usufruct farmers have been allowed to open bank accounts. In addition, the Central Bank has started to grant small loans mainly to build or repair homes. Current banking infrastructure, electronic equipment, and personnel are insufficient and inadequate to meet the rapidly expanding demand for banking services.

3. Environment, Ecology, Water Sustainability

Despite protective legislation since 1959, damage has been inflicted on the environment, ecology and water because of unregulated industrialization in the 1960s-1980s. Large plantations, such as those of sugarcane, neglected waste and pollution control. There was damage to tourist areas from water desalination projects that may have also had adverse effects on river species. Water dams destroyed endemic vegetation and fisheries, even as agricultural land was eroded and washed into rivers. Control of waste disposal remains a problem, with insufficient equipment to collect garbage, and lack of processing facilities. Additionally, the island is now affected by periodic, long, and severe draughts. There are very good theoretical hydrologists in Cuba, with a solid base in physics, chemistry, biology, ecology, and hydrology but with gaps on new technologies. Although the equipment and technology needed for water sustainability are not very expensive, there is scarce access to both.

4. Oil and Nuclear Energy

Mainly with the help of foreign investment, Cuba’s oil production increased more than four fold in 1989-2011 whereas gas production expanded 32 fold; yet both have been stagnant since 2007, and domestic oil output only meets about 40 percent of consumption needs. This stagnation has been due to delays in exploration and extraction of new wells. In 2012, oil exploration began in high waters of the Gulf of Mexico with one oil rig. Four foreign explorers found empty wells, but others continue drilling, posing a potential risk of leakage and damage to beaches in Cuba and Florida. Cuba’s only nuclear power plant was being built by Soviet engineers in Jaraguá, Cienfuegos, but construction was halted in 1992 after the collapse of the Soviet Union. The Cuban government was unsuccessful in its effort to get European investors to provide funding and technology to finish the plant, and so it was shut down in 2000. The projected pressurized water reactors, different in design and technology from those in Chernobyl, were never installed. The plant needs to be dismantled and its building used in a productive manner.3

3 Information provided by Jorge Pérez-López, February 8, 2013.
5. Engineering, Infrastructure and Computer Science

Cuban universities have degree programs in several engineering fields, and students are well trained on the basic subjects, but lack access to instrumentation, expensive state-of-the-art equipment, and up-to-date curricula (Mirmiran, 2013). Cuba’s water and sewage infrastructure has not been repaired or expanded for more than half a century; hence a significant amount of water is lost due to leaks; sewage pipes trickle into potable water pipes, and the incidence of gastrointestinal diseases is high. Potable water treatment plants have significantly decreased, and tap water must be boiled for human consumption. Due to insufficient collection trucks, garbage accumulates in the streets, and there are no processing plants to convert waste into energy or recycle it for other uses. Roads and bridges are in bad shape. Cuba has highly trained professionals in computer science, with a solid basic knowledge, and the *Universidad de Ciencias Informáticas* in Havana has good equipment and Internet connections. And yet, lack of resources hinders the acquisition of the most advanced equipment and software (the latter is expanding due to piracy), while there are widespread obstacles to Internet access by the population and by small and medium-size enterprises. As a result, Cuba has the lowest rate of computer and Internet access per 1,000 inhabitants in Latin America and the Caribbean, although there is a current effort to provide computers in schools. A new undersea cable between Cuba and Venezuela, which could increase Internet access and speed, was not operational for a couple of years. It began to be used in 2013 but only by the government and to a limited extent. To remedy these deficiencies, substantial investment is required in telecommunications infrastructure, and the government should relax its control on communications and the Internet.

6. Architecture and Housing

In the early years of the revolution there was an innovative architecture school that created some important works, such as the High Institute for the Arts in 1976. Architecture professors are of a high level and work in teams but lack access to computer software for simulation, GPS, and modeling. The curriculum does not offer courses in landscape architecture or on architecture’s impact on ecology (Bueno, 2013). A section of colonial Havana, declared a UNESCO World Heritage Site in 1982, has been faithfully and beautifully restored by teams of well-trained personnel under the leadership of city historian Eusebio Leal. Thanks to external funding, his team has access to the proper technology and software. The Institute of Physical Planning is in charge of urban planning and regulations, which nevertheless are often infringed by government decisions. In 2012 President Raúl Castro appointed a military general as its director in order to control such violations.

Private housing construction halted after 1960 when the government confiscated most private homes (save those occupied by the owners) as well as all rental dwellings and also banned mortgages. Those renting dwellings who kept paying the rent to the state for 20 years became their owners. State-built housing was grossly insufficient to cope with population growth. Homes deteriorated due to lack of maintenance, unavailability of construction materials, damages from hurricanes, and excessive government restrictions. Soviet pre-fabricated residential buildings in the 1970s and 1980s departed from Cuban-style architecture and were dreadful, aesthetically and in construction quality. Military-style construction brigades built thousands of dwellings, but did so inefficiently, of poor quality and low durability (Raúl Castro disbanded such brigades). Later the government authorized private do-it-yourself (*esfuerzo propio*) housing construction, but it
was often done shabbily, with many units lacking a certificate of occupancy. As a result of all this, there is a severe housing shortage. According to government estimates, there is a deficit of 600,000 dwellings, but a more realistic estimate would be one million or more if houses in bad need of repair are taken into account. A 2011 law authorized the sale and purchase of homes, which had been banned since 1960, but sales are not advancing properly due to poor information channels, lack of an up-to-date property registry, price distortions, and the lack of mortgage loans.

7. Disaster Mitigation and Management

Cuba’s response to hurricanes is well organized, efficient, and fast in accessing storm information (through forecasts by Cuban meteorologists and data available in Internet from the U.S. National Hurricane Center), tracking, warning alert, mobilization, and orderly evacuation of the population. This is largely owed to popular compliance with government mobilization orders, as well as mobilization support from the armed forces and community organizations. On the other hand, the island—particularly large cities—is extremely vulnerable to disasters due to the deteriorated conditions of most buildings and the absence of a program on risk management (how to prevent and reduce risks); it is also slow in rebuilding because of lack of resources, capabilities, and technology. If a strong stationary hurricane were to hit Havana City, a large number of buildings would be totally destroyed, and even more would be damaged. Furthermore, Havana faces a seismic risk, as does the rest of the country. An earthquake category 6 or even less could be devastating (Olson, 2013; Sarmiento, 2013). In the last six years, Cuba has been hit by five hurricanes and a tropical storm. Damages in 2008 alone were officially estimated at $10 billion or 20 percent of GDP. Today, most homes damaged or destroyed by these natural phenomena have not been repaired or rebuilt. A major disaster, not a natural one, could be the chance of another massive boatlift as Mariel. Nevertheless, such probability has diminished due to the 2012 migration law, which mollifies previously tough requirements for travel and allows most citizens to do so with a cheaper passport and a foreign visa.

8. Public Health and Medicine

In Latin America, Cuba has a unique public health system that is unified, universal, and free. Some of its important features have been: widespread vaccination to prevent and eradicate infectious diseases, creation of healthcare centers and clinics in the countryside, and introduction in the 1980s of a national urban network of neighborhood family doctors that provide primary care. By the end of the 1980s, these programs yielded some of the best health indicators in the region, e.g., the lowest infant mortality rate in the Western Hemisphere after Canada (MINSAP, 2012; ECLAC, 2013). During the crisis of the 1990s, most health indicators badly deteriorated. Historically, healthcare resources have not always been rationally allocated (e.g., continuous investment to keep reducing an already very low infant mortality rate, but neglect and deterioration of the water and sewage infrastructure). Moreover, expensive health services are financially unsustainable in the long run without proper reforms. Within Latin America, Cuba has the most aged population after Uruguay and the highest life expectancy after Costa Rica.

4 Under Section 101.B of the Helms-Burton Act (1996), notes that “any further political manipulation of the desire of Cubans to escape that results in mass migration to the United States” would be considered “an act of aggression” to be met “by an appropriate response.” (http://www.treasury.gov/resource-center/sanctions/Documents/libertad.pdf)
which results in a growing incidence of costly chronic and terminal illnesses (diabetes, cardiovascular diseases, cancer, bone fractures) and, consequently, spiraling healthcare costs. Medical schools, like all other university programs, are free; and there have been significant medical advances; e.g., Cuba was one of the first countries in the region to introduce organ transplants and generate interferon. Yet professional brain drain, deterioration of facilities and equipment, and the scarcity of medical supplies have caused serious setbacks. Basic training in medicine is solid but is hindered by limited access to new technology. Under a new policy introduced by Raúl Castro to save in social services and adjust them to the country’s economic means, cuts are being made to the public health budget, closing some facilities, and trying to maximize resources, as well as expanding the use of herbal medicine. But thus far there has been no significant reallocation of the healthcare budget towards priority areas, such as modernizing the water-sewage infrastructure.

9. Biotechnology, Genetics, Immunology, Neurology, Pharmaceutics

In the 1980s and 1990s, Cuba created and expanded the Scientific Pole complex in Havana with a huge investment in cutting-edge equipment, technology, and experts, including seven centers in the following fields: a) genetic engineering and biotechnology—Centro de Ingeniería Genética y Biotecnología (CIGB) for development of interferon and genetic improvement of crops; b) immunology tests—Sistema Ultramicroanalítico (SUMA) focusing on techniques to identify congenital malformations and decrease the levels of congenital hypothyroidism; c) vaccine research and production—Instituto Finlay, Centro de Investigación-Producción de Sueros y Vacunas (CIPV) working on Group B meningococcal encephalomyelitis; d) neurosurgery—Centro Internacional de Restauración Neurológica (CIREN) focusing on the treatment of neurological conditions, including cerebral palsy, Parkinson’s, multiple sclerosis, stroke, and others; e) cognitive neuroscience and biomedical engineering—Centro de Neurociencias de Cuba (CNEURO) for the treatment of brain diseases; f) research and production of new biopharmaceutical products for the treatment of cancer and other non-transmissible diseases—Centro de Inmunología Molecular (CIM); and g) scientific research—Centro Nacional de Investigaciones Científicas (CNIC), which conducts research in nuclear medicine, ozone, zeolites, and other areas. Some of these centers publish journals or other publications (Polo Científico de Cuba, 2013).

In the early stages, these centers generated substantial hard currency for Cuba. Thus CIM sold patents in the United States, and CIPV exported vaccines to some Latin American countries. In the 1990s, due to the crisis brought on by the fall of the USSR, the government required these centers to transfer all their revenue to the state, which returned only a fraction, drastically diminishing their funding. In the first decade of the 21st century, the lack of resources and access to the latest technology, as well as brain drain from the exodus of Cuban professionals, affected some of these centers. As a result, scientists have to do many things manually, through ingenuity and creativity, rather than informatics or other technological means (Riera, 2013). In the 1980s, Cuba was also a major producer of prescription drugs and medications, but depended heavily on raw materials imported from the Soviet Union, East Germany, and Czechoslovakia. After the collapse of the socialistic camp, such imports stopped, and currently there is a severe scarcity of
medical and surgical inputs, albeit nine percent of Cuba’s total exports are pharmaceutical products.  

10. Agriculture and Horticulture

Cuban universities have departments of agronomy, but enrollment has fallen almost by half, from 17,365 students in 2008-2009 to 9,378 in 2011-2012 (ONE, 2012), and many of them are working in more profitable trades, causing a severe shortage of these essential professionals. Horticulturalists are well trained (mainly in the USSR and the GDR) in the basic sciences, classical botany, and taxonomy, and are considered among the best in the Caribbean. Botanic gardens are good and have many professionals. However, Cuban research on plant biodiversity has major needs, particularly concerning the use of modern techniques in molecular biology, advanced statistical methods for phylogenetic reconstruction, and up-to-date equipment, devices, and tools for effective field research (Ortega, 2013; Maunder, 2013). Cuban agriculture has performed poorly in the last 54 years due to excessive centralization, land ownership by the state, inefficient and government-subordinated cooperatives, lack of economic incentives for farmers, and general inefficiency. Raúl Castro’s ongoing structural reforms (e.g., distributing in usufruct most idle state land, attempting to increase the autonomy of agricultural cooperatives, providing some inputs and micro-credits to private and usufruct farmers) are attempting to improve output, with an apparent increase in 2011, although still below 2007 and considerably under the 1989 levels in most lines.

