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## BLUE COMMUNITY COASTAL RESILIENCE & RESTORATION PROGRAMS





**COP28 Asian Development Bank Pavilion  
Resilient Coastal Communities  
December 9, 2023**



# RESILIENT TOURISM

"A better understanding of the economic losses from extreme weather events can help to generate greater action on climate change and increased ambition on reducing greenhouse gas emissions".

**António Guterres,**  
UN Secretary-General



#IDDR2018

#ResilienceForAll



- Blue Community was founded to develop strategies for the tourism industry to protect, enhance & restore coastal habitats and marine environments.
- The UNISDR in Geneva influenced the importance of sustainability with its message it is the best solution for resilience.
- The Key to resilience is becoming more sustainable.





©Disney

# EPCOT





# VILLAGES NATURE RESORT







# VILLAGE NATURE SUSTAINABILITY KEY TARGETS FOR 868 UNITS



- Zero carbon - geothermal
- Zero waste - recycling, composting
- Sustainable transportation - trains, electric shuttles, auto free in village
- Sustainable water - no use of aquifer
- Local sustainable food (28%)
- Local sustainable materials -
- Natural habitat and wildlife - protection of 72 species
- Cultural heritage - local tours and tours to Paris
- Local partnerships & fair trade
- Quality of life and well-being

