

# MU Faculty and Students Visit Masdar City, UAE

by Akshay Kondakindi

Faculty, students, and leaders from industry joined delegates from around the world as the International Council on Innovation in Higher Education (ICIE) visited the Masdar Institute of Science and Technology, Abu Dhabi University, and the United Arab Emirates University, in Abu Dhabi, United Arab Emirates in June, 2010; Professor Maureen Sheehan Paparella followed up with a visit in March of 2011.

*“Visiting Masdar and listening to Dr. Shatilla was the highlight of a trip filled with some of the highlights of my career..”*

Dr. Eugene Simko



Prof. Maureen Paparella honors Dr. Youssef Shatilla amidst the solar panels at Masdar City, UAE

**S**o what did *YOU* do over spring break? In March, 2011, Professor Maureen Paparella, Director of the Information Technology Academic Program at Monmouth University and Vice-President of the Board of Directors of the International Council on Innovation in Higher Education (ICIE), based in Washington, D.C., toured Phase I of Masdar City, the world’s first “post-petroleum” city, located in Abu Dhabi, United Arab Emirates. Paparella took advantage of a layover in Abu Dhabi en route to Hyderabad, India, in order to honor Dr. Youssef Shatilla for his contributions to the ICIE 2010 Conference in Abu Dhabi, in June of 2010. As the executive director of ICIE’s XXVIII Conference, Paparella had promoted the Middle East conference location, and was grateful to the ICIE Board of Directors for having sought to include university students as partners in research and presentations. “Now, when I relay the details of this experience to my classroom students, they are as excited by this experience as those who attended, as evidenced by the email I receive seeking opportunities to study in this region in the future.”

Dr. Youssef Shatilla, described by Paparella as “affable, charismatic, and enthusiastic,” is a professor of Nuclear Engineering and Associate Dean of the Masdar Institute of Science

and Technology (MIST), the Middle East's first graduate research institution dedicated to innovations in clean energy; it is partnered with the Massachusetts Institute of Technology in Cambridge, Massachusetts. Dr. Shatilla formerly taught at the Massachusetts Institute of Technology, where he also earned his doctorate.

Abu Dhabi, the capital and the largest of the seven Emirates of the United Arab Emirates, is said to be on track in its plans to have 7% of its energy needs provided from renewable energy sources by 2020. The Emirate's plan is to provide about 1000 megawatts of power from renewable sources (ArabianBusiness.com, April, 2011). In addition, as a carbon-neutral city, Masdar is poised to support the introduction of a knowledge economy for Abu Dhabi, providing international consulting to the world.

Paparella's stopover came just a week after the Prime Minister of Spain's visit; Masdar is working closely with Spanish companies in the development of solar energy. Prime Minister Jos éLuis Rodr uez Zapatero said, "I am most satisfied with the visit to Masdar, which I consider one of the main centers in the world for research and development in renewable energy"

(SolarThermalMagazine.com, 2011).

The spring break visit also followed United States Secretary of State, Hillary Clinton, and the United States Secretary of Energy, Steven Chu, in 2011. It is reported that the U.S. Department of Energy has signed several deals with Masdar (ArabianBusiness.com, April, 2011). When speaking with the Chief

Executive Officer of Masdar, Sultan Jaber, Clinton remarked, "I want my country to know how advanced you are in pursuing clean renewable energy. I want the world to know that the U.S. is partnering with you because we are betting on Abu Dhabi and the UAE...when it pays off it will not only mean a better life for the people of this country..., it will have ripple effects throughout the world."

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U.S. Secretary of State Hillary Clinton

Dr. Eugene Simko, a Monmouth University Associate Professor of Management and President of the Board of Directors of ICIE, who attended the conference in June, 2010, agreed. "Visiting Masdar and listening to Dr. Shatilla was the highlight of a trip filled with some of the highlights of my career...in fact, some of the highlights of my life. I believe the Masdar Institute has implemented a model for the entire planet."

Masdar may have been the first Arabic word in Paparella and Simko's vocabulary; in Arabic, Masdar means 'the source.' "This region is one of the most exciting and innovative I have ever visited," said Simko. In fact, the International Renewable Energy Agency has also located its headquarters in Abu Dhabi. This has been called a coup for the region's sustainability credibility (TheNational.ae, January, 2011).

Upon arriving at the Masdar campus, Paparella was overjoyed to find a digital signage display in the lobby at the entrance to Masdar City. She has particular interest in digital signage as a specialization, since as an advisor to Upsilon Pi Epsilon students, members of the international honor society for the computing and information disciplines, she and her students are engaged in a long-term digital signage project at the Monmouth University Chapter for the Department of Computer Science and Software Engineering – the initial brainstorm of Monmouth University Dean of the School of Science, Dr. Michael Palladino. Although the primary focus of the Monmouth University display is on academic content, Paparella found the Masdar display “impressive and inspiring.” At Masdar Institute, guests are invited to use their finger to write their name on the



display while observing a dramatic modern art creation appear. Users are then asked to enter their email addresses and other identifying data, which Paparella assumes will act as input to a database of visitors to the city; the program encourages users to enter the data as it promises that their “name art” will be mailed to them. Paparella entered her name on the display in order to test the system and took great delight in the results; she viewed this as “an ingenious idea for data

mining.”