11. Law, Justice, Property Registry

The schools of law have maintained most traditional courses (many of them theoretical) and have added some new ones that did not exist before, such as economic, financial, tax, and family law, while eliminating others, such as housing, mortgage, and agricultural law. The website of the University of Havana Law School (www.lex.uh.cu/?g=node/20) does not show the course offerings in the Departments of Civil and Family Law, or Penal and Criminal Sciences. Master’s and doctoral degrees are offered in Juridical Sciences. The law library has a scarcity of contemporary books and virtually nothing on U.S. law (Gabilondo, 2013). The Executive appoints all judges including those of the Supreme Court. There is a lack of judicial independence and transparency. Given the ban on the purchase and sale of homes as well as mortgages since 1960, the property registry was abandoned for five decades, and few bothered to register their homes or update their legal status. There were no cadasters (registry of real property boundaries) prior to 1959, and the project to create one in 1960-1961 was abandoned as well, resulting in a lack of accurate delineations of real property on the island. The housing reform of 2012 has created an acute need for updating the property registry and for greater reliance on public notaries and realtors, a vacuum that is blocking the advancement of the purchase and sale of homes.

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5 Created in 2012, Biocubafarma, a conglomerate encompassing all pharmaceutical operations, is expected to have autonomy in financial management and investment, in order to increase exports.
12. Taxation and Auditing

With the new Tax Law of 2012, Cuba introduced an income tax and other taxes aimed at raising fiscal revenue and a progressive effect on distribution. The government has acknowledged the lack of a taxation culture among the population as well as of trained people in this field, such as tax inspectors and advisors, auditors, accountants, etc. A General Comptroller’s Office created in 2011 has begun drawing regulations, doing inspections, and auditing enterprises, but transparency needs to be improved. Widespread corruption has prompted a government crackdown, with hundreds of Cuban officials (including cabinet ministers) and managers of state enterprises as well as foreign investors being imprisoned.

13. Economics, other Social Sciences, and Surveys

Cuban economists are well trained in the basic disciplines such as mathematics and statistics. Despite discontinuing old Soviet texts, the economics curricula continue to include centrally planned economics and Marxism. Since the mid-1990s, however, macroeconomics, microeconomics, and econometrics are taught at Cuban universities. From 1994 to 1999, the U.N. Economic Commission for Latin American and the Caribbean, together with Carleton University (Ottawa, Canada), organized a master’s degree in market economics at the University of Havana, but only 76 students graduated, and the program was terminated after five years. The Centro de Estudio de la Economía Cubana at the University of Havana has a group of excellent academic economists, many of them young and trained abroad (Canada, Spain, Mexico), who have published extensively both in Cuba and abroad and participate in many international forums. On the other hand, the Cuban economy has not performed well: in 2011 it had the second lowest growth rate in Latin America and in 2012 the sixth lowest (ECLAC, 2012).

Sociology virtually vanished from university curricula in 1971-1986 but was reinstated later. A joint project of the University of Havana and a university in Barcelona introduced a master’s in sociology in 1997 and a doctorate in 2000. Today there are departments of sociology in the universities of Havana, Oriente, and Las Villas, and a Center of Psychological and Sociological Research under the Ministry of Science, Technology, and Environment (Pérez-Stable, 2013). The University of Havana’s Centro de Estudios de Migraciones Internacionales, among other subjects, studies the causes of Cuban emigration, the effects of foreign remittances in society and the economy, and the consequences of the brain drain. Anthropology is taught in a number of universities, and there is a Cuban Institute of Anthropology. The University of Havana has recently added a master’s in anthropology, and the University of Cienfuegos has a combined master’s in history and anthropology. The Fernando Ortiz Foundation offers a diploma in anthropology and specializes in Afro-Cuban and indigenous studies; yet the Foundation declined and is now being revitalized (Duany, 2013). There are no university departments of political science and international relations, although these are taught as part of the philosophy, sociology, and history degrees, as well as in Communist Party schools. International Relations is taught at the Higher Institute of International Relations, under the Ministry of Foreign Affairs, while a center at the University of Havana studies Western Hemisphere relations. The Catholic Church is organizing graduate courses in international politics at the Centro Cultural Padre Félix Varela in Havana.
The Cuban government conducts public opinion surveys for its exclusive use and does not publicize them. A survey on the incidence of poverty was taken in 2000, but only brief citations are available in the works of a few Cuban social scientists. The scientific quality, methodology, and technology of such surveys are unknown. A scientific survey on the elderly was taken in 2009 by a foreign social scientist in collaboration with Cuban scholars, but with the proviso that the results could not be published until 2014. There is a severe vacuum in Cuban socioeconomic and political data that could be obtained with professional surveys. The Sixth Population and Housing Census was taken in 2012, but at this writing its results are not yet available.

14. Journalism and News Media

The Universities of Havana and Oriente have communication departments that teach journalism, and there are schools of social sciences in another four universities that also offer studies in journalism. Cuba has three major national newspapers and one magazine: Granma (Communist Party), Juventud Rebelde (Communist Youth), Trabajadores (Workers Federation) and Bohemia (theoretically independent). According to top Cuban leaders, the press is compliant, analytically poor, boring, and secretive. Raúl Castro has called on the press to report in a timely fashion, objectively, and transparently on all national problems and deficiencies, eliminating information gaps and “secretism.” The National Congress of the Communist Party in 2012 called for the elimination of press censorship, bureaucratic language, and triumphalism. Some spaces have opened; for instance, the Catholic magazine Espacio Laical publishes frank and critical articles and discussions; this is also true of Temas, the most important social science journal, but the population’s access to both is minimal. In 2013, Venezuelan-sponsored TV channel Telesur began broadcasting in Cuba. In January 2013, a debate held among Cuban journalists and social scientists in Havana agreed on one virtue of Cuba’s news media, the lack of sensationalism, but identified many current flaws: monopoly, submission to the Ideological Department of the Party, self-censorship, being a laudatory and uncritical conduit of government views, publishing only the positive and hiding the negative, omitting crucial information, lack of access to key data from government agencies, and providing incomplete and biased reporting of international news. Official justifications for these shortcomings include U.S. hostility and the embargo, as well as the notion that revealing existing flaws would hurt the revolution and help the enemy, but the debate participants agreed that such excuses have actually eroded media credibility, generated distrust, and pushed people to search for alternative sources of information (Dossier, 2013). Dissident blogs and publications are spreading, but minimal access to the Internet precludes their wide dissemination.

15. Art and Music

Cuba is rich in both fields, and many of her contemporary painters and creative artists have achieved world renown. The Havana Biennale is internationally known, as is the National Ballet. Havana’s Instituto Superior de las Artes, Cuba’s top institute of art, holds a biennial computer music festival attended by accomplished musicians from many countries. Cuban artists and musicians are very well trained, but there has been attrition from death, retirement, and exodus. There is also a lack of access to modern recording technology (García, 2013). The largest collection of Cuban music is at Havana’s Museo Nacional de la Música. The International Festival of New Latin American Cinema is also held annually in Havana, as well as festivals of theater, jazz, boleros, and other musical genres. There is a growing trend to feature international
artists in Cuba, including a few Cuban Americans, as well as Cuban artists performing in the United States.

16. Libraries

Cuban librarians and archivists are well trained and knowledgeable, participate in international meetings, and have been advisors to other Caribbean countries. Some of them have visited U.S. libraries and digitalized many items. Yet, only 30 important Cuban books are available via the collaborative Digital Library of the Caribbean, co-managed by FIU and the University of Florida. Cuba’s National Library recently bought equipment for digitalization of newspapers because they were disintegrating. Large universities have departments on information science. An International Book Fair is held annually in Havana. On the other hand, the technological infrastructure is weak, important institutions have only sporadic and slow access to the Internet, which reduces their productivity, and Cubans cannot buy microfilm readers from the United States or Latin America as most suppliers are U.S.-owned (Breslin, 2013; Fu, 2013; Williams G., 2013; Wooldridge, 2013). In 2001, the Social Science Research Council (SSRC) established a standing committee on Cuban libraries to support training workshops, conservation and preservation projects, and to strengthen the ability of libraries and archives to respond to natural disasters. Another SSRC project launched in 2011 aims at cooperation with the National Library to digitalize Cuban books (http://ssrc.org/programs/initiative-on-cuban-libraries-and-archives/). Despite exchange programs with foreign universities, Cuban libraries have significant gaps, due to insufficient funds to buy books, government screening, and U.S. mail restrictions. Even small towns have a library but usually with very few books. There is a great need to fill current gaps with book donations, expansion of current library exchanges, and potential grants to buy and send books to Cuba.

II. FIU RESOURCES TO MATCH CUBAN NEEDS AND POTENTIAL CONTRIBUTIONS FROM CUBA

Most Cuban needs summarized above could be tackled by FIU. In those fields where FIU is weak, like agronomy and agricultural economics, expertise at other universities in the Florida system could be pursued, with FIU serving as liaison or clearinghouse to facilitate access to these or other academic and research resources in the United States. As a minority-serving university, FIU ranks first in awarding bachelors and master’s degrees to Hispanics and Latin Americans in fields such as accounting, business, engineering, biochemical engineering, finance, hospitality, marketing, management, and social sciences. The following is an inventory of FIU’s physical and human resources that are most suitable for addressing Cuba’s tentatively identified needs.6

1. Hospitality and Tourism

FIU’s Chaplin School of Hospitality and Tourism Management is a priority option for future involvement in Cuba, based on the School’s world prestige, wide experience and success in education, training, technical aid and research service to the tourist industry, the community, and

6 The information on FIU resources comes from the 44 interviews listed at the end of this paper, as well as brochures and websites from the academic units of the University.
many foreign countries, as well as its extensive relationships with international hotel, cruise, and travel corporations. The School has 62 faculty members and administrators (including adjuncts abroad). Each year at the main campus, 1,500 students enroll in its programs, which combine classroom theory with practical experience, this being one of the many reasons why its graduates are in high demand.

The School offers bachelors and masters degrees in hospitality management (both available on campus and via distance learning), as well as certificate programs in a variety of related fields. In addition, the School has dual degree programs with many partner institutions abroad. The foreign partner university is commonly located in a relatively large city with significant tourist facilities. Students take the first two years of coursework at their local university, which has to meet FIU’s academic criteria. The local university shares with FIU an administration building and constructs a hospitality school following specifications to parallel FIU facilities. The Hospitality School brings faculty from the local university and trains them in English at its Miami campus, in order for them to return to their country as professors and teach second- and third-level courses in English at their home institution, following the same FIU curriculum. Graduates receive one degree from their university and another one from FIU. One of several partner institutions to have this dual program with FIU is the Tianjin University of Commerce in Tianjin, China. FIU’s School of Hospitality is now creating an entire bachelors and master’s curriculum in Mandarin and Spanish to be taught online (via video conferencing) in China, Latin America, and Spain (http://hospitality.fiu.edu; Hampton, 2013).

The School’s program abroad begins with an assessment of the needs and interests of the local community, adjusting the training accordingly. Trainees are first taught English (a language used by tourist facilities and their employees). Then they take their subject-matter courses, which include onsite training and lab experience in hotels and resorts, travel agencies, cruise lines, airlines, and restaurants. FIU’s greatly successful experience in its China outreach efforts is an example of its capability to launch major foreign projects in challenging settings. In 2006 FIU was selected, from among schools in the United States and Europe, for the Marriott Tianjin China Program, with capacity for 2,000 students. Tianjin is Beijing’s seaport and the third largest city in China (with 13 million inhabitants). It is also an autonomous region and a mega development center. FIU established the educational infrastructure for the Tianjin School and designed the curriculum to train both its personnel as well as managers for hotels, restaurants, and tours.

In Spain’s wine regions, the School established a partnership with the Universidad de la Rioja, which provided a building in Logroño (close to Bilbao) as an FIU satellite station and training facility on winemaking and tourism. Additionally, FIU has developed a program for cruise management in Genoa, Italy. A project feasibility study is underway in the Republic of Georgia to train workers and managers on sustainable tourism and the wine industry at three levels, granting non-credit certificates for waiters, housekeepers, and other low-level personnel, mid-level managers and supervisors, and top-level executives. In China’s Shandong province, there are 42 wineries, this being an opportunity for the School to also develop connected tourism for the benefit of the entire region.

Another area of significant expertise is ecotourism. FIU Professor Nancy Scanlon has worked in this field throughout the world, including Latin America. Non-traditional “adventure tourism” (hiking, river rafting, etc.) is being developed in Belize and the Republic of Georgia. The
experience acquired by the School on sustainable tourism tied to wineries in Asia, Europe, and Latin America is collected and shared with third parties all over the world in order to reproduce its successful model, for instance, in Argentina and Chile. These programs are partly financed by major hotel chains (e.g., Marriott, Hilton), as well as by the Marriott Foundation, which has a development fund to train workers in foreign countries, and Carnival Cruise Lines, which sponsors fellowships to study cruise management at the second level. The China Program was funded with a $100 million investment from the Chinese government. Tuition is another important source of revenue (Hampton, 2013).

