

Tampa Bay – A Knowledge Exchange with Dutch (and other) Experts

An Unofficial Report
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On February 22, 2011 a very interesting seminar was held at the Patel Center for Global Solutions, on the University Of South Florida campus, on the resiliency of the Tampa Bay region to cope with a large, powerful hurricane. Participants included Dutch Government Officials, engineers, scientists and advisors; United States government advisors from the Department of Homeland Security; Professors and researchers from USF, elected and previously elected representatives of local city counsels; people from County and City agencies and departments; local businesses, planning groups as well as private citizens. The audience of nearly 200 was also from equally diverse sources: Federal, County and City departments or agencies, teachers and students from USF, representatives from local businesses and neighborhood activists.

After welcoming remarks from USF personnel; program directors and presidents, a Clearwater City Council member and the Consulate General of the Netherlands including brief overviews and objectives of the day's program, several definitions of Resilience were offered for thought.

From this point on, this unofficial report is based upon the words I hastily scribbled down during the rest of the seminar.

Resilience is the capacity of a system to absorb strain, recover and continue
Resilience is being able to be both reactive and proactive.
Resilience includes responding, training, protecting, preparing and preparing.

Dr. Kala Vairavamoorthy, the Director of the Patel Center for Global Solutions, expanded on problems facing Tampa Bay saying that today 50 percent of the world's population lives near coastlines and this amount is expected to increase in the coming years. Today, however, because of changing weather patterns and rising sea levels Tampa Bay is subject to flooding from short duration high intensity rains and water blown on shore from storm surges. He added his definition of resiliency regarding sea level rise includes avoidance, the reduction of effects, a capacity to recover and the need to adjust or adapt.

Climate change is coming. Despite the recent very cold winter, in the northern hemisphere, with repeated snow storms paralyzing many cities, 2010 was the warmest year on record. If anything this shows that how variable the world's climate is.

The impact of a warming global climate and its probable effects on coastal cities is shown in the following chart.

Urban Flooding is the result of heavy rains
Storm Surges are expected due to warmer oceans and sea level rise
Sea Level Rise is expected to be 3 feet in the next 100 years.

	Time	Probability	Consequence	Geographical Areas
Urban Flooding	Present	High	Mild	Specific Areas
Storm Surge	Present	Low	Extremely High	Broad Areas
Sea Level Rise	Future	High	High	Broad Areas

A partial quote from Dr. Martin Luther King was cited to reflect another definition of resiliency. To present the depth of Dr. King's insight the full quote follows:

“But today our very survival depends on our ability to stay awake, to adjust to new ideas, to remain vigilant and to face the challenge of change. The large house in which we live demands that we transform this world-wide neighborhood into a world – wide brotherhood. Together we must learn to live as brothers or together we will be forced to perish as fools.

We must work passionately and indefatigably to bridge the gulf between our scientific progress and our moral progress. One of the great problems of mankind is that we suffer from a poverty of the spirit which stands in glaring contrast to our scientific and technological abundance. The richer we have become materially, the poorer we have become morally and spiritually.”

— [Martin Luther King Jr.](#)

Mr. Robert Seibert, the Senior Vice President of the Collins Center for Public Policy (www.collinscenter.org) offered yet another definition of Resiliency, saying resilience should not be defined by crisis but by purpose and opportunity. We must be open to the notion that what we recover may be different than what we lost. Resiliency equals knowledge plus candid open conversations; resiliency is the cornerstone of self-government. The Collins Center's believes in community involvement for the collection and analysis of information. With growth expected to remain around the “new normal” of 700 people a day; with life expectancy increasing and economic and racial diversity changing, the public needs to remain engaged in all future planning. Emphatically he said we need a “Water Ethic” because Our Water equals Our Florida.

Mr. William Veebeek an advisor on Flood Resilience spoke on how the Netherlands is coping with its concerns about floods. With 16 million inhabitants of the Netherlands living below sea level, it is a country with a population and a government which is actively and cooperatively working to protect itself from, what they identify, as a “ten thousand year” flood. They have hundreds and hundreds of miles of levees and dykes, inflatable dams and rotating dams. They have floating villages and houses that are designed to float if inundated with water. They encourage green roofs and design public parks to temporarily hold diverted flood waters. All development is required to include flood resiliency in their location, designs and construction.