University advanced degree students and their faculty are the first residents of Masdar City in Phase I. Students receive a full scholarship to pursue their masters and doctorate degrees with a commitment to work and study at Masdar for four years. There are presently 10 Americans among the faculty there now. With an approximate \$16 billion dollar renewable energy investment, however, there will soon be more than students. By about 2020, there are expected to be about 40,000 residents and hundreds of businesses in Masdar City.

And what does \$16 billion dollars pay for? Solar panels that produce concentrating solar power (CSP) and photovoltaic solar energy are on every building in Masdar City. In fact, an energy farm used to supply energy to the city can be seen from the student dormitories. In addition, there is little need for the maintenance of buildings in Masdar City, as they are made of sand.

Paparella suggests that “there were very sensible design specifications that enable residents to function with mobility in this city.” She makes reference to the many courtyard areas available in order for residents to congregate outside the buildings within Masdar City. Solar lights line walkway paths for pedestrians at night and electric plugs for recharging laptops and mobile devices could be found under the concrete benches. Paparella noted that within less than a city block, she had passed at least three cafes and an organic grocery store.

Paparella noted that one of her most amazing observations was the ground itself. She was provided a glimpse of the extensive depth of the insulation in the ground at Masdar City, from concrete at the very bottom to the pavers at the top, which are made of a recycled material. This insulation ensures minimal heat at the surface during periods of summer months.

Paparella believes that one of the most enticing reasons to want to live in a place like Masdar City is the PRT or personal rapid transit system; the system operates 18 hours per day, seven days a week, from the basement level of the city. The system has 10 passenger and 3 freight vehicles, serving 2 passenger and 3 freight stations, connected by 1.2 kilometers of one-way track. Trips take about 2 and a half minutes; it has an average speed of about 12 miles per hour.

With the quick presentation of Dr. Shatilla's badge to a security device, he opened the glass doors that protect the personal rapid transit car that Paparella used for transportation out of Masdar City. She then pressed the button that directed the electric car to proceed to her desired destination, since the vehicle control is fully automated. The car is guided by a series of magnets in the floor and antennas in the ceiling; it includes sensors that enable it to detect another car in close proximity, which automatically directs it to slow or stop, if necessary. Paparella recognized this as a sustainable mode of transportation that is "economical, aesthetically and environmentally attractive, and delightfully comfortable; the experience of riding in the personal rapid transit car was right out of the Jetsons," making reference to the prime time animated television sitcom that originally aired in the 1960's and again in the mid-1980s, depicting a family living in a futuristic utopia in the year 2062.

Later, Paparella visited the library, filled with new computers, seemingly enough for every student, and paper textbooks, for those students who desire them. The architectural design included a strong presence of wood and glass, amidst high, slanted ceilings; Paparella was pleased to peer through the Masdar library window in order to see the building of the next phase of Masdar City, Phase II. She hopes to return to Masdar City to see the completion of Phase II.

ICIE delegates first learned of Masdar City when visiting its previous location at Petroleum City in June of 2010, just one week before Phase I opened during the

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Professor Maureen Sheehan Paparella  
on the personal rapid transit at Masdar City

2010 Conference. “It was quite distressing to know that you missed this monumental event by one week” explained Mr. Eric Joyce, Director of Infrastructure Operations for the Division of Information Management at Monmouth University. “I don’t think there was anyone else at the conference who was more captivated than me by Dr. Shatilla’s presentation. Their initiative and goals of developing a 100% carbon free metropolis that is completely powered by renewable energy is just awe-inspiring. World leaders should take notice, as this is not just a visionary dream, but a necessary reality.”

Delegates describe other experiences from June of 2010 for which they were also left spellbound. Arranged by Dr. Donald Baker, Dean, delegates visited Al Jahili Fort of Al Ain with Professor Brien Holmes of United Arab Emirates University as their guide; the structure won the prestigious 2010 International Architecture Award and was selected from a cross-section of 95 distinctive and recently built buildings and urban planning



**Dr. Eugene Simko at Al Jahili Fort**

projects from around the world. The competition is known to have attracted hundreds of designs from more than 45 countries, spread over five continents.

Monmouth University’s President of Upsilon Pi Epsilon, Maura Breiner, explained, “I felt as though there was air conditioning in the room, but there was none. It was awesome!” Cold water pipes, embedded in the mud layers, ensure that the building remains cool; then a stream of cold air is controlled through sensors in order to reduce energy consumption.

Professor Holmes also took the delegation to the Wilfred Thesiger (Mubarak Bin London) Exhibition at Al Jahili Fort, just 2 km. from the country of Oman. Prof. Holmes explained that Thesiger, explorer and author of *Arabian Sands*, once hunted with the late Sheik Zayad, a beloved ruler of Abu Dhabi. When asked about the devotion of the citizens of the United Arab Emirates to Sheik Zayad, Monmouth University student ambassador, Billy Hughes, also a member of Upsilon Pi Epsilon, recalled, “Professor Holmes, who is originally from Canada, stated that even he felt as though his own father had died when Sheik Zayad passed. Sheik Zayad was clearly a beloved leader.”