Most of the programs outlined above would be quite fitting for Cuba in view of the fast expansion of its tourist facilities and the consequent need to train management and personnel, as well as to improve efficiency and quality of services. For the dual degree and online training programs in Spanish, FIU would identify collaborative Cuban universities in Havana and Santiago, the two largest cities, and/or Matanzas for its proximity to Varadero, Cuba’s premier beach resort. Financing for these programs in Cuba should probably be available in the future through the same sources that now fund similar programs in other foreign countries. For instance, Marriott, Hilton, and other U.S. chains may build hotels in the island, while international cruise lines may stop in Cuban ports of call. Once invested, these companies may choose to support programs to improve Cuba’s tourism personnel. The developing port complex in Mariel, close to Havana, could become an ideal harbor for cruises and ferries. Another area of great potential is ecotourism, a natural endeavor for Cuba, whose rich ecological resources would attract ecology-conscious tourists, who spend more than most typical tourist and do not damage the environment (Bueno, 2013; Hampton, 2013; Maunder, 2013).

2. Environment, Ecology, and Water Sustainability

FIU has very good resources in hydrology and water sustainability; environmental restoration, particularly of the Everglades; marine science, including coastal resource management; and ecotoxicology.

The Director of the Global Water for Sustainability Program (GLOWS), Professor María Donoso, visited Cuba several times when she was an UNESCO hydrologist. GLOWS conducts fieldwork with an integrated approach to aquatic resources in order to improve water supply, sanitation, hygiene, and management practices, implement innovative technologies, ensure environmental sustainability, and contribute to local capacity and knowledge, as well as cooperative governance and decision-making. Some concrete goals are: optimizing the use of water, preventing waste and promoting higher efficiency; avoiding pollution and protecting endemic species; ensuring an equitable distribution of water among communities and stakeholders, and offering training at various levels, both graduate and undergraduate, as well as for government, communities, and villages. Established in 2005, the Program’s first stage focused on applied research (with $4 million in USAID funding). In 2009, it began a second stage, expanding its scope to potable water and sanitation, connections to development, and generation of skills (with $70 million in funding from USAID and other sources for 2009-2014). GLOWS has developed important collaborative projects in Africa, Asia, Europe and Latin America. In Mexico it organized lectures by FIU and Mexican faculty on water resource management. In Honduras it trained professors from the Universidad Zamorano, the most prestigious agricultural university in Central America. In Colombia, a new project will teach undergraduate and graduate courses on Amazon water resources, adapted to the region’s
peculiarities and needs, and in collaboration with local universities, which will make those courses a part of their permanent curricula. GLOWS has also provided technical assistance in Ecuador and Peru to improve the Pastaza River Basin, which supplies water to both countries, while studying the impact on fisheries and on water availability downriver, as well as the effects of droughts on both: transferring the information gathered to government and communities, training the latter, and involving local universities and decision makers in project monitoring and follow-up. In Haiti, GLOWS has supported pilot projects on aquatic resources in agricultural areas, to control waste and increase production of basic foods, both for domestic consumption and export.

The experience GLOWS has garnered in Latin America, both in training and technical assistance, could be applied to Cuba and adapted to that nation’s needs. Specific areas of collaboration would include: a) training in up-to-date methodology and technology, for instance, in water pollution control, construction, and computing; b) technical assistance; and c) support of sound policymaking for effective water management, and for setting adequate priorities based on GLOWS general principles and objectives, adapted to regional and local factors, such as Cuba’s climate, culture, and ecology. Thus the first priority is to train decision makers and professionals, followed by graduate students, and then undergraduates. Training could be accomplished by FIU faculty going to Cuba, Cubans coming to FIU, or online (Donoso, 2013).

The Southeast Environmental Research Center in the College of Arts and Sciences is a key resource for the study and conservation of the Everglades wetlands, and for coastal ecosystem management, including the large areas of mangroves and coral reefs. Federal agencies have entrusted FIU with assisting in the permanent ecological restoration and environmental cleanup of the Everglades—the largest project of its kind in the world—given the environmental impact of large sugarcane plantations, fertilizers, rerouted water, and urbanization, all of which is relevant for tackling similar problems in Cuba’s Zapata Swamp and other wetlands.

Cuba has a biodiversity of international importance, large numbers of endemic species, and some of the most unique and extensive habitats that survive in the Greater Antilles. Cuban universities, with their extensive cadres of scientists, should continue to play a key role in the study and conservation of these resources. Cuba also has bountiful marine resources, but seafood yields have declined due to overfishing, the need to move to more distant waters with increased fuel costs, and the aging fishing fleet. Oil exploration and eventual extraction at high seas in the Gulf of Mexico could result in leaks and cause pollution, further affecting fisheries. As a result of global warming, some Cuban species (land animals, birds, and plants) are expected to move up to cooler, higher-altitude habitats. FIU has a strong team looking at the impact of climate change on tropical biodiversity and also has a unique capacity to provide Cuban environmental institutes and scientists with a broad-based set of scientific resources, to include management of coastal and marine protected areas, environmental monitoring, and species recovery. FIU scientists have particular strengths in marine biology and can offer training in marine and fishing management, protection of coastal habitats, carbon storage, and biodiversity. Cuban ecologists could benefit from FIU’s ecological knowledge and experience, in the context of increased international cooperation (Maunder, 2013).
3. Energy and Environment, Oil, Nuclear Power Plant, and Sewage

A program on energy and environment is part of FIU’s Applied Research Center (ARC), established 25 years ago to solve problems of national interest related to nuclear and industrial waste, based on an interdisciplinary approach (engineering, chemistry, environment, ecology) and funded by the U.S. Department of Energy and by private industry. This program has been expanded to other key areas and problems such as: renewable biofuels, aspects of nuclear energy, modeling and computer simulation, durability of airplanes, pollution prevention and waste processing. Technical assistance is given to many countries (Triay, 2013).

Cuba’s exploration and potential drilling with an oilrig in high waters of the Gulf of Mexico involve a risk of leaks and damage to both Cuban and South Florida beaches. ARC was asked by the U.S. Southern Command to conduct a study to assess the probability of that happening, design a strategy and recommend measures to contain potential leaks. This expertise would be valuable for Cuba as well.

In 2012, FIU completed a new project to produce green biofuels to replace diesel and blended fuels. One example is the jatropha plant, which contains 60 percent biofuel. Since jatropha is not edible, it does not compete with nutritional needs as do sugarcane and corn (a contentious issue in Cuba). Jatropha does not tolerate cold weather well but needs a tropical climate such as Cuba’s or Miami’s. Of the three known techniques used to process jatropha, Cuba employs one in its single processing plant, but it is not the most advanced or cost effective method, nor does it maximize fuel extraction. ARC, on the other hand, has the other two alternative techniques and could provide them to Cuba, as well as train experts and workers to boost Cuba’s jatropha production and maximize biofuel extraction (Proni, 2013).

As previously mentioned, Cuba’s nuclear plant in Juraguá was never completed and has never been operational; yet the physical structure is deteriorating. ARC could help design a dismantling plan in a manner that is beneficial to Cuba, so that the grounds and buildings and any salvageable equipment can be repurposed.

Cuba’s sewage system is in very bad shape and renovating it will cost billions of dollars. Currently, raw sewage is discharged, causing significant pollution and contamination, and Cuban sewage waste is not used as a source of energy. A company in Barcelona has signed a 15-year contract with the Cuban government to improve its infrastructure. In addition, garbage accumulates in the streets due to a lack of disposal trucks and the high cost of fuel; and there are no solid waste processing plants. ARC could help Cuba cope with the challenges of sewage infrastructure modernization, pollution control, and processing of sewage and solid waste. Working as a third party, without competing interests with builders, FIU could provide advice to Cuba in order to get loans from international financial organizations as well as donations, to design a proposal and comprehensive vision for a long-term plan, with concrete specifications of needs, and including an organizational model for its future workforce. Cuba would decide how far to go with those plans (Triay, 2013; Proni, 2013).
4. Engineering, Construction Management, Computing

The College of Engineering and Computing (CEC, 2012) encompasses many fields that are important to Cuba; in engineering: biomedical, civil, computer, construction, electrical, environmental, information technology, engineering management, materials science, and mechanical; as well as computer science, construction management, and telecommunications and networking. Some CEC faculty members are fluent in Spanish, have visited Cuba on their own, and have engaged colleagues in the island. They report that Cuban faculty have similar levels, intellectually and in terms of knowledge base, to those of their U.S. counterparts, but lack access to instrumentation, advanced but costly equipment, and up-to-date curricula, all of which FIU could help make available. The Miami-Dade County Branch of the American Society of Civil Engineering, with the collaboration of some CEC faculty, issued a report on Cuba’s infrastructural needs (University of Miami, 2013). CEC ranks first as producer of Hispanic engineers in the continental United States and in degrees awarded to Hispanics in both engineering and computer science. It also has extensive experience in developing collaborative training programs with foreign countries, for instance, in construction management in the Dominican Republic and soon in Panama, and in engineering management in Jamaica. A CEC faculty development program brings faculty with master’s degrees from Chile, Guatemala, and Mexico. They spend one year at FIU and then go back to teach at their home universities, working as they complete their dissertations. China and CEC have a dual degree program that includes three years of study in China and two years at FIU, after which graduates receive two degrees. After five years, an electrical engineering program in Beijing was able to grant an master’s in only a year and a half, with faculty taking shifts, but the long air travel and increased costs became a problem and led to the program’s closure. And yet in Jamaica, the short air travel made this program feasible and less expensive. In the case of Cuba, travel would be even shorter and more economical.

In terms of technical assistance, the CEC cannot compete with big construction companies in getting building contracts, but could send experts as advisors and “value engineers” to Cuba, as neutral partners without conflict of interests with builders, to help Cuban engineers in the development of infrastructure plans (water and sewage, bridges, roads, etc.) and in procurement processes, in order to set priorities, and increase efficiency and cost savings. In the long run, the CEC in collaboration with the College of Business (COB) could train Cubans to establish their own consulting firms and become independent from foreign assistance. The Department of Computer Science, based on its successful experience in Jamaica, could send faculty members to Cuba to conduct intensive training on weekends (10 courses in 40 weekends with faculty shifts). Similar programs can be developed in other fields such as IT and fiber optics. The CEC and the COB could partner on marketing (Mirmiran, 2013).

5. Biotechnology

A fruitful academic exchange could be developed between FIU and Cuba in biotechnology. On the one hand, Cuban knowledge and experience in immunology, vaccines, neuroscience, and others fields could enrich FIU’s scientists. On the other hand, Cuban scientists could benefit from the most advanced technology, which is available at FIU. Some of the seven centers of Cuba’s Scientific Pole seem to be more open to foreign academic exchange than others, for instance, SUMA, CIREN, and CNIC. FIU biochemical engineer Jorge Riera (2013) was trained
in one of those centers and recently co-authored a paper with a colleague from Cuba. FIU excels in biomedical engineering where 62 percent of undergraduates and 39 percent of masters students are Hispanic. Two prestigious doctoral fellowships are granted yearly to Cuban Americans, and in the future could be available to Cubans from the island as well (Riera, 2013a).

6. Botanical Gardens and Horticulture

FIU and Fairchild Tropical Botanic Garden (FTBG) maintain strong research ties with the appointment of FIU faculty to conduct research at FTBG. Links between FTBG and Cuba started 75 years ago when the Fairchild was founded by Edwin F. Atkins. At that time, the collaboration was channeled through the Botanic Garden at La Soledad in Cienfuegos, then owned by Harvard University (and currently by the Cuban government). Until 1959, FTBG brought many plants from Cuba, and there were many exchanges between both entities, which were enhanced in 1983-2005 mainly through FIU support to faculty and graduate students. Recently, the Cuban government enacted restrictions on access to biodiversity, particularly by U.S. scientists, e.g., authorization is required from three ministries to collect samples of plants and seeds. In addition, well-funded and larger botanic gardens like the ones in New York and Saint Louis, Missouri, currently have more contact with the island, given the ban on publicly funded travel imposed by the State of Florida, which limits FIU’s collaborations. Despite these obstacles, FIU Professor Javier Francisco Ortega (2013), in residence at FTBG, co-authored in 2004-2013 nine articles (in internationally peer-reviewed journals) with Cuban colleagues from the top two botanical institutions in Cuba, and has discovered new species in collaboration with them, a solid foundation for future exchanges in this field between FIU and Cuba.

After the collapse of the socialist camp, Professor Michael Maunder (2013) trained managers of botanical gardens and national history museums in Bulgaria, Poland, Romania, and Russia on how to sustain these activities without state subsidies. He believes that Cuba could use this experience and also reinvigorate its botanical institutions with FTBG’s modern equipment and technology; whereas FIU could gain from wider access to Cuban plants and seeds, as well as from the links developed in Cuba among botany, pharmaceutics, and herbal medicine.

