John: Welcome to another EPA Region 2 podcast, a series of conversations about environmental issues in New Jersey, New York, Puerto Rico and the U.S. Virgin Islands. Today's podcast focuses on Sujay Tyle, the most recent winner, in EPA Region 2, of the President's Environmental Youth Award.

Cecilia: I'm Cecilia Echols and I'm the Regional Youth Coordinator for the President's Environmental Youth Awards Program. We have Sujay Tyle, he is our 2008 President's Environmental Youth Awards winner and he's here from Rochester, New York and we just want to hear a little bit about your project.

Sujay: Ok, yea. So I actually started my project five years ago, in the seventh grade. And in seventh grade it was the full-fledged war in Iraq, gas prices were shooting up to unprecedented levels and I was a youngster in my community then, and I still am now, but I wanted to play a role in it. I wanted to do something about it, something small, and hopefully something large in the future. And so what I did that summer was send out mass amounts of emails to just professors in the area doing research in environment and energy and bioengineering, and I wanted to see if I could go look around their labs and maybe do a minor investigation on something that could, or could not play a role, at least I'd feel like I was doing something. And I got a response back from this chemical engineering professor at the University of Rochester, Dr. David Woo, and I eventually was able to start doing some research in his lab. And that research has turned into actually five years of work that I still continue today in this investigation on the production of bioethanol. And I've gone deeper and deeper every single year into a point where I'm working on patents and publications now for my work and essentially what this project has revolved around is genetically modifying and cloning different parts of this organism, this anaerobic bacteria, that's found from waste and by doing that we can increase the efficiency of ethanol production. This organism has a natural ability to produce ethanol from cellulose in a quick one-step process but it's inefficient, it doesn't just produce ethanol, it has a lot of hindrances and so the goal of my investigation was to genetically modify the organism to avoid these hindrances and increase the output of ethanol. I was successfully able to identify a single part of the organism that could do that which has lead to my main discovery in this entire investigation of that one exoenzyme. So hopefully, yea, I can work with different biotech companies and different organizations to have my research hopefully play a role in the world. I spent a few weeks at Dupont this past summer just talking about the economics of cellulosic ethanol because I'm really passionate about it and hopefully I can continue it in the future.

Cecilia: So, in layman's terms, what exactly is cellulose economics?

Sujay: Cellulose is just found in the plant walls, there's two billion tons of it that we waste every single year and so it's like an ideal source of raw material for ethanol production. Current ethanol production is being done with corn, sugar cane, and like wheat but the problem is that those are food products and so we have to get away from using those. I mean the United States, almost fifteen percent of our corn supply in the United States has been depleted because of ethanol production and so if we continue at that rate, then 100 percent will be reached soon so we can't do that. Yea, so what I meant

by cellulosic economics, which I explored at Dupont, was I looked into the economics of how ethanol is currently being produced. And based on that I could try and look at my own technology and see how much would that cost practically and what I can do to make that cost lower.

Cecilia: So how important are biofuels to our country's future?

Sujay: I think they're extremely important. I guess it's a two-fold level, the first is economical and the second is environmental. The economical advantages is of course gasoline prices are on the upward trend, I mean we have seen a recent downfall, but, because of the depletion, which is imminent, that could again take it skyrocket any time soon. On the environmental aspect, of course the release of greenhouse gases that are drilling holes in our ozone and are capping our ozone is something that we have to be scared of and biofuels are the only way we can eliminate that problem by providing an environmentally friendly fuel that reduces the amount of emissions or completely eliminates them.

Cecilia: How did you feel when you heard that you won the regional award for the President's Environmental Youth Awards Program?

Sujay: I was really excited. I mean it's, I guess, a representation of my work actually being shown to other people and I know that somebody took the time to read it and appreciated what I had done.

Cecilia: Well EPA wants to thank you so much for coming today and we hope to see many fond things of you in the future.

Sujay: Absolutely. Thank you so much.