Also at United Arab Emirates University, delegates attended a presentation by Dr. Donald N. Baker, Dean, College of Humanities and Social Sciences, United Arab Emirates University, UAE, who explained the purpose of accreditation standards, its implementation, and its impact on global education.

ICIE delegates also visited a private university, Abu Dhabi University, where delegates were honored that Chancellor, Dr. Nabil Ibrahim, described as “an articulate and passionate speaker,” opened the 2010 conference. Dr. Ibrahim discussed the opportunity for international collaboration in higher education, with special emphasis on the need to seek accreditation and quality improvement, along with international links and the technological infrastructure to provide distance learning.

Another notable keynote presenter at Abu Dhabi University was from the United Arab Emirates University, Dr. Gary Ingersoll, Dean of the School of Education, and Professor Emeritus at Indiana University at Bloomington. Dr. Ingersoll also spoke of his support for accreditation standards for education.

*“...consider the environmental consequences of your actions.”*

Dr. Saliba Sarsar, Associate Vice-President for Academic Initiatives, Monmouth University; Recipient of the Humanitarian Award of the National Conference for Community and Justice.

Dr. Saliba Sarsar of Monmouth University, New Jersey, provided the closing keynote speech to ICIE delegates at the Ritz-Carlton, Dubai, in the United Arab Emirates. Dr. Sarsar is the Associate Vice-President for Academic Initiatives and Professor of Political Science at Monmouth University. Among his many honors, he is a recipient of the Humanitarian Award of the National Conference for Community and Justice. At ICIE, Dr. Sarsar reminded delegates of our obligation to think beyond ourselves as individuals and institutions and keep the “big picture” in mind. Having mentioned that 155 million cell phones per year are discarded globally, Dr. Sarsar reminded delegates that they must “consider the environmental consequences” of their actions.

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Tom Triumph, the Director of Operations for EPS Systems in Florida, USA

ICIE delegate Tom Triumph, the Director of Operations for EPS Systems in Florida, USA, summed up his thoughts following Dr. Sarsar’s presentation. “Masdar City makes it clear that our ability to move from fossil fuels is a reality, not just a futuristic uncertain endeavor. Collaboration between higher education, government, and industry, for which standards must be set and assessed, are key.” Professor Roy Nersesian, Professor of Management at Monmouth University stated, “We could not have had a more impressive group of articulate scholars or a more

generous group of institutions to support this conference.” Ophelia Karavias from Columbia University concurred. “This is so promising for higher education and industry in this region, and for the world.”

When asked about the hospitality of the people of the United Arab Emirates, since as executive director, she was personally responsible for negotiating every detail of the adventure, Paparella recalls her first arrival in Dubai airport. She remarked to the man studying her passport that the airport was “beautiful.” Dr. Simko describes that with immediate, yet solemn measure, this man paused to make eye contact with Paparella and responded, “but not nearly as beautiful as you, Madam.” With a smile from ear to ear, Paparella stated, “I have never been treated better, and my level of satisfaction was only up-hill from there.” Indeed, each of the Monmouth delegates appeared to have felt deeply indebted to those who provided outstanding services, from economical rates and special management services from the Ritz-Carlton Dubai, to the courtesies provided by Dean Baker and his wife, Heather, to the welcome enthusiasm of Dr. Shatilla and his

assistant, Sara El Hage, Professor Holmes, Dean Ingersoll, and Chancellor Ibrahim and his staff. “Their time, talent, energy, and courtesies, provided an exemplary level of commitment to the higher education community,” said Paparella. As student Billy Hughes remarked, “We felt privileged to be here at this time; it is a pivotal era for science and technology.” Most notably, students and faculty at Monmouth University, and the ICIE delegates, are hopeful to enjoy friendships, professional associations, and collaborations among our new colleagues of the UAE well into the future. The conference evaluation reports confirmed that delegates saw this as a truly exciting and progressive region, having attracted “brilliant scholars and extraordinary industry professionals from around the globe”; according to Maura Breiner, student, “it was a life-altering experience.”

Paparella mentioned that her favorite quotation from the Jetsons was when Judy Jetson complains of her father’s old fashioned ways, such as his dancing, by suggesting that it, “...went *out* with pop-up fuels.” She feels certain that young citizens and visitors of the United Arab Emirates, particularly those living in Masdar City, will surely be making similar references very soon. (To view additional pictures, visit <http://icie.net/v2/presentation/Visit%20to%20UAE.pdf>).



Honoring United Arab Emirates University keynote presenter, Dr. Donald Baker, Dean; students include Monmouth University UPE student William Hughes, far left, UPE President Maura Breiner (fourth from left); doctoral students, Mr. Abdulrahman Alseddiqi, International Islamic University, Malaysia (second from left), Ms. Saba Alvi, University of Ottawa (fifth from left), Ophelia Karavias, Columbia University (sixth from left); Monmouth University UPE member, Mr. Eric Joyce (second from right)