7. Disaster Mitigation and Emergency Response Management

The FIU Disaster Risk Reduction Program, its International Hurricane Research Center (IHRC), and its new Extreme Events Institute are strong in this area and maintain close relationships with the National Oceanic and Atmospheric Administration, the National Hurricane Center on campus, the National Science Foundation, the U.N. International Strategy for Disaster Reduction, and the USAID Office of Foreign Disaster Assistance. This expertise, supported in part by more than $6 million in USAID grants and contracts, has helped several Latin American and Caribbean countries by applying a “keystones” approach: identifying and assessing risks and how to prevent and reduce them; determining the impact of natural phenomena; incorporating existing risks into development plans (e.g., urban planning, building codes, strengthening key buildings and infrastructures, including power plants and hospitals); and setting priorities for reconstruction. Most Latin American countries are dominated by one large city in terms of population, buildings, and infrastructure, which increases the risks of devastation and blocks the response to hurricanes and earthquakes: the crucial issue being wherefrom help is going to come. Cuba is a case in point with its high population density in Havana, aggravated by government
centralization. FIU could help Cuba cope with this problem: in the short-run, by developing a network of five to seven re-conceptualized “secondary cities” and preparing them to assist victims and conduct planned reconstruction; and in the medium and long-run, by designing plans that promote decentralization. FIU also offers 2-to-3-week training internships taught in Spanish, to groups of 20 students from Latin American countries, centered on planning for risk reduction (hurricanes, earthquakes, floods, landslides), adapted to the peculiarities of each country, and including work at FIU’s IHRC, fire stations, hospitals, and other centers. To date more than 300 Latin Americans have participated in this program (Olson, 2013).

World climate change is contributing to the unprecedented spread of diseases and to the resurgence of diseases thought to have been eradicated. Cuba has good studies on climate change but, as already noted, suffers from weak infrastructure, which would worsen the impact of natural disasters. For instance, despite a good control program of mosquito- and other vector-borne diseases, in 2012-2013 Cuba suffered a cholera epidemic (the first one since the 1890s), propitiated by leaks from the deteriorated water pipes, garbage accumulating in the streets, and open water collection tanks used by the population to cope with the frequent interruptions of the central supply. FIU could assess the health infrastructure and national capabilities, particularly strengths and weaknesses, in order to propose interventions and channel assistance to vulnerable populations. In addition, FIU could help identify risk “clusters” (e.g., water and sanitation) and help Cuba design a strategy and obtain international cooperation to address them (Sarmiento, 2013).

8. International Business, Accounting, Banking

FIU’s College of Business (COB) has strong expertise in international business, banking, and accounting, and it is the largest professional school in the university. Latin America is Florida’s second largest market, and among the COB’s main tasks is to train students able to work in that market. The COB has 110 professors and adjuncts, who teach 6,000 undergraduate and 1,000 graduate students, many of them from Latin America and China. A dual MBA degree is offered in partnership with 48 universities, half of them from Latin America and four from China. Students complete the first year in their local university (one third of the 36 total credits required) followed by two-consecutive semesters at FIU. Graduates receive an MBA from their home institution and a Master’s in International Business from FIU (http://dualdegree.fiu.edu). A potential obstacle to developing this dual MBA program with Cuban universities is its high tuition, virtually unaffordable for Cuban students. However, funding from international financial organizations and South Florida (particularly Cuban-American) businesses could be available in the future. About 80 percent of COB students work and study during weekends under an intensive program that could be replicated in Cuba. The short distance to the island would facilitate frequent travel. Online training would be even more feasible and economical. About 25 percent of COB faculty is fluent in Spanish, as well as a large number of students, many of whom are interested in serving other countries and peoples. In some COB courses, students could develop plans to travel to Cuba to train managers for micro-businesses—if legal restrictions are eliminated and it becomes an FIU priority (Klock, 2013).
Probably the first priority for Cuba would be basic training in business, including accounting, finance, marketing, management, and information systems for managers. The proposed approach is a “train the trainer,” so that the first cohort of students would become trainers, as was done in China, in order to develop a business faculty. Accounting is one of the most popular majors at FIU, which is applied to both the public and private sectors. Marketing majors learn about sales, advertising, distribution and logistics to deliver goods and services, a knowledge essential to improve small and medium-size businesses but also applicable to government for efficiency and transparency. Other relevant degrees include: a Master’s in Accounting; a Master’s in Finance (which covers strategy, as well as portfolio and banking management) and International Real Estate (which covers the financial aspects of real estate), crucial to promoting foreign investment; an masters in Information Systems, which involves business support technology, customizing software for particular business needs, and identifying competitive advantages; and master’s in Human Resources and Management, dealing with protocols for hiring, promotion, dismissal, wages, fringe benefits, and other important personnel matters for small and medium-size companies (Becerra-Fernández, 2013).

Cuba could also profit significantly from FIU’s Pino Global Entrepreneurship Center, which strengthens family owned and managed firms, encourages new community businesses, helps to design and launch successful new ventures, and promotes entrepreneurial leaders and organizations in all segments of society, both in South Florida and internationally, particularly in emerging economies in Latin America. The Center offers short-term inbound and outbound programs and dual degrees in collaboration or consortium with other universities or operating as a clearinghouse (http://www.entrepreneurship.fiu.edu). Taught in Spanish, a non-degree intensive program is available for managers of small and medium-size companies to improve their management, efficiency, and sales. This program would be well suited to groups of small restaurant operators (paladares) in Cuba, to non-agricultural and service cooperatives, or to promote export of agricultural products. The COB also offers programs in English outside the United States with bachelors in the Dominican Republic and an MBA in Panama. When the current legal restrictions are lifted, the Pino Center could enter into a consortium agreement with the Universidad de Murcia and its MBA program in Havana, and later directly with Cuban universities (Haar, 2013).

9. Medicine and Public Health

The Herbert Wertheim College of Medicine (HWCOM) was the first medical school established in 25 years in the United States (and the 126th overall). It was established with several unique approaches: Instead of building an associated hospital, which would have been quite expensive and also would have competed with other South Florida hospitals, the HWCOM—inspired in the Swiss community practice—signed three-year voluntary contracts with 1,200 physicians working at 95 percent of the largest and finest hospitals in Miami-Dade and Broward counties, thereby gaining access to their expertise and equipment and saving substantial resources. HWCOM departments in all clinical fields were established at those hospitals, chaired by the most prestigious specialists in each field, by buying a share of their time. HWCOM students are trained at these departments and by these specialists, which also saves financial resources. Another innovative technique is “Telemedicine” at the Miami Shores Hospital, which can connect with patients everywhere, domestically and abroad. The Terremark Center in downtown Miami connects via fiber optic cables with Latin America. HWCOM has its computer servers in
that center, which utilizes LAMDA, an Internet system ten times faster than the standard medium. Simulation or virtual labs (operating room, delivery room, etc.) are employed to train HWCOM medical students, which is considerably cheaper and more practical than seeing a procedure in person. There is also a large simulation lab to train nurses in cutting-edge technology. In 2013, HWCOM was fully accredited by the Liaison Committee on Medical Education.

Common characteristics in HWCOM’s approach include the use of the latest technology and the best personnel, maximization of resources and efficiency, and considerable savings in operations. Constrained by scarce resources and limited access to technology, Cuba could profit from HWCOM’s community approach and innovations, which fit in with some of Cuba’s goals and needs. For instance, patients for whom the necessary equipment is not available in Cuba or is in disrepair could be seen through Telemedicine. Many HWCOM physicians and nurses are Cuban-American, fluent in Spanish, and have established contacts with their counterparts in the island. In turn, Cuban experience with vaccination, family doctors and herbal medicine could be fruitfully shared with HWCOM (Valverde, 2013).

The Robert Stempel College of Public Health and Social Work has departments of biostatistics, dietetics and nutrition, environmental and occupational health, epidemiology, health policy and management, health promotion and disease prevention, and a school of social work. Doctoral and master’s degrees are offered in public health, social work, and dietetics and nutrition; and bachelor’s degrees in the latter two fields. One important mission is to promote healthy lives for underserved populations in the United States and abroad (http://rscphsw.fiu.edu). The College is strong in HIV/AIDS (prevention and surveillance, mother to child transmission), water-borne diseases, diabetes, nutrition, maternal care, alcohol and drug abuse, and health disparities among minorities. A new area being developed, useful for Cuba’s current policies to improve health efficiency, is “outcome effectiveness.” It includes follow-up of a health program implementation and how well it is done, evaluation of outputs, cost/benefit analysis, and economic assessment of health budget allocation. The College has provided aid and training in many of these fields in Colombia, Dominican Republic, Haiti, Honduras, Mexico, and Puerto Rico, as well as India and several countries in Africa, Eastern Europe, and the Middle East. It also studies health problems of African Americans and the Afro-Caribbean population in the United States. About 23 percent of the 73 faculty members are bilingual Hispanics, and several non-Hispanic faculty members are also fluent in Spanish. The College has a current grant portfolio of about $40 million, more than 90 percent of which is from the National Institutes of Health (NIH). Many grants have a component of laboratory science and biostatistics for the collection, management, and analysis of large databases related to the project (Ciccazzo, 2013; Beaulaurier, 2013; Williams M., 2013).

All Cubans are obliged to take a mandatory HIV test (automatically, whenever they use the public health-care system). Due to an insufficient food supply and an unbalanced diet, the Cuban population has in some periods suffered from malnutrition. The College conducts research on the impact of nutrition on HIV. Good nutrition cannot prevent HIV but plays an important role in strengthening the body’s immune system to fight the infection. In a person with a good nutritional status the virus could be latent for 20 years. Conversely, if there are certain nutritional deficiencies, the virus manifests itself in two-to-four years, develops very quickly, and eventually kills (Campa, 2013).
10. Architecture and Housing

Several members of the College of Architecture and the Arts (CAA) are Spanish-speakers and have significant experience and practice related to Cuban architecture. The founding Dean of the College, Juan Antonio Bueno, was part of a team of architects that planned and designed a sustainable vision for Havana (also applicable to Santiago de Cuba, Trinidad and other Cuban cities). To cope with the significant housing deficit in Cuba, he and other members of the FIU faculty (Jaime Canavés, 2013; Marilys Nepomechie, 2013) deem advisable to develop an urban plan, based on international codes and standards, to construct sustainable dwellings, with low maintenance costs, capable of withstanding the impact of natural phenomena such as hurricanes and earthquakes (the whole island including Havana is part of a seismic zone), and environmentally friendly (by selecting areas for development in a manner that protects biodiversity). The technology is available to accomplish this fairly rapidly, minimizing costs, and partly using suitable local materials and labor. FIU has developed housing projects and/or reconstruction efforts in Argentina, Chile, Ecuador, El Salvador, Haiti, and Nicaragua, and has experience in helping to rebuild Miami after many severe hurricanes. Big construction companies would offer to build cheap housing in Cuba, but at the risk of using poor quality materials that could eventually lead to costly repairs.

An interdisciplinary team of FIU experts, as an independent third party without conflict of interest, could develop a diagnosis of the existing housing situation (or revise it if one exists), assess the state of buildings damaged by hurricanes or neglect, and advise Cuban architects on a procurement plan with concrete specifications, as well as its implementation, monitoring, and oversight. In addition, the FIU team could advise on which types and sizes of housing units would be most adequate in the long run (single, duplex, or multi-family buildings, based on different technologies) and which of the two major alternatives would be less expensive while still following proper specifications: a) establishing a housing construction plant in Cuba using local materials and labor; or b) importing mass-produced pre-fabricated housing components easy to assemble in Cuba. Finally, FIU could provide training in construction management for these housing projects. One possibility is to follow the U.S. Habitat for Humanity model, which uses a few experts and many volunteers, some of whom could be FIU students, while training future construction workers onsite. On the other hand, Cuba’s remarkable work of historical preservation in part of colonial Old Havana could be quite useful for several FIU programs, such as architecture, history, art history, and landscape architecture. The preservation techniques could then be permanently incorporated into the FIU curriculum.