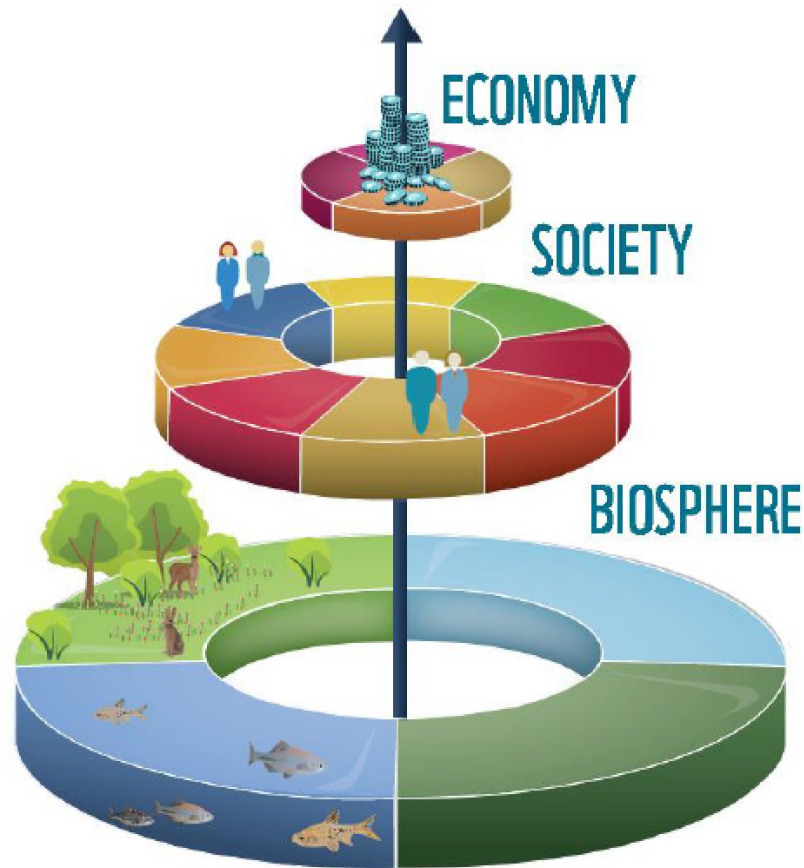




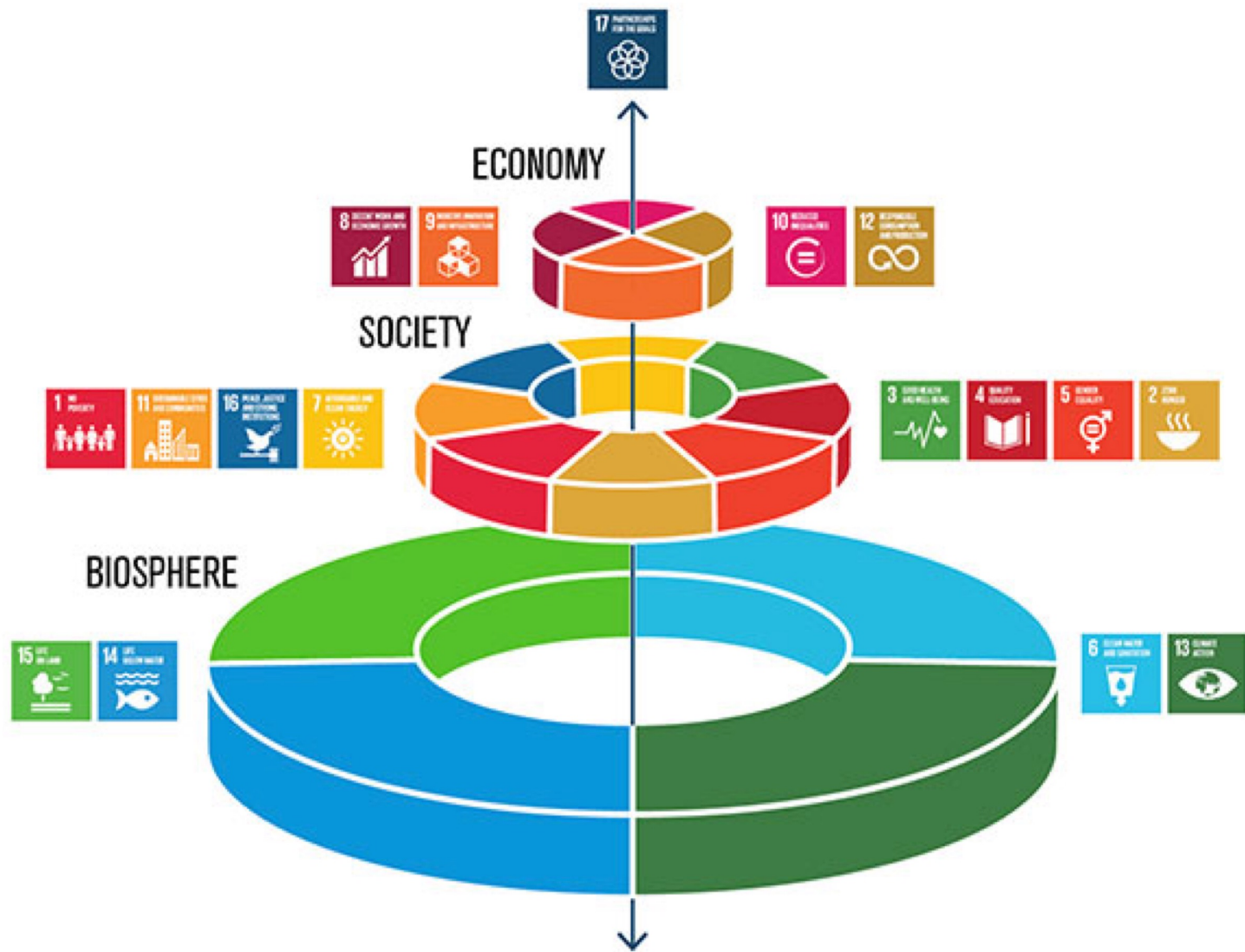
# BLUE COMMUNITY COASTAL RESILIENCY



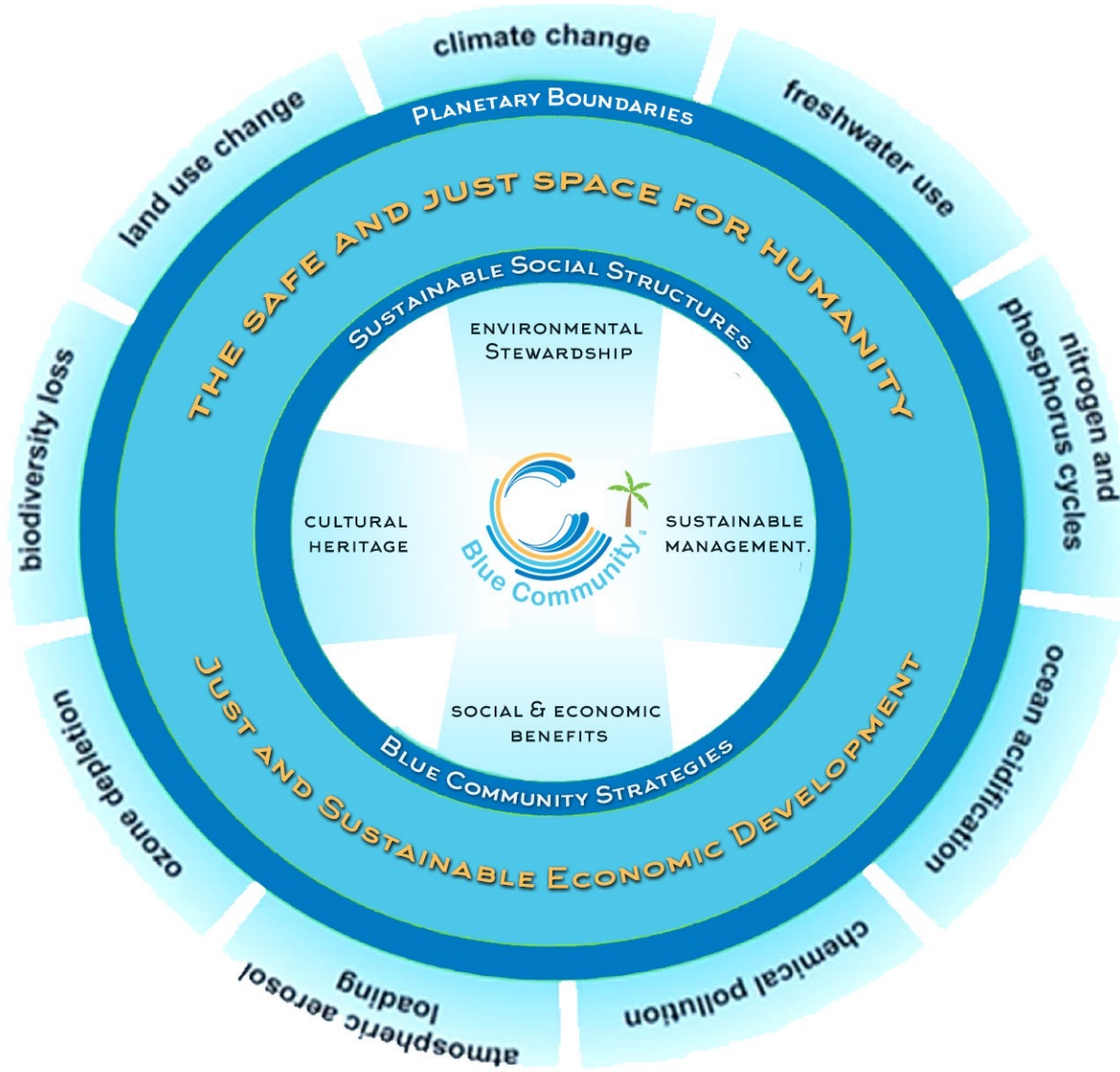
# Definition of sustainability





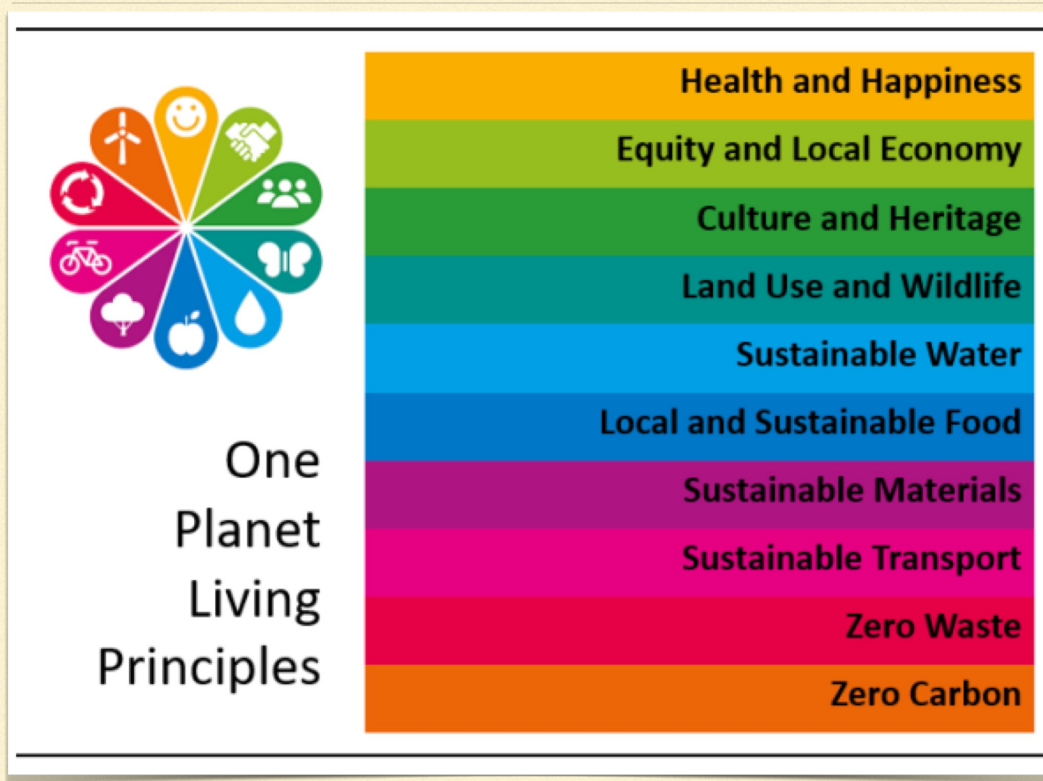








# ONE PLANET LIVING PRINCIPLES



- Hotels
- Restaurants
- Attractions
- Resorts
- Communities
- Villages Nature Flagship Program



## 12 Strategies Co-Developed by the Disney Animal Science & Environment Team



## 12 Blue Community Strategies

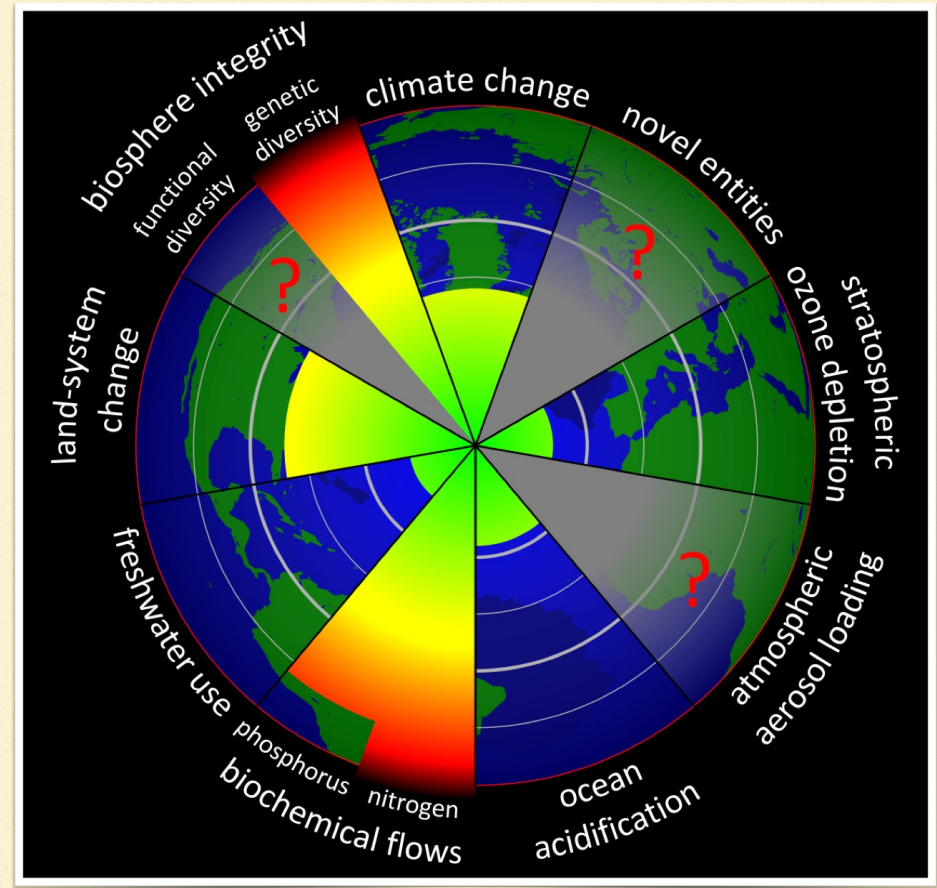
Building Design	Build more sustainably and for disaster reduction
Transportation	Promote mass transit - Reduce carbon emissions
Reduce Energy Use	Reduce carbon emissions
Water Resources	Preserve fresh water resources
Waste Management	Work toward zero waste to landfill
Reduce Plastic Use	Reduce use of plastics in all operations
Organic Food	Increase use of locally sourced organic food
Sustainable Seafood	Work toward sourcing 100% of seafood as sustainable
Protect Habitat	Support programs to protect coastal habitat and marine environments and preserve biodiversity
Clean Marinas	Certified clean marinas or referral of guests to those marinas with clean marina certification
Education	Provide sustainability education to employees, guests, and other stakeholders
Policy & Mngt.	Develop a sustainable management system and train team for managing for sustainability



Science Based

# 9 PLANETARY BOUNDARIES

Particular emphasis on policy development including GHG emissions, phosphorus / nitrate regulations, biodiversity preservation, land use, chemical use, and water use.