Mr. Berry Gersonius a lecturer for UNESCO, thinks all countries must begin adapting urban areas and infrastructures to the challenges faced of future flood risks. The planning must be multi-level in nature to ensure the best possible resiliency.

Mr. Johan Stapel, a researcher for a private Netherlands’s organization (Institute for Marine Resources and Ecosystems Studies) thinks we must “Build with Nature.” This, he says, means fundamental changes in thinking and acting between governments, the public, businesses, and schools. He recommends the integration of “nature” in development planning, designing and construction, especially in areas like Tampa Bay. It means opportunities for enhancing biodiversity, increasing recreation, tourism and even socioeconomic development.

Next began a panel discussion on the Vulnerability of Tampa Bay to “Urban Flooding.” The moderator initiated the discussion by defining some of the problems of urban flooding as: safety, urgency, priorities, weak links, preconditions, limiting conditions and costs. The panelists were asked to comment, one at a time, on one or more of these subject areas.

Mr. David Kramer, from the Southwest Florida Water Management District office said low impact developments are being encouraged.

Mr. Mark Trent, from the Beck Group, said it is getting more economical to build green and their group is doing so.

Professor Trent Green, from USF, said hazard mitigation needs to be clearly reflected in development plans.

Mr. Trent added, while there has been no “wake up” call yet about all the impervious surfaces being included in developments, this unneeded part of developments needs to be addressed.

Mr. Berry Gersonius, from UNESCO, suggested a look at the insurance industry to see its cumulative identifications of small event of urban flooding, in the last decade, to help identify immediate hazards in the Tampa Bay area.

Professor Green said addressing the problems and the costs for condos on or near beaches is going to be a difficult and costly to fix. Maybe when insurance premiums are equal to mortgage payments someone’s attention may be gotten. He added, the problems of impervious surfaces are adding to the area’s vulnerability, but some small steps are being made to install new technologies.

Additional comments by Panel Members included the importance of a healthy bay and ocean eco-systems which are being affected by climate change; and because much of present day design of developments is controlled by civil engineers more discussions with landscape designers is recommended and more green practices are slowly being recognized for their efficiencies and cost savings. No changes are easy or quick; initial Dutch efforts to protect their country were difficult because politicians were reluctant to change. It is important to give perspectives when trying for changes, such as both the short and the long term benefits. Sometimes heritage or historical sites and even safety issues create obstacles to change which then requires redefining the problem.

After a break for lunch, Mr. Jim Beever a planner for the Southwest Florida Regional Planning Council out of Punta Gorda gave a presentation on the City of Punta Gorda's Adaptation Plan and the Charlotte Harbor Experience. He said because the average temperature in Florida has increased 1.2 degrees over the last 100 years and the number of days temperatures are over 90 degrees has increased by twelve, our rainy seasons are getting longer and our dry seasons are getting shorter. With these and other facts in hand, his group was able to convince communities in the area to begin to take steps to adapt to climate change and to protect their vulnerability to these changes. Green building was promoted, landscaping is being made more drought tolerant, fertilizer use is restricted to protect sea grasses from runoff and construction is constrained in identified high risk areas. Along the way, he stressed, while making these changes it is important to keep the community informed and to know what the community will not accept. A summary of Punta Gorda's program may be found at: ww.chnep.org/CCMP/CCMPSummary2008.pdf

Next Mr. Brady Smith, a Planner for the Tampa Bay Regional Planning Council showed a film entitled, Hurricane Phoenix. It was fictional creation with pictures from past storms, local TV station weather forecasters and created scenes showing damage caused by the storm. The storm is a category five hurricane which comes on shore in northern Pinellas Country forcing a storms surge of an estimated 26 feet up Tampa Bay. When the film ended the audience sat in stunned silence for several moments as the realization of the potential damage such a storm could cause sank in. For the presence, there is slide view version at: www.tbrpc.org/tampabaycatplan/pdf/Project_Phoenix_Scenario_info.pdf