11. Library

The Digital Library of the Caribbean (dLOC) is a cooperative program led by FIU and the University of Florida to digitalize resources from and about the Caribbean, which are available in archives, libraries, and private collections, incorporating them into a database accessible online. The program was largely implemented with two grants from the U.S. Department of Education to FIU’s Latin American and Caribbean Center (LACC). The entire collection is managed by FIU, with technical support from the University of Florida. This project grew out of the Title VI National Resource Center consortium between both universities and provides open access to all of its collections. This program includes 35 partners in the United States, Europe, and the Caribbean, where local personnel contribute to scanning and cataloguing dLOC materials.
Additionally, dLOC provides onsite and virtual training sessions, equipment when feasible, and their Content Management System designed to create, share, and preserve digital objects. The program is still ongoing and is supported by all partners in the dLOC network, but the initial grant has been depleted. It is now developing a collaborative funding network with membership fees paid by libraries, institutions, and individuals, who then have access to dLOC (http://www.dloc.com). A search for Cuban materials in dLOC resulted in 9,836 items and 1,724 titles. In the last 5 1/2 years, there have been no library exchanges between FIU and Cuba, although some materials have been acquired through third countries. Regarding access to library materials in electronic format and research databases, an electronic library exchange between FIU and Miami’s sister city, Tianjin, China, has been quite successful and could serve as a future model for similar programs with Cuba (Breslin, 2013; Fu, 2013; Williams G., 2013; Wooldridge, 2013).

There are several special collections on Cuba at FIU, including periodicals and pamphlets, photos, genealogy, Cuban living, and geographer Levi Marrero’s archives and manuscripts (http://www.cri.fiu.edu). A librarian from the Green Library visited Cuba in 2012 to attend the Conference on Implementing New Knowledge Environments, funded by Canada’s SSRC. She also had meetings at the National Library and the Institute of Literature and Linguistics, and reports that Cuban librarians are receptive to the prospect of future exchanges with FIU (Wooldridge, 2013). An important step will be to integrate the cultural productions both of the island and the diaspora, as well as to complete and update FIU’s Cuban collection, through the exchange of books, journals, CDs, DVDs, films, and other materials, among libraries in both countries, with FIU potentially acting as a coordinator of such exchanges (De Aragón, 2013).

12. Financial, Mercantile, and Tax Law, Administration of Justice

The significant differences between American and Cuban law systems constitute an obstacle to cooperation. Professor José Gabilondo (2013) has been in Cuba on his own and has developed contacts with the University of Havana Law School and the Cuban Union of Jurists. There is considerable Cuban interest in financial and tax law as well as mercantile law. Some courses, like mortgage law, eliminated in the 1960s, need to be reinstated. Gabilondo’s wide experience in financial, tax, and mercantile law would be helpful to improve Cuba’s renewed curricula. At least two U.S. law schools offer five-day courses in Havana: the Mississippi College School of Law (on constitutional law) and Hofstra University Law School (on export law). Tulane University offered a two-credit course in 2013 on the development of property law in Cuba, including a one-week research visit by faculty and students. LatCrit, a law faculty association interested in Hispanic and Latino legal issues, is planning a group research trip to Cuba.

In order to conduct business with Cuba, it is essential to have access to all pertinent commercial, business, foreign-investment, tax and similar laws (FIU’s collection runs only to the 1970s). Based on the Library of Congress collection of Cuba’s Gaceta Oficial and other legal materials, FIU’s Green Library or Cuban Research Institute could make a database (digital or microfilm) of Cuban legislation, administrative rules, and treaties generally available. While requiring only a minimum investment, this would be a valuable resource for any future assistance to Cuba and would bring substantial credibility to FIU’s legal and commercial expertise concerning any future business with the island nation (Salas, 2013).
A theoretical contribution from Cuba could be the development of legal principles of public or collective interest, particularly in regard to the role of the state in providing public goods. Anglo-Saxon law promotes individual freedoms and entrepreneurial spirit, as the engine of capital accumulation and growth, but its legal conception of public goods is less developed (Martínez, 2013).

FIU’s Center for the Administration of Justice (CAJ), established in 1984, is a leading international source of information and leadership for the modernization of justice in Latin America. It has worked with 14 countries in the region and trained thousands of students, in partnership with academic and financial institutions such as the UNDP, the Inter-American Development Bank, USAID, the European Union, Harvard Law School, Vanderbilt University, and the Universities of Alicante, Salamanca, and Valencia, in Spain, and has received funding for $45 million in 1984-2012. Several CAJ objectives are of interest to Cuba, for instance: technical assistance and training to fight corruption; implementation of a new criminal code and consequent training of justice officials and law professors; the reform of civil, administrative, and procedural codes, adapted to current national needs; promoting access to justice for women and disadvantaged populations and fostering an understanding of the justice system’s impact on minorities; supporting the modernization of court administration for improving efficiency and reducing costs; creating or modernizing registries of property, patents, copyright, and trademarks, as well as cadasters, and training the necessary personnel, including notaries public and registrars. CAJ’s approach is to have these tasks accomplished by a multidisciplinary and international team of lawyers, public administrators, policy analysts, and political scientists. Initially, CAJ could send a team of experts to Cuba to conduct a diagnosis of the justice system in cooperation with local counterparts. They could identify the most pressing needs and suggest alternatives to address them, and they could help build consensus on priorities and best strategies. Later, CAJ could help train and organize local teams of experts to work on new legislation issuing from the community up, and could eventually help in the implementation of such legislation (CAJ, 2011; Salas, 2013; Carazo, 2013).

13. Art, Music, and Literature

FIU’s Frost Art Museum has organized exhibits by several well-known Cuban-American artists and could feature Cuba’s new and vibrant contemporary art as well. Cuban-American philanthropists Jorge and Darleen Pérez have donated 22 of their paintings to the Frost Museum and to the School of International and Public Affairs, and there are plans to place them in a new gallery (Stack, 2013). The Frost is considering mounting an exhibit of internationally known Afro-Cuban artist Manuel Mendive, through private sponsorship (Damian, 2013). The Museum could serve as a conduit for arranging travelling exhibits throughout the United States. FIU’s Wolfsonian Museum could also be involved. The three FIU museums (the Frost, the Wolfsonian, and the Jewish Museum of Florida) have accumulated significant experience in museum management, which could be useful to Cuba. Professor Juan Martínez in the Department of Art has published extensively on Cuban painting and has many connections with artists and art historians in the island. Cuba in turn could contribute to FIU faculty and students with its extensive experience in art restoration.

The Cristóbal Díaz-Ayala collection of Cuban popular music at the FIU Library has more than 100,000 items (wax cylinders, records of various types, CDs, DVDs, scores, books, photos,
It is the largest collection of Cuban popular music in the United States and probably in the world, and it is universally available online—with copyright restrictions. The Library, together with the Cuban Research Institute, offers three competitive travel grants every summer to come and use the collection and give a presentation at the Latin American and Caribbean Center. FIU, however, lacks faculty members working in this field, or an ethnomusicologist specializing in Cuban and Caribbean music. Large collections of Cuban music of all kinds are dispersed among the Havana Museum of Music, the National Library, and other archives; fruitful cooperation could be developed between these and the Díaz-Ayala Collection at FIU. Furthermore, Cuba has a school of musicologists and ethnomusicologists, some of whom could come to FIU to teach as visiting professors and work on its music collection (García, 2013). Emilio Cueto (2013), a Cuban-American humanist who has the world’s most extensive collection of prints and music on Cuba written by foreign composers, organized five concerts at the FIU auditorium in 2008-2012. Cueto has plans to do concerts in Cuba and has delivered DVDs and CDs of his FIU concerts to Havana’s National Library and Museum of Music. He could serve as a bridge between FIU and the island. In the past, faculty members from the FIU School of Music have participated in Cuba’s Computer Music Festival; one of them even wrote two new compositions for the festival. Cuban musicians could enroll in FIU’s master’s in music or music education.

Academics from the island and the diaspora could work together in creating anthologies, monographs, journals, critical reviews, textbooks, dictionaries, and courses, as well as organizing conferences, bringing together authors and participants from both sides. A number of Cuban authors are well known worldwide, but many are not so famous, especially those from the provinces, and yet they are worthy of inclusion in course syllabi, anthologies, translations, and academic studies. Cuban writers, academics, and filmmakers could come to FIU as visiting professors to offer courses, seminars, and lecture series on contemporary Cuban literature and film, and assist FIU professors in selecting materials for their courses. FIU faculty and doctoral students from the Department of Modern Languages could guide Cuban professors on the literature of the diaspora so that it can be included in their courses, and update them on linguistics, foreign language teaching methodology, translation and interpretation theory and pedagogy, literary theory, critical theory, and cultural studies (De Aragón, 2013).

14. Social Sciences, Agricultural Economics, Cuban Studies, Surveys

FIU could play a key role in developing departments of political science in Cuba. The School of International and Public Affairs (SIPA), includes, among others, the Departments of Politics & International Relations (PIR), as well as Anthropology, Geography, and Sociology under Global & Sociocultural Studies (GSS). PIR offers graduate degrees (master’s and PhD) and courses of interest to Cuba, such as customary international law, international financial regimes and world currencies, international and regional organizations, foreign trade systems, comparative politics, and methodology (Stack, 2013; Martínez, 2013). Within GSS, sociology is strong in fields that could lead to collaborative exchanges with Cuba, such as rural, urban, gender and demography. On the latter, the work of the University of Havana’s CEMI is quite important to FIU sociologists (Pérez-Stable, 2013). Anthropologists at the Cuban Institute of Anthropology and the Fernando Ortiz Foundation could enrich GSS on Afro-Cuban and indigenous areas. In turn, GSS is solid in migration, race, women and gay studies, all of interest to Cuba and ripe for collaboration. Cuban women have a high degree of formal education. Professors from the island
could contribute to curriculum development at FIU on the role of women in Cuba. GSS also contributes to the College of Public Health by gathering and analyzing population data.

Professor Percy Hintzen (Sociology) came to FIU from the University of California at Berkeley. He previously taught at the University of West Indies (UWI) and is a former president of the Caribbean Studies Association. Both Berkeley and UWI have developed programs with the University of Havana and Casa de las Américas, particularly in the social sciences (economics, politics, cultural and ethnic studies). Hintzen (2013) has established contacts with Afro-Cuban writers and artists in the island and, in collaboration with them, has studied several Afro-Cuban issues and the government response.

In 2012, FIU became one of the first American universities to receive the U.S. Department of Agriculture’s new designation for Hispanic-Serving Agricultural Colleges and Universities, based on its excellence in education, research, and engagement in agroecology, aquaponics, and nutrition. The University of Florida is quite robust in agricultural economics and could participate in this project. The University of Puerto Rico, Mayaguez Campus—with whom FIU has solid ties—is strong in agricultural engineering and could also become part of this project.

Founded in 1991, FIU’s Cuban Research Institute (CRI) sponsors research, studies, surveys, and international conferences on Cuba and the diaspora. It has 44 faculty associates specializing in Cuba in 19 different disciplines: anthropology, architecture, art, biology, economics, environment, ethnobiology, geography, global and social studies, history, information and media, law, library, medicine, modern languages and literatures, music, political science and international relations, public affairs, and sociology. In 1991-2011, CRI published nine public opinion polls conducted among Cuban Americans in South Florida (including topics such as the U.S. embargo). These polls were funded by the Brookings Institution, the Cuba Study Group and other sources. CRI also published 22 commissioned reports by internationally known scholars on Cuba (http://www.cri.fiu.edu). Two research projects recently conducted by CRI are of significant interest to Cuba. The first one, “Strengthening the Role of the Cuban Diaspora” (2012), funded by a grant from the Open Society Institute, sponsored a conference in the Dominican Republic attended by a Cuban observer from the Catholic Church, and organized a team of experts that earlier wrote the monograph La diáspora cubana en el siglo XXI (CRI, 2011). The Catholic Church reprinted the monograph in Havana and held a meeting with some of its authors, as well as members of the Church and Cuban academics, further disseminating the report. The second of these projects, “The Cuban diaspora and the Development of the Entrepreneurial Sector in Cuba” (2011-2013), funded by a grant from the Ford Foundation, seeks to help the emerging non-state sector of the self-employed, microenterprises, and cooperatives (currently promoted by the Cuban government), providing them with knowledge, tools, and materials to be successful in their trades, such as a website, a public opinion survey on the diaspora, and a seminar on the role of the diaspora in development (Duany, 2013). The Latin American and Caribbean Center has over 200 associated faculty members in numerous disciplines and professions related to the region, and publishes the journal Hemisphere, now in volume 22, which often includes articles on Cuba (Pérez-Stable, 2013)

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7 Four FIU professors (Gabilondo, Grenier, Duany and Maingot) have contributed articles to a recent dossier of the Cuban journal Temas on Cubans in the United States.
Several FIU faculty members could contribute from their extensive knowledge and experience with surveys, particularly on methodology, statistical analysis, access to advanced technologies, and comparative approaches vis-à-vis other Latin American countries (e.g., on remittances). Professors Eduardo Gamarra (Political Science) and Guillermo Grenier (Sociology) are skilled in survey methodology and have conducted surveys throughout Latin America dealing with political, economic, and social issues. Grenier (2013) has periodically conducted opinion polls among the Cuban-American community in South Florida. Professor Dario Moreno (Political Science) has trained survey takers for many years. FIU also has a close working relationship with Professor Mitchell Seligson, Director of the Center for Latin American Public Opinion Polls (LAPOP) at Vanderbilt University.