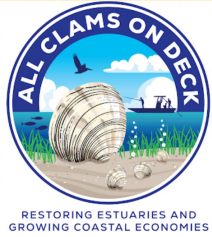


# SOME BEST PRACTICE EXAMPLES FROM 7 OF OUR 40 MEMBERS



- All Clams on Deck
- Conch Republic Marine Army Clean-up and Mangrove Restoration
- Sea & Shoreline
- Plant a million Corals
- Storm water ponds and micro-forests
- Chiles Hospitality - Circular Economy
- Key West Community Program





## ALL CLAMS ON DECK - GULF SHELLFISH INSTITUTE

### RESTORING ESTUARIES & GROWING COASTAL ECONOMIES



- Through the harvest of 136 million clams, over 25 thousand pounds of nitrogen were removed and 760 thousand pounds of carbon were stored from the coastal environment.
- When seagrass is added to the equation it sequesters carbon at a rate about 30 times that of a tropical forest.
- Increased local employment
- Increase of local sustainable seafood for local Florida restaurants,
- Creation of valuable fishery habitat, water filtration, nutrient reduction, and the promotion of seagrass that increases carbon sequestration



# Restoration in a big way

🐚 The Manatee County Appropriation is of one several ACOD funding sources:

1. NOAA NMFS SE 2023 2007899 (\$2.5 million)
2. FWC Agreement 22080 (\$2.5 million)
3. FDEP Agreement 1760A (\$4 million)<sup>†</sup>
4. Manatee County Appropriation<sup>‡</sup> (\$500,000)

🐚 As a local funding source, Manatee County will **anchor and lead** statewide seagrass and hard clam co-restoration efforts right here on the Suncoast

(†) = partial funding, not executed; (‡) = not executed



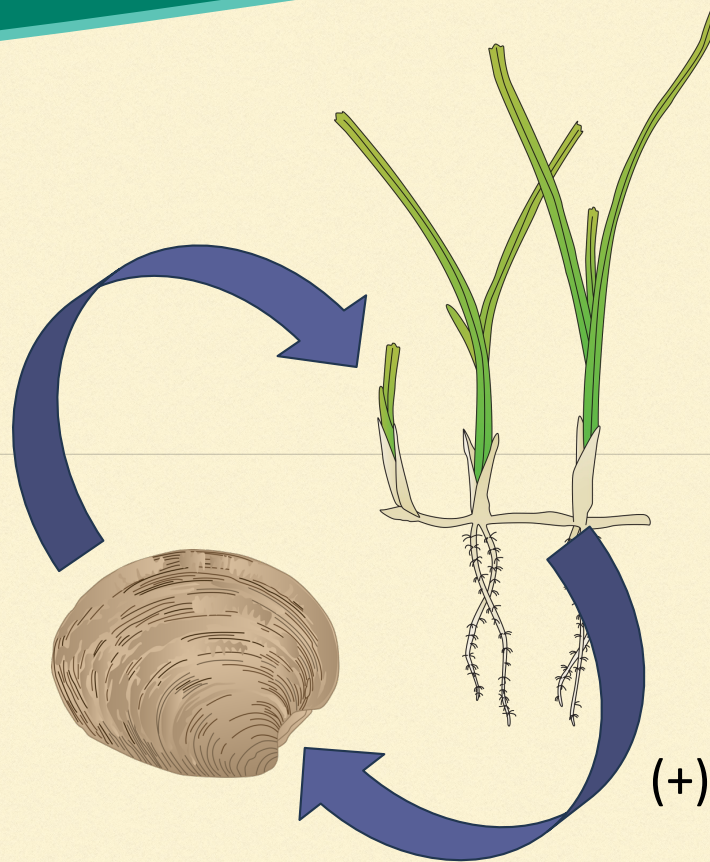


# The core concept

## Co-restoration

Improved light availability  
Increased nutrient availability  
Lower sediment sulfide

(+)



Seagrass  
*Halodule wrightii*

Hard clam  
*Mercenaria campechiensis*

(+) Refuge from predators  
Faster growth







# CONCH REPUBLIC MARINE ARMY



- In response to hurricane Irma, more than 4,372 volunteers offering their time and passion
- CRMA has collected 454,163 pounds of debris
- Removed 2,693,639 feet of trap line removed from the mangroves (510 miles of mangroves)
- 91 refrigerators were removed from coastal waters
- Planting of new mangroves while doing the clean-up



## SEA & SHORELINE



- Submerged aquatic vegetation/seagrass restoration
- Propeller scar restoration
- Oyster reefs
- Westland plants
- Living shorelines
- Coral Reefs
- Mitigation banks





# START



- Stormwater runoff accounts for 65% of the nitrogen in Sarasota Bay. Start has created a new approach that:
- Uses the best irrigation and fertilizer practices in the land area around the pond
- The creation of a “No Mow Zone” around the perimeter of the of the pond that is at least 8 inches to 12 inches high and at least 3 feet wide
- The use of aquatic plants on at least 30% to 50% of the Littoral Shelf or shallow area of the pondLiving shorelines
- The minimal use of herbicide sprays (Copper Sulfate) in and around the pond
- RESULT - Storm pond increases from 40% to 60% efficiency to