The film led into the next presentation by, Mr. Ollie Gagnon a Protective Security Advisor for the Central Florida District of the U.S. Department of Homeland Security. Mr. Gagnon and his peers are concerned about RRAP or Regional Resiliency Assessment Programs. These programs evaluate and identify critical parts of the national infrastructure, their protection plans, assessments, risks and recovery plans assigning by resiliency indexes. More information may be found at: http://www.dhs.gov/files/programs/gc_126539397888256.shtm

Mr. Aron Willems from the Netherlands spoke next about Analyzing Storm Barriers. Storm barriers in the Netherlands are critical to its safety. Storm barriers in the Netherlands are fixed, they rotate and they even inflate when needed, therefore safety standards are set at the highest conceivable levels. Goals are not just to reduce flooding but prevent flooding. The movable barriers have overlapping safe guards to prevent failures to move when needed and to prevent structural failures. For example, the Maeslant semi-rotating barriers, one of the largest movable structures on earth, has a operations and maintenance manual nearly 9000 pages long

Another panel discussion took place next on the Vulnerability of Tampa Bay to Storm Surge. The panelists were Misters Gagnon, Miccolis, from Commercial Lines Engineering an Institute for Business and Home Safety, and Willems and Ms. Holley Wade, a Business Continuity Program Manager from the Hillsborough County Board of County Commissioners.

Questions to the panelists began with Tampa Bay's present and future vulnerabilities, what the solutions might be necessary and are there opportunities to transfer Dutch solutions to Tampa Bay? Mr. Gagnon said resilience cannot occur without knowledge. Ms. Wade said the Tampa Bay area is similar to the Netherlands, we are surrounded by water, we have a large port and dependent on agricultures. Mr. Willems said if there are differences between Holland and Tampa Bay it is that hurricanes are somewhat predicable and advanced warnings can be given. However, both must also have the capacity to pump out large amounts of water from inundated locations. Mr. Miccolis said the area needs to invest in its local habitat to help prevent erosion and to insure its highway infrastructure has the ability to quickly recover from a major storm. Critical facilities, such as hospitals and power plants, need to be better protected from storm surges. The public must be "educated" and encouraged to create its own safety plan, and all future construction should be built to the highest standards, even he suggests above the minimums in present codes. Mr. Willems said natural solutions are often the best, if applicable, barrier islands and wide beaches should be created. If possible, the Tampa Bay area should consider more physical or moveable barriers, however only after a thorough risk analysis. Ms. Wade said some information about how we are mitigating risks has gotten to the business community. Many billions of dollars worth of new businesses have relocated here and an important national convention is planned to be held here in 2012. (FEMA Document 543 fro protecting critical facilited was mentions as an aside during a part of this discussion.

Perception by the Public on the problem of Vulnerability is always, it seems, a major problem. How next, asked the moderator, do we get the public to react and assist in mitigating the problem? Ms. Wade said Mother Nature always claims what is hers. "We" need to overcome our arrogance, start looking forward, learn and then act. Mr. Gagnon said Regional Resiliency Assessment Program goals are to drive or influence general solutions, they are not aimed at specific building codes. Mr. Willems said codes in the Netherlands are based upon risk analysis. Mr. Miccolis said making upgrades to facilities are cheaper when compared to overall construction costs. Ms. Wade said her group is constantly trying to connect with community groups to get the word out about vulnerabilities and is working to overcome the barriers and the differences between the socioeconomic and ethnic communities in the area to educate the public as a whole. She said they are even using face book and tweeting technologies.

After another break, two final speakers gave short presentation on the opportunities offered by sea level rise and the anticipated long terms effects of SLR.

Dr Paul Jansen a director of an international affairs company headquartered in the Netherlands spoke about SLR and Economic and Urban Opportunities. He said sea level rise is a world wide problem. He said walls, promenades atop dykes and levees and public park like retention areas for storm surge water offers interesting opportunities for community planners to design and build while preparing for the future. He said a key problem is getting the public and politicians involved. Planning must extend beyond the elected terms of the politicians, it must be long term, not just 4 or 8 years. He said adaptation for sea level rise is going to take money, timing and inspiration; organizing, communicating, and knowledge; quality, rules and creativity; information, interest and time.