15. Journalism and Mass Communications

The School of Journalism offers masters in Mass Communications taught in Spanish, which is the pioneering program and still the only one of this nature in the United States, one which would be very appropriate for Cuban journalists. Two thirds of the 40 or so students enrolled are from Latin America, and one third is U.S. Hispanics. They all have bachelor’s degrees, mostly in journalism, but also in law, sociology, political science, and economics. Courses for this master’s are taught over an entire calendar year. The curriculum includes subjects such as working for television, the press, and Internet media; developing websites, blogs, Facebook and Twitter profiles; writing objective news stories and reports; and developing a journalism micro-business that minimizes costs. After completing the coursework, students produce an investigative report or a documentary film. The program was initially funded mainly with external grants but is currently self-sufficient and tuition-driven. Fellowships are offered to top applicants (Alvarado, 2013). Financing for Cuban students would have to come from external grants. The Journalism School’s International Media Center has provided intensive training for Central American journalists, as well as seminars to journalists from other Latin American countries, such as Bolivia, Ecuador, Colombia, and Peru. Finally, the School established the Center for Latin American Journalism in Panama, which is now self-sufficient (Virtue, 2013; Dalmau, 2013).

III. VIABILITY OF FIU INVOLVEMENT AND STAGES

Three stages are envisaged for FIU’s gradual strategy for involvement in Cuba: 1) starting with short-term legally acceptable steps to develop contacts and exchanges with Cuba in order to set the stage for future cooperation; 2) on the medium term, once legal restrictions are lifted, starting with those projects of greater priority for Cuba, in the most technical fields where FIU is strong and has substantial experience abroad, particularly in Latin America and China, such as hospitality, engineering, energy and environment, and others; and 3) once the initial projects are successful and mutual confidence is well established, expanding to other fields and exploring the possibility of establishing an FIU campus in Cuba.

1. First Stage

Currently, FIU is barred from involvement in Cuba, due to U.S. federal and state restrictions, consequent university policies, as well as obstacles set by the Cuban government. When applicable federal and state restrictions are lifted and its Board of Trustees deems it appropriate, FIU should be prepared to partner with Cuban and U.S. academic institutions, in order to provide
support in those areas in which its capabilities match Cuba’s development needs, and where suitable academic and research partnerships can be established. However, FIU cannot wait until that moment arrives because other U.S. universities, not bound by state restrictions, are already positioning themselves in Cuba, therefore placing FIU at a disadvantage vis-a-vis the future.

Therefore, while respectful of legal restrictions on travel, expenditures, and other areas, FIU should start now to develop contacts with Cuban scholars, religious leaders, and other persons receptive to economic, social, and political reforms, and who could play a key role in Cuba in the coming years. These persons’ opinions should be heard and taken into account in assessing Cuba’s priorities and how FIU could help to meet them. This approach will not only enrich FIU’s role but also help to legitimize and facilitate it. The problem is how to finance these activities in view of current legal restrictions. The following are some potential legal avenues for developing those ties in the short run.8

a) Establish a non-profit tax-exempt organization, fully independent from, and not affiliated with, FIU, capable of receiving donations and grants, and expending them, among other things, for sending FIU (and possibly other Florida State University System) faculty to Cuba and for bringing Cuban scholars to FIU, with the proviso that when legal restrictions are lifted the organization and all remaining funds will be transferred to FIU (such an organization already exists at the University of Florida).

b) Carry out an inventory of universities in the United States, Canada, Latin America, and Europe that are conducting programs in Cuba, related to teaching, training, research, and exchanges; in order to explore the possibility of FIU’s collaboration with those universities, which—through them— would facilitate travel to Cuba, dual degree programs, and other activities by FIU and its faculty and students. This would include the Universidad de Murcia in Spain (MBA program in Havana), the University of California (that has a license for its faculty and students to visit Cuba and establish exchanges in the social sciences), and the UWI. Also compile a list of international donors already engaged in Cuba, such as the UNDP and the European Union, which could help FIU to understand their programs’ successes and profit from their lessons learned.

c) Resume participation by Cuban scholars in FIU’s Cuban Research Institute conferences, through direct private financing to cover travel, lodging, and other applicable expenses.

d) In consultation with the Library of Congress, copy its collection of Cuba’s Gaceta Oficial, to be held at FIU’s Green Library or CRI and make it available to the U.S. academic community, an action that does not infringe any federal or state law.

e) The Director of the Frost Museum is planning to have world famous Afro-Cuban artist Manuel Mendive in November to exhibit some of his works and do an art performance at the Frost, with his expenses paid directly from private funds (if space rental and insurance were legally necessary, they would also be paid by said funds).

f) FIU faculty and graduate students could travel to Cuba with their own funds during the Summer and Spring Break vacations (faculty are paid on a nine-month basis) to conduct research

8 In all instances, FIU will need to ensure compliance with federal export control, immigration, and other laws related to issuing payments, sharing of information, and doing business with Cuban nationals (Kristina Raattama, correspondence March 1, 2013).
or to take advantage of their visits to relatives in order to establish contacts with Cuban institutions and scholars, and explore the possibility of organizing a meeting of FIU and Cuban scholars in Havana to discuss future collaborations. This must be a personal outreach effort, as FIU cannot provide worker’s compensation or other insurance.

g) Promote collaborations between FIU and Cuban scientists, which could lead to publications and future research. For example, as previously mentioned, Professor Javier Francisco Ortega (FIU/Fairchild Tropical Botanic Garden) has co-authored and published nine scholarly papers with Cuban scholars, and also discovered new species in collaboration with them. Within certain limits, this type of scientific collaboration is not restricted by current U.S. or Florida laws.

h) Professor Orlando Jacinto García, Director of FIU School of Music, attended three festivals of computer music in Havana (2000-2004) and expects to participate in the 2014 festival with support from a private foundation. Since FIU is not authorized to support such travel, future academic collaboration between his school and the High Institute of Music in Havana is a possibility that he could explore.

i) Cuban academics, scholars, and intellectuals who are working in third countries could be invited to FIU as lecturers or for collaborative research, with expenses paid by FIU.

j) Information exchanges are not banned by federal or Florida laws. For example, books could be donated to FIU Libraries and exchanged for Cuban books. Book exchanges would need to meet any applicable federal licensing requirements.

k) Encourage international and national scholar associations (for instance, the Latin American Studies Association, the Seminar on the Acquisition of Latin American Library Materials, the International Society of Hydrologists) to hold meetings, conferences, or seminars at FIU, inviting Cuban scholars to participate and covering their expenses.

l) Develop faculty contacts with Cuban institutions and scholars. University resources may be utilized for such purposes so long as no travel is involved. For instance, SIPA could help design the graduate course curricula in international relations at the Centro Cultural Felix Varela in Havana.

m) Invite John McIntyre, Chairperson of the Cuba Emprende Foundation in the United States, which supports an entrepreneurship program in Cuba, to give a presentation to a small group at FIU, sponsored by the COB Pino Global Entrepreneurship Center and the CRI. Some COB faculty and graduate students may be able to help in tutoring those who complete the Cuba Emprende training in Cuba.

If President Barack Obama removes Cuba from the list of terrorist states, Florida legislation banning academic travel to the island would no longer apply, since the ban is only applicable to countries on the U.S. Department of State list of “state sponsors of terrorism.” If this change occurred, travel to and from Cuba could be paid for with state or non-state funds.9

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9 The Cuba Study Group (2013) proposes steps the U.S. President can take to promote change in Cuba.
2. Second Stage

Through the steps proposed in the first stage of the project, FIU would establish contacts with Cuban scholars, religious officials, and others who are open to reforms, and who could play a key future role in Cuba. The opinions of these stakeholders and other counterparts should be heard and taken into account in ranking Cuban needs, determining how FIU could best help to meet those needs, and identifying those Cuban strengths that could be beneficial for FIU. Such an approach will not only enrich FIU’s role but also help to legitimize and facilitate it.

We ignore if, as part of the ongoing reforms, the current government will open up to exchanges with U.S. universities; even more difficult is to foresee the type of regime Cuba will have when all current U.S. federal and state legal restrictions are lifted. Raúl Castro (2013) has stated that government and party officials should serve for a maximum of two consecutive five-year terms and recommended incorporating this rule into the Constitution. The amendment, he said, may take some time, but he promised to retire anyway when his second term expires in February 2018. Other aged leaders in top posts are expected to do the same. A younger generation is already being appointed to the Council of State, the Council of Ministers, and the Communist Party. The succession should take place within five years, but it is unpredictable how open and flexible the new officials will be to academic exchanges with U.S. universities such as FIU.

The next two stages, therefore, are subject to the degree of change experienced by Cuba and to the openness of its leaders. If there is significant progress in both areas, then it should be possible to further advance in the relationship. At that time it would be advisable to proceed to the second stage and, if successful, move into the third stage, as outlined herein.

In proceeding with this second stage, FIU’s academic programs and exchanges with Cuba should start with those initiatives that meet the following three criteria: a) they address the most significant Cuban needs, as jointly defined by FIU and its counterparts in the island; b) they are technical in nature, thus minimizing any potential areas of conflict between both parties, and c) they are able to be met through the use of FIU’s best resources.

The field of hospitality and tourism would be ideal to meet these criteria, due to its economic importance for Cuba and the need to adequately train managers and improve the sector’s efficiency and quality of services, in order to expand tourism and attract those tourists who typically tend to spend more. FIU’s School of Hospitality has achieved international prestige for its successful experiences in China, Europe, and Latin America. Exchange in this field could begin with the School’s assessment of Cuban needs and interests, in order to focus training accordingly, and could continue with the establishment of a consortium with a local university. Cuba could benefit also from FIU’s expertise in ecotourism and biodiversity, and begin to further develop this promising field. FIU, in turn, would gain from Cuba’s experience in the historical restoration of colonial Havana, as a magnet for foreign tourists.

The College of Engineering and Computing has experience in faculty development in Latin America and China, including a five-year dual degree program (three years in the local university and two years at FIU) and a year-and-a-half master’s program with FIU faculty travelling to the host country. CEC faculty could travel to Cuba for intensive weekend training on advanced computer science, IT, fiber optics, and other fields. CEC could collaborate with
Cuban engineers in developing infrastructure plans (water and sewage, bridges, roads, etc.), in procurement processes, and in setting priorities for increased efficiency and costs savings.

The GLOWS integrated approach to hydrology and its broad experience with training and technical assistance in Latin America could be applied to Cuba after some adaptation to local factors. This would include training on up-to-date methodology and technology in water conservation and pollution control, as well as technical support in water management. Training could start with decision makers and professionals, followed by graduate students, either with FIU faculty going to Cuba or Cubans coming to FIU. The Southeast Environmental Research Center could assist in ecological restoration to help reverse pollution damage caused by large sugarcane plantations as well as the impact of global warming on native species.

Cuba could use the experience accumulated by FIU in horticulture, and reinvigorate its botanical institutions with the help of FTBG’s modern equipment and technology. In turn, FIU could gain from having wider access to Cuban plants and seeds, as well as from the links developed in Cuba among botany, pharmaceutics, and herbal medicine.

FIU could improve its Cuban collection, which has not had any book or periodical exchanges in more than five years. At the same time, Cuba needs to obtain recent important books in many scientific fields, as well as books on Cuba and migration by diaspora scholars. A reciprocally fruitful exchange of books, journals, CDs, DVDs, films, and other materials would be feasible among libraries in both countries, with FIU acting as a potential coordinator of such exchanges.

Fruitful cooperation could also be accomplished in the arts, for example: an exchange between the Havana Museum of Music and FIU’s Cristóbal Díaz-Ayala Collection; visiting professorships by Cuban musicologists to fill gaps at FIU; and master’s classes for Cuban musicians at the FIU School of Music. Further, the Frost Museum could act as conduit for arranging travelling exhibitions of Cuban art throughout the United; and writers from both countries could collaborate in a number of academic endeavors involving contemporary literature and film.

3. Third Stage

Once FIU has demonstrated its ability to help with Cuban development in a way that also leads to strengthening the university, and, once again, depending on the U.S. lifting its restrictions and on the openness of the Cuban government, a third stage could begin with more daring projects and exchanges.

The School of Hospitality could develop a dual-degree program, selecting a Cuban university in Havana, Santiago or Matanzas in negotiation with Cuban authorities. The School could also establish a computer facility to receive online courses in English or Spanish on the subjects and disciplines selected by mutual agreement.