# PLANT A MILLION CORALS



- Through the process of micro-fragmentation, rapid growth and healing happen at rates 25-40x faster than they occur naturally on the reef!
- Developed mobile lab systems to ship all over the world that can reduce the cost of coral to about \$10 per coral instead of the \$200 price some are charging.
- Mobile lab systems can grow up to 1000 corals a year
- New corals can be planted on top of dead or dying corals which help them grow faster.
- Process has been tested in both the Atlantic and Pacific Oceans
- [Video Intro](#)



# CHILES GROUP CIRCULAR ECONOMY



- Restoring our Estuaries
- Sustainable Seafood
- Organic Farming
- Composting
- Solar Energy



# RESTORING THREE NATIONAL ESTUARIES



## Support For:

- Blue Community
- Gulf Shellfish Institute
- All Clams on Deck
- Sarasota Baywatch
- START



# SUSTAINABLE SEAFOOD



- The Sandbar supports sustainable fishing practices.
- The Sandbar take its commitment to the health and sustainability of the ocean as seriously as they take their commitment to their customers. It is their goal to be good stewards of the environment and to leave it better than they found it.
- Mullet, Cobia, Middleneck Clams, Shrimp, Calamari, & Crab are some examples.



# ORGANIC FARMING



- Gamble Creek Farm produce provides restaurants with a fresh farm to fork dining experience. The farm grows fresh, local, 100% certified organic produce for the local Southwest Florida community.
- Organic farming reduces the phosphates, nitrates, and other chemical pollution going into our coastal water ways.



# ORGANIC FARMING



- Agriculture and aquaculture, sustainable and organic, wild and cultivated; field to fork, Gulf to grill, and pasture to plate.
- Restaurants feature dishes made with all Florida-grown items.
- Various partnerships and other investments in local food producers.
- The patrons' food desires are: locally grown and sustainably raised seafoods, meats, and produce.



# COMPOSTING



- Three waterfront restaurants started completing the circle of life with their new compostable materials program. How it works:
- The salad starts its life as an organic plant, grown at Gamble Creek Farm.
- As the salad or entree is prepared, the team trims the vegetables so that only the best ingredients are used on the plate. The trimmings that aren't used are discarded into a composting bin for recycling.
- The composting materials are returned to Gamble Creek Farm to be combined with dirt and mulch to create the perfect mix of materials for the compost to become nutrient rich soil.
- After a few months of brewing, turning, brewing and some more turning, the compost is ready to be used again as soil.
- The nutrient rich soil is used for organic crops to become a hearty and healthy plant ready for trimming very soon completing the Circle of Life.



# SOLAR ENERGY PROPOSAL



- Estimated production first year 90,389 KWH or 99% of historic use
- Savings of over \$10,000 per year in electric bills
- Battery storage can be added for excess solar energy in day to run refrigeration units at night.
- A generator can automatically start if battery storage is depleted.



# BIODIGESTER POTENTIAL



- Biodigester will process food waste and other waste as well.
- Waste is converted into fertilizer for the farm and for energy to biogas to reduce CO<sub>2</sub> emissions from natural gas.
- This both reduces waste and is a renewable substitute for natural gas being used in the restaurants.



# SUMMARY OF SUSTAINABLE FOOD CYCLE



- Solar energy is used to power the farm to produce the food. Excess energy generated by the solar panels in the day are stored in a battery to power the coolers at night. If the battery power is depleted a generator kicks on to produce energy for the coolers.
- Food grown at the farm is sent to three restaurants and sold to general public in the farm store.
- Food waste from restaurants is returned to farm and put into the biodigester
- A biodigester can be used to both produce fertilizer to grow more food and provides energy to lower use of natural gas, thus completing the circle.





# GAMBLE CREEK FARM RENEWABLE ENERGY



# Chiles Hospitality Carbon Solution Program

- Inspired in part by Warren Evans, Climate Envoy for the Asian Development Bank who observed that current carbon credits average \$5 per metric ton when they should be \$100. He further observed the market can probably handle \$25 per metric ton
- The Carbon Solution Program allows Chiles Hospitality to become a carbon neutral business, and creates a fund to improve its energy conservation, efficiency, and transition to renewables.
- It serves as a model for other members of the Private Sector to contribute to the success of the COP28 Net Zero Transition Charter.



# Chiles Hospitality Carbon Solution Program

Assess Carbon Emissions

Charge for Carbon Use



174.33 MT



100.53 MT



197.96 MT



7.25 MT

To incentivize Co2 Reductions each business unit is charged \$25 for each metric ton of CO2 they produce. This revenue is then used for new ways to reduce CO2, generate energy through renewable sources, or purchase carbon offsets

Avoid / Reduce



Alternatives



Carbon Offsets





# KEY WEST, FL COMMUNITY PROGRAM



- Analysis & Objective Setting
- Creating a Shared Vision & Community Engagement
- Implementation
- Evaluation, Renewal, Extension
- Replication



# MAJOR COMPONENTS



- Assessments
- Apps
- Training & Development
- Online Sustainability Planning
- Block Chain Integration
- Virtual Auditing



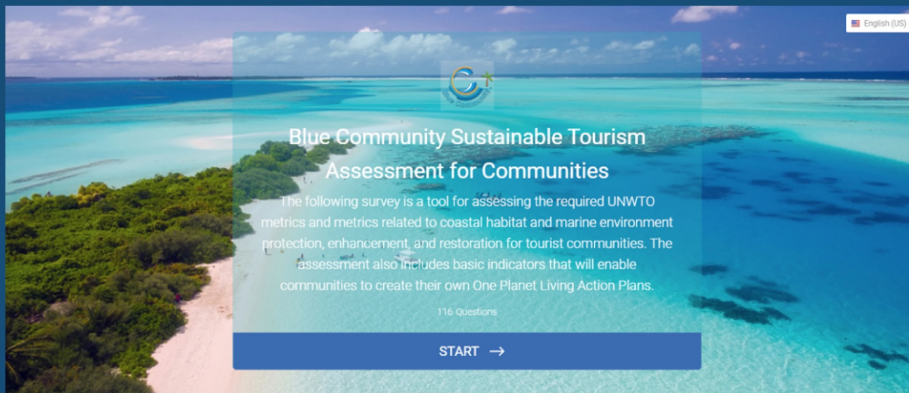
# ANALYSIS & OBJECTIVE SETTING



- Use of Blue Community App to gather Performance data for each of the 12 Blue Community metrics.
- Culture Norm & Support Indicator to get a baseline for cultural data
- Setting reasonable and attainable goals and objectives based on baseline data analysis.