Ms. Yvonne van Krutchén-Cuijpers, a Netherlands's based hydraulics engineer gave the final presentation on the effects of SLR. She said the impacts will be both economic and social. She advocates for dykes, dams and barriers for the best possible solutions.

To conclude the seminar, a final panel discussion was held on the specific vulnerability of the Tampa Bay area to sea level rise. The panelists were Ms. Linda Saul-Sena a former Tampa City Council Member, Dr. Ernest Estevez a Mote Marine Laboratory scientist, Mr. Mike Seifert a Tampa Port Authority engineer, Dr. Frank Muller-Karger a Professor at the USF College of Marine Science, Dr. Paul Jansen and Ms. Yvonne van Krutchén-Cuijpers from the Netherlands.

Ms. Saul-Sena expressed some pessimism, saying we cannot even get the nitrogen out of our fertilizer (to protect Tampa Bay and its estuary's) much less get elected officials to seminars like this one. I wish we could get them to look ahead 100 years, instead of just every 4 years.

Dr. Estevez is concerned about the effects SLR and the intrusion of salt water into our rivers and aquifers. The rate of these intrusions seems to be having a greater negative effect than the rising levels themselves. The changes to river and bay sediments are an unknown.

Mr. Seifert said the Port of Tampa and the storage tanks adjacent to the port are designed to withstand a storm surge of about 10 feet. But, he added, if as depicted in the movie, the surge is likely to be greater, than adaptations will be necessary. For this we will need much more dialog between public, private and political entities.

Dr. Muller-Karger said there has been talking about SLR going on in the Tampa Bay area for several years, but it has remained mostly in the education arena. With documented sea level rise of only a little over an inch during the past decade, it is difficult to engage civil planners when "they" see no hazards. He suggested grants should be sought to help with the teaching of teachers and professionals about the issues.

Dr. Jansen asked is Tampa Bay waiting for Phoenix?

Ms. van-Kruthcen-Cuijpers said in her experience the Netherlands's focus, because of its experiences, was on identifying probabilities and taking steps to eliminate or reduce water damages.

Dr. Estevez added it is easy to see what others have done, like Port Charlotte, maybe their ways of reaching out and educating the public need to be used.

Ms. Saul-Sena thought the biggest problem is that now in most jurisdictions today the "anti-protect the environment" people are now in charge.

Some final thoughts that came fast and furious were how do we energize our community to participate in solving the long term problems? One of the panelists said, as a granddad he's not personally worried, but when talked with his children about the problem, they all said they were too busy and as for the grandchildren, let them worry about. Who is responsible for starting this "rock" moving? Will individual rights and or property rights be protected or will they have to be brushed aside? What part of adaptations to reduce carbon dioxide emissions to reduce atmospheric and ocean temperature will be individual responsibilities and what part will community responsibilities?

A final consensus among the panelists was that not only is the Tampa Bay area paralyzed from taking action, but the whole United States is paralyzed by two significant questions. The first is: who is responsible to initiate action, the government, in other words our elected representatives, or the public. The second is: with no agreed upon forecast models and even no agreement among experts which or whose forecast is to be believed (about sea level and temperature rise)?

Over the past several years I have attended a variety of interesting and informative workshops and seminars about infill development, about our forests and estuaries and two about the Dutch Approach to Climate Change. This seminar was equally enlightening.

It was also very eye opening about the hazards facing the Tampa Bay area; the short term hazards from intense rainfall, the catastrophically hazards from a storm like that described as Hurricane Phoenix and the long term hazards of rising sea levels. And you know what? We do not appear to be doing much of anything to make the area more resilient.

There are concerned United States citizens, educators and government employees who appear to be aware of the problems and the hazards. Unfortunately in this time frame of recession, of preachings from politicians about cutting taxes and making jobs, there appears to be no knowledgeable and concerned elected representatives willing to start any programs or activities that cannot guarantee an "immediate" fix.

In my opinion the Tampa Bay area does not have the resilience to survive a Hurricane Phoenix like event.