The College of Engineering jointly with the College of Business could train Cubans to start their own consulting firms, become independent from foreign assistance, and save substantial resources.

Following the Tianjin model, an electronic library exchange could be established between FIU and Cuba’s National Library, as well as other main libraries in the island. Currently, only a
relatively small number of Cuban entries are available in the Digital Library of the Caribbean (dLOC). Cuba could fully participate in that program, and FIU could provide onsite training to Cuban librarians and send scanners to the island for the digitalization of mutually selected materials.

Cuba would first need basic training in business, accounting (for both public and private sectors), finance, marketing (to improve small and middle enterprises—SME—and government efficiency), international real estate (to promote foreign investment), and information systems. The Pino Entrepreneurship Center’s non-degree intensive program, which is taught in Spanish, could be offered to small restaurant operators and various types of cooperatives, to improve management, efficiency, and sales, and promote agricultural exports. Later, the COB dual MBA degree could be developed in conjunction with a Cuban university that would offer the first year of courses, followed by a year at FIU. Working Cubans could enroll in the online program, which is also offered in Spanish.

A team of FIU experts, acting as an independent third party without conflict of interest, could develop or review a diagnosis of Cuba’s housing situation, assess the status of buildings damaged by hurricanes or neglect, and work with Cuban architects on a procurement plan and its implementation, monitoring, and oversight. The team could offer expert advice on the type and size of housing units that would be most beneficial in the long run, and on which option would be most cost-effective, between establishing a housing construction plant in Cuba using local materials and labor, or importing mass-produced pre-fabricated housing components easy to assemble in Cuba. In addition, they could provide training in construction management for these housing projects. The remarkable work of historical preservation that Cuban professionals have accomplished in part of colonial Havana could be quite useful for several FIU programs, such as architecture, history, art history, and landscape architecture.

Cuba’s significant experience with primary care and family medicine will be useful for FIU’s HWCOM whereas the latter community approach that maximizes resources, efficiency, and savings, as well as its technological innovations (e.g., simulation on virtual training labs) would be beneficial to Cuba. When Cuban equipment is not available, patients could be seen through HWCOM Telemedicine. The College of Public Health would gain from Cuba’s experience in detecting HIV/AIDS, and Cuba would profit from the College’s strength in water-borne diseases, nutrition, and its new “outcome effectiveness” approach, which includes cost/benefit analysis and economic evaluation of health budget allocation.

Cuba is quite adept at mobilizing and evacuating the population prior to the onset of disasters. Yet FIU—adapting to the Cuban context—could help alleviate the high concentration of population, infrastructure, and resources in Havana: in the short run, by developing a network of 5 to 7 secondary cities and preparing them both to help disaster victims and direct reconstruction efforts; and in the medium to long run, by developing plans to promote decentralization and identifying risk “clusters” while devising strategies to improve response. In support of these efforts, FIU could provide short training internships in Spanish on risk reduction planning, including exposure to the work of the Hurricane Center.

FIU’s Center for the Administration of Justice (CAJ) works on several areas of interest to Cuba: technical assistance and training for fighting corruption; reform of the civil, criminal, administrative, and procedural codes, adapted to current national needs; training for justice
experts and law professors; promoting access to justice for women and disadvantaged groups; supporting modernization of court administration to improve efficiency and reduce costs; creating or modernizing registries of property, patents, copyright, and trademarks, as well as cadasters, and training the necessary personnel. CAJ could send a multidisciplinary team of experts to Cuba to work on these areas in conjunction with local counterparts and build consensus on priorities and best strategies. It could also train and organize local teams to help draft legislation starting from the community up.

FIU could help to introduce political science departments in Cuba. SIPA has strengths in fields of graduate studies that could lead to collaborative exchanges. Anthropologists at the Fernando Ortiz Foundation could enrich FIU’s Department of Global and Sociocultural Studies in the area of Afro-Cuban and indigenous studies. FIU’s excellence in agroecology and aquaponics, together with the University of Florida’s strengths in agricultural economics, would be valuable to Cuba. The same could be said of the Cuban Research Institute’s work on the diaspora and on the emerging sector of non-state microenterprises, self-employed individuals, and cooperatives (currently promoted by the Cuban government). FIU faculty members could contribute their scientific knowledge and experience in survey research (methodology, statistical analysis, advanced technology, comparative approaches), as well as in public opinion polls among Cuban Americans in South Florida.

The School of Journalism has a masters in Mass Communications taught entirely in Spanish over an entire calendar year, which could be attractive to Cuban journalists as its curriculum includes subjects such as building a journalism microbusiness while minimizing its costs; working with television, press, and the Internet; developing websites, blogs, and profiles for Facebook, Twitter, and other social media; and writing objective news stories and reports.

Fruitful exchanges could evolve in areas where both countries might be reluctant to share their progress at first. In biotechnology Cuba has made significant advances, and yet Cuban scientists could still learn about the latest techniques available in the United States. FIU could share with Cuba its studies on the probability of leaks in the oil rig operating in the Gulf of Mexico and the strategies designed to cope with such potential risk. Cuba is processing jatropha (green biofuel) with only one technique whereas FIU has two additional techniques that maximize fuel extraction. FIU could help plan the dismantling of Cuba’s closed nuclear power plant to repurpose its building and equipment.

Before the revolution, Villanova University in the United States founded a sister institution in Havana (Universidad de Santo Tomás de Villanueva). If the Cuban government allows private universities again, FIU would be a logical candidate for establishing a campus in Cuba, possibly in the capital or other large city such as Santiago de Cuba.

IV. POTENTIAL SOURCES FOR FINANCING FIU INVolVEMENT

In 2011-2012, FIU received $100 million in research grants. The largest two sources were the National Science Foundation—NSF (19 percent) and the National Institutes of Health—NIH (18 percent), followed by USAID, the U.S. Department of Health and Human Services, the U.S. Department of Energy, and the U.S. Department of Education. The major recipient of that funding was the College of Arts and Sciences (44 percent), followed by the College of
Engineering and Computing (17 percent) and the Office of Academic Affairs (17 percent). Research and technical grants in 2011-2012 totaled $9 million: 55 percent from the State of Florida and 45 percent from foundations (the largest grant being from the Mellon Foundation). Major recipients were the CEC (30 percent), the College of Education (COE) (17 percent), the International Hurricane Research Center (14 percent), the College of Public Health (five percent) and the Environment and Water program (four percent). Gifts given to the FIU Foundation in 2011-2012 totaled $560,000 mostly to the COE and for marine education (FIU, 2012).

Currently, potential funders of technical assistance and research projects in Cuba are blocked by federal and state restrictions. In the future, when such restrictions are lifted, there would be multiple sources available but they should be discussed with Cuban counterparts to avoid potential conflicts. Nevertheless, at the start of the relationship, Cuba will lack the huge financial resources of countries like China to invest in education and training (e.g., the Chinese investment of $100 million in the hospitality school in Tianjin); hence there will be significant need for external funding.

1. International/Regional Financial Organizations

Cuba currently does not belong to international and regional financial organizations such as the IMF, the World Bank, or the Inter-American Development Bank (Pujol, 2012). In the future Cuba may joint these organizations and become eligible for grant assistance.

2. Public Sector

The federal government is FIU’s major source of research funding. Some sources would be more open to Cuba than others, for instance, the National Institutes of Health and the National Science Foundation, and particularly in areas such as technical assistance for pure science, agriculture, banking, human resources training, and others. Potential USAID funding in certain fields could be more controversial, for instance, in journalism, which has been a bone of contention in the past. The State of Florida could support FIU exchanges with Cuba that would benefit the state; this could be done through CEC, COE, the International Hurricane Research Center, the College of Public Health, the Department of Earth and Environment, and the Biology Department.

2. Private Sector

National hotel chains such as Marriott and Hilton, as well as the Marriott Foundation, will presumably invest heavily in Cuba, and there will be a need to train managers. They might rely on FIU’s School of Hospitality for this, as was the case in China and various Latin American countries. Cruise lines, which enjoy a close working relationship with FIU’s Hospitality program, will be able to dock at Cuban ports of call and will need to provide training for Cubans in cruise management. South Florida is also expected to invest heavily in Cuba and could become an important source of activities for FIU in the island.
3. Foundations

The U.S. Social Science Research Council has a standing federal license to develop programs with Cuba (libraries, migration, etc.) and FIU could be a beneficiary. The Christopher Reynolds Foundation has awarded a grant to American University to finance faculty travel to Cuba, organize conferences jointly with Cuban universities, and support collaborative research—activities that are not presently possible for Florida state universities but could be in the future. The Ford Foundation, the MacArthur Foundation, and other funders who have withdrawn or reduced their support for activities in Cuba will probably reinstate funding. The Andrew W. Mellon Foundation could finance art exhibits and exchanges. Several Fulbright Program fellowships and grants will become available for FIU faculty and graduate student travel, teaching, and field research in Cuba, including the Senior Scholar Program that funds experts to improve university curricula. The Gates and Clinton Foundations might be enticed to fund research or studies on Cuba.

4. Cuban Americans

Once the current legal restrictions are lifted, a Cuban diaspora Fund could be established, financed by donations from Cuban Americans, to fund FIU graduate scholarships for bright Cuban students, provide educational equipment, and repair or improve the physical plant of Cuban universities, sponsor faculty exchanges, and finance field research by faculty and students.\(^\text{10}\)

\(^{10}\) For potential cooperation between Cubans from the island and the diaspora, see CRI, 2011.
V. CONCLUSIONS AND SUMMARY OF RECOMMENDATIONS

1. There is a consensus (shared by the author), among virtually all of the interviewed FIU faculty and administrators who have been to Cuba, on three key points: a) Cubans are well trained in the basic disciplines and are competent in their fields; b) Cuba excels in some scientific areas, but the country faces many needs; and c) Cuba’s major challenge is the lack of access to up-to-date knowledge, equipment, and literature both printed and digital.

2. FIU excels in numerous fields where Cuba faces important needs and could help to meet those needs in collaboration with qualified counterparts. On the other hand, Cuba has strengths that could be useful to FIU, such that future academic and technical exchanges should be mutually beneficial. The ranking of Cuban needs and how to match them with FIU resources, as well as Cuban strengths potentially beneficial to FIU, should be discussed with the Cubans.

3. Currently, FIU’s involvement in Cuba is barred by U.S. federal and state restrictions and consequent university policies, as well as obstacles set by the Cuban government. But when such restrictions are lifted and the Board of Trustees deems it appropriate, FIU should be prepared to partner with suitable Cuban academic institutions and researchers. FIU cannot afford to wait until that moment arrives, because other U.S. universities, not bound by state restrictions, are already positioning themselves in Cuba, placing FIU at a disadvantage five or more years into the future.

4. The relationship should be developed gradually in three stages: a) short-term lawful steps to develop contacts and exchanges that would establish the base for future collaboration with Cuban scholars, religious leaders, and other individuals receptive to reforms who could play a key role in Cuba; b) medium term, when federal and legal restrictions are lifted, starting with those projects of greatest need and priority for Cuba, in the most technical fields where FIU is strongest and has substantial experience abroad, particularly in Latin America and China; and c) once the first-stage projects are successful and mutual trust is established, it would be feasible to expand to other fields and explore the eventual creation of an FIU campus in Cuba. The viability and timing of the second and third stages will depend on the degree of openness of the Cuban government.

5. The funding of technical assistance and research projects in Cuba is now blocked by federal and state restrictions, but when they are lifted, there should be numerous funding sources available, a matter to be discussed with Cuban counterparts. At the start of the relationship, Cuba will lack the huge financial resources of countries like China to invest in education and training; hence substantial external funding will be needed.

6. Some potential sources of external funding for exchanges with Cuba would include: a) international and regional financial organizations (once Cuba joins them); b) the federal government, with some agencies more open than others (e.g., NSF, NIH); c) State of Florida funding in areas that are beneficial to the state; d) private-sector gifts, grants, and investment (e.g., hotel chains, international cruise companies, South Florida capital); e) foundations; and f) Cuban-American donations and investment.
7. A summary of preliminary Cuban needs and strengths and potential FIU involvement in three stages is provided in the following matrix.