## Community Assessment

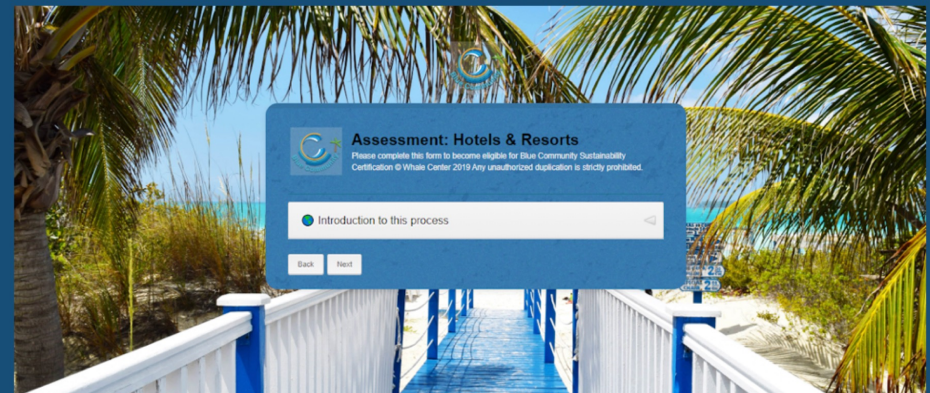


[Go to Community Assessment Form](#)

Our tool for assessing the required UNWTO metrics and metrics related to coastal habitat and marine environment protection, enhancement, and restoration for tourist communities. The assessment also includes basic indicators that will enable communities to create their own One Planet Living Action Plans.

116 Questions

## Hotels and Resorts Assessment



[Assessment for Hotels & Resorts](#)

**Blue Community Assessment for Accommodations, Hotels and Resorts.** It is our hope that this survey will provide the opportunity to showcase your sustainable tourism initiatives and give you insight into areas where you can challenge your organization to pursue even higher sustainability standards.

17 Sections, 376 Questions

# ASSESSMENTS FOR COMMUNITIES, HOTELS & RESORTS



# ASSESSMENTS INCLUDE



- GSTC Criteria
- UNWTO Sustainable Tourism Metrics
- One Planet Living Principles
- Blue Community Strategies
- Science of 9 Planetary Boundaries



# CREATING A SHARED VISION & COMMUNITY ENGAGEMENT



- Futuring exercises
- Delphi Prediction Process
- NASA Future Team process



# IMPLEMENTATION



- Individual Programs
- Support Groups
- Task-Force Programs
- Leadership Development



# EVALUATION, RENEWAL, EXTENSION



- Performance - i.e. reduction in CO<sub>2</sub>, water, waste to land fill etc.
- Programmatic - # of people participating and satisfaction levels
- Cultural - change in norms and perceived support in the community culture
- Renewal - Keeping the program going
- Extension - New participants and other communities.





THANK YOU!



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**COP**<sup>28</sup>  
**UAE**



**United Nations**  
Climate Change





## OPPORTUNITY TO DESIGN FOR NEAR ABSOLUTE PROTECTION & RESILIENCY



MSNBC.com

## 'Dome Home' weathers storm Finding security in structure built to withstand hurricanes

### REPORTER'S NOTEBOOK

By **Kerry Sanders**

Correspondent  
NBC News

Updated: 9:39 a.m. ET Sept. 16, 2004

PENSACOLA BEACH, Fla. - First light revealed that the "Dome Home" made it through the night and did exactly what it was designed to do -- survive even the worst hurricane.

I've been hunkered down with an NBC News team in a "Dome Home" right on Pensacola Beach, directly in the path of Hurricane Ivan.

The shape of the home is what you might suspect from its name. It was designed by Mark Sigler to withstand winds up to 300 miles per hour and a direct hit from a hurricane.

FEMA, the federal agency, approved the plans, and even provided a small grant to the beachfront project.

The house sits on 16 pilings, driven 17 feet into the sand. It's a solid concrete house with 5 miles of steel reinforcements for added support.

The shape of the house, in conjunction with the pilings, was designed to allow the water to literally wash around the house, rather than knock it down. And that's exactly what happened.

[Weather Channel](#)

[NBC News Report](#)





