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### EcoComplex practices environmental responsibility while encouraging businesses and students to do same

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Rutgers' EcoComplex in Burlington County produces some of the best tomatoes and tilapia in the state using methane gas collected from a landfill.

Sound appetizing? Not quite, but the methods tested and applied at the EcoComplex are on the cutting edge of environmental technology, producing high-quality farmed fish and a juicy tomato year round, in addition to other crops. Those methods also leave a "soft" environmental footprint because they mostly generate and recycle their own materials and energy.

The four-year-old EcoComplex fulfills Rutgers' missions of teaching, research and service by helping environmentally friendly businesses grow and become profitable; experimenting with environmental technologies for commercial applications; and educating elementary and high school students on the importance of protecting Earth and maximizing resources.

The work at EcoComplex encompasses all areas of environmental research: remediation, pollution prevention, solid waste management, renewable energy, water quality and controlled environment agriculture.

Yet among its priorities is business development and education. Four companies inhabit the high-tech research center for start-up businesses, focusing on industries that market and develop environmental cleanup technologies. The incubating companies' work has grand implications for New Jersey's economy and a sustainable environment. Garden State Ethanol has proposed building the first ethanol facility on the East Coast. Using 14 million bushels of corn annually, the company would produce a car fuel mix that is 85 percent ethanol and 15 percent gasoline (most cars today run on 5 to 10 percent ethanol blends).



Credit: Ashanti Alvarez

Students in Rutgers-Camden's Educational Opportunity Fund program visiting the EcoComplex in Burlington County peer into a large tank holding tilapia fish.

The fish are part of an environmentally sound process – they produce nutrient-rich water that is later used in the EcoComplex's greenhouses to grow plump tomatoes. Dave Specca (right), then acting director, is the director of developmental programs at the EcoComplex.

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And the facilities at the EcoComplex – including six laboratories, a state-of-the-art 120-seat auditorium, two classrooms and a media room – are specifically designed to host visits from grade school and high school students. This summer, a new batch of Educational Opportunity Fund students from Rutgers-Camden took a day trip to the EcoComplex.

“It makes them more aware of issues surrounding the environment and sustainability, and it opens up possibilities of different career paths and majors they may pursue while at Rutgers,” said Dave Specca, who was then acting director of the EcoComplex and now directs developmental programs. This summer, Keith Cooper was appointed executive vice dean of agriculture and natural resources at Cook College and executive director of the Rutgers EcoComplex.

“The EcoComplex will be the home to science-based innovations for environmentally friendly entrepreneurs interested in business development and pilot plant testing,” Cooper said. “It will also be the environmental education and outreach center for students, teachers, citizens and legislators.”

The EcoComplex is all about sustainability. From radiant heat flooring on the first level to solar shade panels that block sun during the summer but let it in during winter, from interior panels made of recycled metal to paint that eliminates “off-gassing” of volatile organic compounds, the building itself is designed to use and waste as little energy as possible.

For example: Landfill gas is converted in microturbines into electricity used to power growing lights in the 46,000 square feet of greenhouse space. The hot exhaust from the turbines is used in preparation for the process of turning saltwater into freshwater. The freshwater becomes a home for tilapia fish, which produce nutrient-rich water full of nitrate nitrogen, a primary source of nitrogen for the hydroponically grown tomatoes and other vegetables.

Araceli Salvador, an 18-year-old first-year student in the Camden EOF program, peered into a foggy fish tank with tilapia. Later, she retreated with a shriek as Specca, using a net, pulled a fish from a large tank and splashed the visiting students.

“Oh my gosh, they’re so big,” she said, turning up her nose at the smell of fishy water.

Sadeekah Hart, a 17-year-old first-year student from Willingboro, said that the trip to EcoComplex did not change her mind about her coursework – she plans to study nursing – but she learned about environmental responsibility. “It’s a good thing that we get to see this,” she said. “Who would have known that you could grow tomatoes and fish together?”

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