**Tentative Cuban Needs/Strengths and FIU Matching Resources/Gains, in Three Stages**

<table>
<thead>
<tr>
<th>Stages/Fields</th>
<th>Cuban Needs</th>
<th>FIU Matching Resources</th>
<th>Cuban Strengths/FIU Gains</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Stage</strong></td>
<td></td>
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<tr>
<td>1. Hospitality,</td>
<td>13 short-run lawful steps: contacts with Cuban scholars, church, and open-</td>
<td>Assess Cuba’s needs/interests to adapt training program in Spanish, develop</td>
<td>Historical renovation of colonial</td>
</tr>
<tr>
<td>Tourism</td>
<td>minded individuals who could play a key role in the future</td>
<td>ecotourism, select university partner</td>
<td>Havana, growth in private small restaurant owners and room renters</td>
</tr>
<tr>
<td>2. Engineering,</td>
<td>Low quality of services, poorly</td>
<td>Infrastructure renovation, plans and procurement, set priorities, intensive</td>
<td>Proximity to FIU should facilitate travel, exchanges, and technical</td>
</tr>
<tr>
<td>Computing</td>
<td>trained personnel, falling hotel</td>
<td>onsite training on weekends</td>
<td>support</td>
</tr>
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<td></td>
<td>occupancy rate</td>
<td></td>
<td></td>
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<tr>
<td>3. Hydrology,</td>
<td>Deteriorated water &amp; sewage, road, bridge infrastructures, low access to</td>
<td>GLOWS integrated approach, transfer new tech/methodology, tech support on water</td>
<td>Well-trained Cuban hydrologists valuable for exchanges &amp; technical aid</td>
</tr>
<tr>
<td>Ecology</td>
<td>new technology and computers</td>
<td>management, train graduates, ecological restoration</td>
<td></td>
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<tr>
<td>4. Horticulture,</td>
<td>Need for modern molecular biology</td>
<td>Update botanical gardens with FTBG equipment &amp; technology, training in</td>
<td>Collect samples of seeds, plants; Cuban knowledge of links between botany and herbal</td>
</tr>
<tr>
<td>Agriculture</td>
<td>tech and equipment, shortage of</td>
<td>agroecology, garden management, and agricultural economics</td>
<td>medicine</td>
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<tr>
<td></td>
<td>agronomists, inefficient agriculture</td>
<td></td>
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<tr>
<td>5. Business</td>
<td>Need to train self-employed, coop</td>
<td>Non-degree intensive program for</td>
<td>Cuba Emprende training of small</td>
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<tr>
<td></td>
<td>members, microenterprises (SME)</td>
<td>SME, select local university partner</td>
<td>entrepreneurs</td>
</tr>
<tr>
<td>6. Library</td>
<td>Important gaps in up-to-date books/periodicals, very low access to</td>
<td>Coordinate exchange of books, periodicals, CDs, DVDs, films, and book donations</td>
<td>Expand FIU’s collection through exchanges with Cuban libraries,</td>
</tr>
<tr>
<td></td>
<td>Internet</td>
<td></td>
<td>interrupted for the last 5 years</td>
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<tr>
<td>7. Art, Music,</td>
<td>Lack of access to modern recording</td>
<td>Provide new tech, exchange music collections, Frost coordinates Cuban</td>
<td>Cuban visiting musicologists, ethno-</td>
</tr>
<tr>
<td>Literature</td>
<td>technology</td>
<td>art exhibits, integrate literature of Cuba and diaspora</td>
<td>musicologists, literati, writers fill FIU</td>
</tr>
<tr>
<td><strong>Second Stage</strong></td>
<td></td>
<td></td>
<td>gaps, Museum of Music, booming art production</td>
</tr>
<tr>
<td>1. Hospitality,</td>
<td>Insufficient training in management, lack of master’s degrees in</td>
<td>Build hospitality school, train professors, master’s online in Spanish, dual degree</td>
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</tr>
<tr>
<td>Tourism</td>
<td>hospitality management</td>
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<tr>
<td>2. Engineering,</td>
<td>No skills to hire foreign construction companies, no advanced degrees</td>
<td>Train Cubans to set own consulting firms, dual degree programs</td>
<td>Well-trained engineers will easily learn new techniques</td>
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<tr>
<td>Computing</td>
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<tr>
<td>3. Library</td>
<td>Weak tech infrastructure, barriers to buy microfilm readers</td>
<td>Electronic library exchange, expand dLOC entries, send scanners for digital copying</td>
<td>Professional librarians can digitalize materials</td>
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<tr>
<td>4. Business,</td>
<td>No business school, inadequate</td>
<td>Dual MAs (accounting, finance, real estate, IS, human resources) with Cuban</td>
<td>Potential consortium with University of Murcia MBA program</td>
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<tr>
<td>Accounting,</td>
<td>banking system</td>
<td>university to develop own school, improve banking system and ATM network</td>
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<tr>
<td>Banking</td>
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<tr>
<td>5. Architecture,</td>
<td>No access to simulation software,</td>
<td>Independent 3rd party w/o conflict of interest, assess housing situation, design</td>
<td>Skills in reconstruction of colonial buildings</td>
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<tr>
<td>Housing</td>
<td>poor enforcement of urban rules,</td>
<td>procurement plan, advice on optimal future housing building</td>
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<td></td>
<td>grave housing deterioration, one million dwelling deficit</td>
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<tr>
<td>6. Medicine,</td>
<td>Inefficient allocation of healthcare budget, low access to new</td>
<td>COM community approach, provide tech innovations, Telemedicine, apply outcome</td>
<td>Experience in universal public health-</td>
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<tr>
<td>Public Health</td>
<td>techniques and equipment</td>
<td>effectiveness, master in PH</td>
<td>care system, primary care, family doctors, medic aid to foreign countries</td>
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<tr>
<td>7. Disaster Mitigation</td>
<td>High vulnerability of large cities to disaster impact, density</td>
<td>National Hurricane Center and foreign disaster assistance program, apply “key stones,”</td>
<td>Experience in population mobilization and evacuation</td>
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<tr>
<td>&amp; Response</td>
<td>hindering response and reconstruction</td>
<td>internships</td>
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<tr>
<td>8. Biotechnology,</td>
<td>Centers must transfer all revenue to state that returns a fraction for</td>
<td>Doctoral training, exchanges, new tech., fellowships</td>
<td>Strong centers of biotechnology, genetics, immunology, neuroscience, vaccines</td>
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<tr>
<td>Genetics, etc.</td>
<td>investment, brain drain</td>
<td></td>
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<tr>
<td>9. Energy, Oil</td>
<td>Stagnation in oil/gas output, failure to find oil in deep waters, risk of</td>
<td>Studies on oil leak risks and damage control, maximize green biofuel extraction, re-use</td>
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<td></td>
<td>oil leaks, closed nuclear power plant</td>
<td>nuclear plant building</td>
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<tr>
<td>10. Law, Justice,</td>
<td>No courses on housing or mortgage</td>
<td>CAJ aid to fight corruption, reform legal codes, train judges and law</td>
<td>Legal conception of “public goods”</td>
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<tr>
<td>Registries</td>
<td>law, subordinated judiciary, obsolete registries, no realtors</td>
<td>professors, modernize registries</td>
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<td><strong>11. Social Sciences, Surveys</strong></td>
<td>Lack of political science university departments, no surveys published and method unknown</td>
<td>Develop political science depts., graduate degree in anthropology, professional experts on surveys</td>
<td>Exchange with demographers, anthropologists at Fernando Ortiz (Afro-Cuban and indigenous studies)</td>
</tr>
<tr>
<td><strong>12. Journalism</strong></td>
<td>No university graduate programs, subordinated press</td>
<td>Master’s degree in mass communications in Spanish</td>
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<tr>
<td><strong>13. FIU Campus</strong></td>
<td></td>
<td>Founding FIU campus in large city</td>
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</table>
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Riera, Jorge (2013a), “Graduate Cuban-American Student Fellowship Professor Domingo Mauricio Gómez” (Miami: FIU Department of Biomedical Engineering).

AUTHOR’S INTERVIEWS AT FIU IN 2013

Alvarado, José Alejandro, Program Director, Spanish Language M.S. in Journalism and Associate Professor, School of Journalism and Mass Communication, February 13.

Becerra-Fernández, Irma, Interim Vice President for Engagement, February 7.

Beaulaurier, Richard L., Associate Dean for Research and Engagement, College of Public Health and Social Work, February 5.

Breslin, Thomas A., Interim Dean of Libraries, February 5.

Bueno, Juan A., Founding Dean and Professor of Landscape Architecture, February 5.

Camayd-Freixas, Erik, Professor of Hispanic Studies and Director of the Spanish Doctoral Program, June 18.

Campa, Adriana, Associate Professor of Dietetics and Nutrition, February 8.

Canavés, Jaime, Professor of Architecture, February 8.

Carazo, Ana, Deputy Director, Center for the Administration of Justice, February 12.

Ciccazzo, Michele, Dean College of Public Health and Social Work, February 5.

Cueto, Emilio, is retired from the Inter-American Development Bank and producer of five Cuban-music concerts at FIU, February 19.

Dalmau, Jorge, Editor, School of Journalism and Mass Communications, February 4.

Damian, Carol, Director, Frost Museum, February 13.

De Aragón, Uva, former Associate Director of the Cuban Research Institute, February, 15.

Donoso, María, Director, Global Water for Sustainability Program, February 4.

Duany, Jorge, Director, Cuban Research Institute, January 29.

Fu, Zhaohui Jennifer, Head of GIS-RS Center, February 5.

Gabilondo, José, Associate Professor of Financial and Tax Law, February 9, 2013.

García, Orlando Jacinto, Director, School of Music, February 15, 2013.

Grenier, Guillermo, Professor of Sociology, January 29.

Haar, Jerry, Dean of International Programs and Director of Pino Global Entrepreneurship Center, College of Business, February 7.

Hampton, Michael, Dean of the Chaplin School of Hospitality and Tourism Management, February 12.
Hintzen, Percy, Professor, Department of Global and Sociocultural Studies, and past president of the Caribbean Studies Association, February 8.

Klock, David R., Dean of the College of Business Administration, January 29.

Maingot, Anthony, Professor Emeritus of Sociology, February 14.

Martínez, Hilarion, Senior International Officer and Associate Provost, February 7.

Maunder, Michael, Associate Dean of Research Engagement, College of Arts and Sciences, and Professor of Biology, February 5.

Mirmiran, Amir, Dean of the College of Engineering and Computing and Professor of Civil Engineering, January 29.

Nepomechie, Marilys, Professor, Department of Architecture, College of Architecture and Arts, February 15.

Olson, Richard, Director of Extreme Events Research, February 5.

Ortega, Javier Francisco, Professor of Biological Sciences and Head of FIU/Fairchild Plant Molecular Systematic Laboratory, February 5.

Pérez-Stable, Marifeli, Interim Director, Latin American and Caribbean Center and Professor of Sociology and Political Science, January 29.

Proni, John, Associate Director of Special Projects, Applied Research Center, January 29.

Raattama, Kristina, FIU General Counsel, February 7.

Riera, Jorge J., Associate Professor, Department of Biochemical Engineering, February 5.

Salas, Luis M., Director, Center for the Administration of Justice and Associate Vice-President for Research, February 12.

Sarmiento, Juan Pablo, Director, Disaster Risk Management Program, February 5.

Stack, John, Director, School of International and Public Affairs, February 5.

Triay, Inés R., Executive Director, Applied Research Center, January 29.

Valverde, Fernando, Chief Executive Officer, Associate Dean of Health, Herbert Wertheim College of Medicine, January 29.

Virtue, John, Director, International Media Center, School of Journalism and Mass Communications, February 4.

Williams, Gayle, Librarian, Latin American and Caribbean Information Services, February 5.

Williams, Mark, Chair, Department of Health Policy and Management, College of Public Health and Social Work, February 5.

Wooldridge, Brooke, Director, Digital Library of the Caribbean (dLOC), February 5.
ACRONYMS

ARC  Applied Research Center
CAJ  Center for the Administration of Justice
COB  College of Business
CEC  College of Engineering and Computing
CEMI Centro de Estudios de Migraciones Internacionales
CIGB Centro de Ingeniería Genética y Biotecnología
CIM  Centro de Inmunología Molecular
CIPV Instituto Finlay, Centro de Investigación-Producción de Sueros y Vacunas
CIREN Centro Internacional de Restauración Neurológica
CNEURO Centro de Neurociencias de Cuba
CNIC Centro Nacional de Investigaciones Científicas
CRI  Cuban Research Institute
dLOC  Digital Library of the Caribbean
ECLAC Economic Commission for Latin America and the Caribbean
FTBG  Fairchild Tropical Botanic Garden
GLOWS Global Water for Sustainability Program
GSS  Global & Sociocultural Studies
HWCOM Herbert Wertheim College of Medicine
IHRC International Hurricane Center
NIH  National Institute of Health
NSF  National Science Foundation
PIR  Politics & International Relations
SIPA  School of International and Public Affairs
SME  Small and Medium Enterprises
SSRC Social Science Research Council
SUMA Sistema Ultramicroanalítico
UNDP United Nations Development Program
UNESCO United Nations Educational, Scientific and Cultural Organization
USAID United States Agency for International Development
UWI  University of West Indies