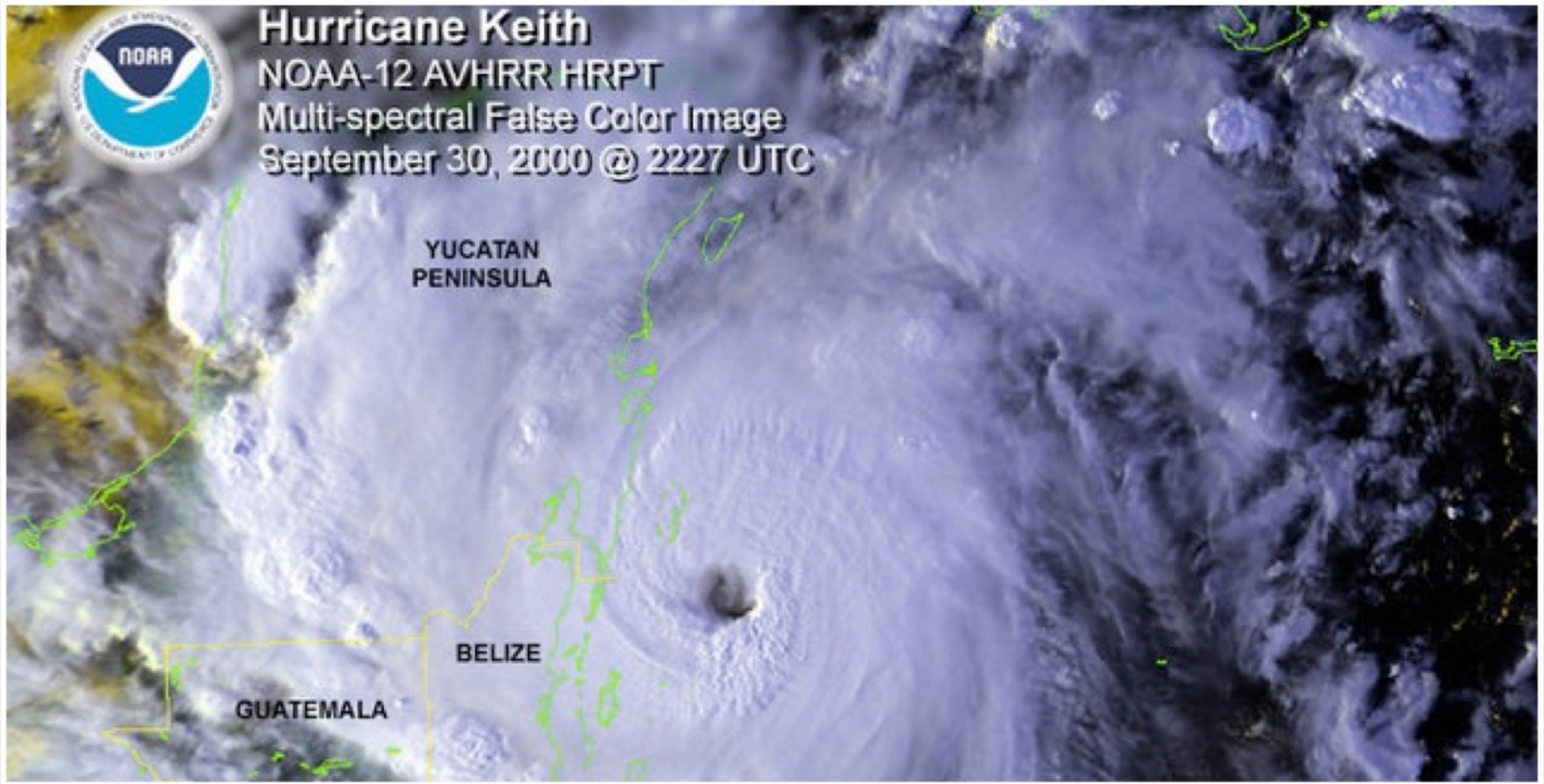


## XANADU ISLAND RESORT, BELIZE SURVIVES HURRICANE KEITH





**Hurricane Keith**  
NOAA-12 AVHRR HRPT  
Multi-spectral False Color Image  
September 30, 2000 @ 2227 UTC



# XANADU RESORT SURVIVES HURRICANE KEITH



# ECONOMICAL SEACOAST CONDOMINIUMS

**Will remain undamaged in 180 mph winds and up to 7 foot storm surge. The monolithic concrete shell will remain undamaged up to 300 mph winds. The parking area contents below for storage and vehicles may be subject to damage and are not included in the building warranties.**



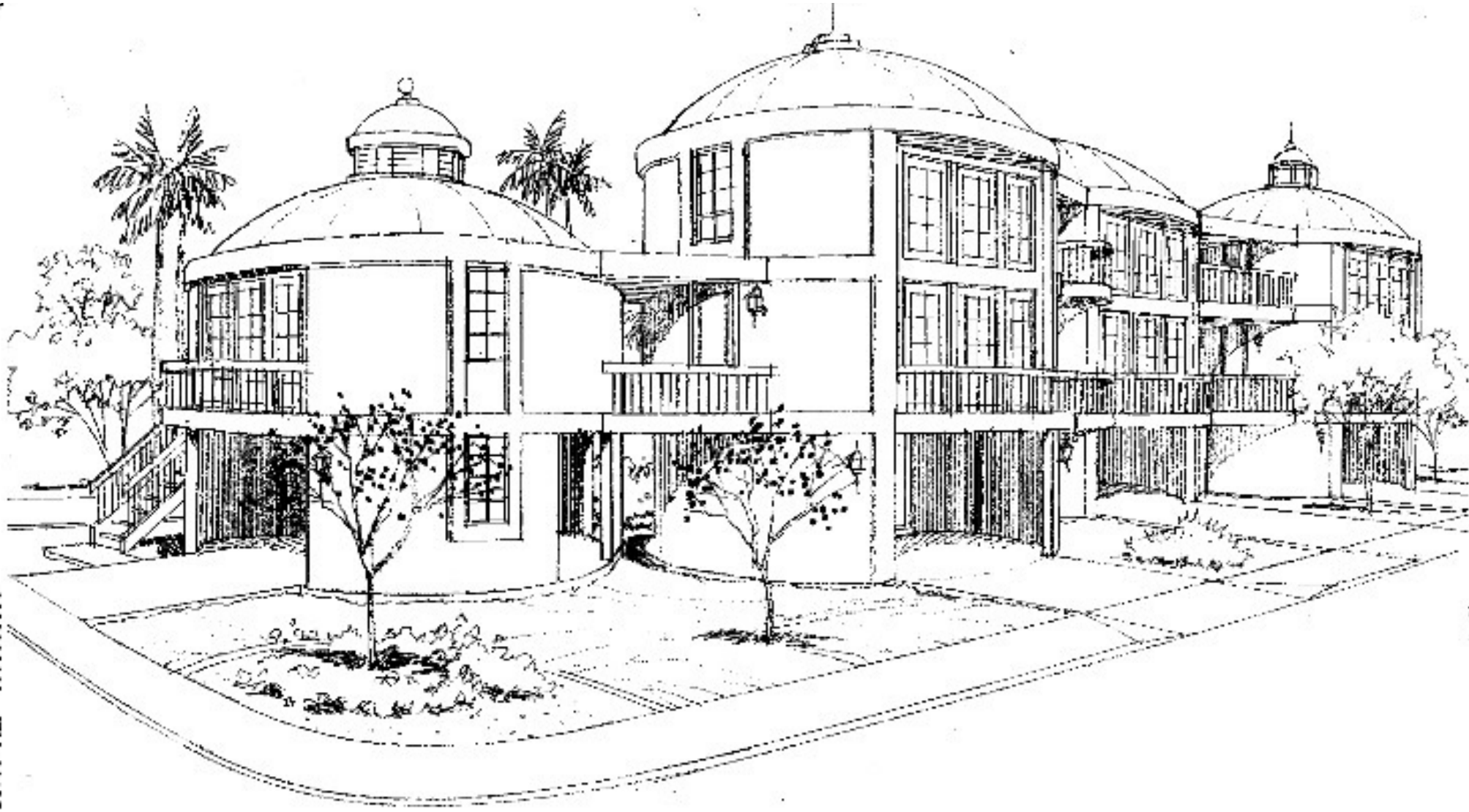




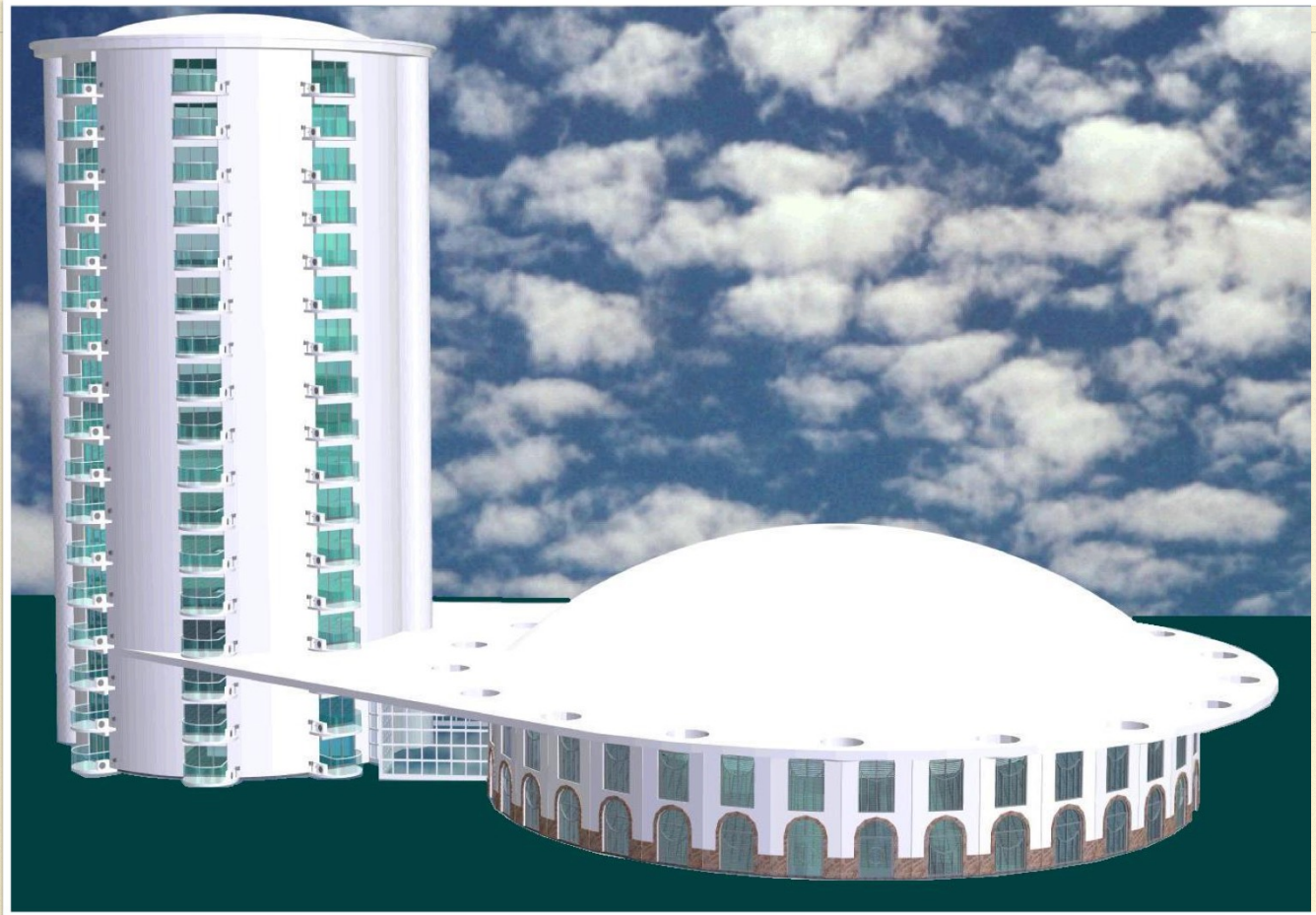
TITAN HOUSING PROJECT  
MONOLITHIC CONCRETE DOME

ARTIST'S CONCEPTUAL RENDERING









# COASTAL HOTEL & CONFERENCE CENTER