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By Kyle Jeremiah |

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High Stakes and Global Waste – One Promising Strategy Toward A Sustainable Future

I looked on with keen interest as world leaders clashed at the United Nations General Assembly meeting in New York City over an appropriate course of action in the Syrian theater of war, its refugee crisis, ISIL and other ongoing matters that continue to test the concept of a multipolar world. But there seemed to be consensus on one major area – the need for immediate climate action and the urgency at next month’s climate talks in Paris, France, for world leaders to make firm commitments on greenhouse gas emissions reductions in an effort to avert a ‘tragedy of the commons’ scenario.

In his speech at the UN, US president Barack Obama proclaimed, “No country can escape the ravages of climate change. And there is no stronger sign of leadership than putting future generations first. The United States will work with every nation that is willing to do its part so that we can come together in Paris to decisively confront this challenge.”

Russia’s Vladimir Putin, still at a diplomatic impasse with the US, tended to agree with Obama on climate action. He said, “The issues that affect the future of all people include the challenge of global climate change. It is in our interest to make the UN Climate Change Conference to be held in December in Paris a success.” He went as far as to suggest “convening a special forum under the UN auspices for a comprehensive consideration of the issues related to the depletion of natural resources, destruction of habitat and climate change.” He added that Russia would be ready to co-sponsor such a forum.

Even the major emissions generator China is ready to shoulder responsibility, according to its leader Xi-Jinping. He announced a national cap-and-trade system to limit emissions that will begin in 2017, a program that will cover key industries. But he added, “We also urge developed countries to fulfill their historical responsibility, honor their emission reduction commitments and help developing countries mitigate and adapt to climate change.” India has also announced an action plan on climate change. At the time this article was posted, some 138 countries – including members of the European Union – have announced plans to cut their emissions.

While it has yet to be seen what will result from the Paris meetings, I have been heartened by the international response to climate change. Finally, in the lead up to COP21, even the biggest players are committed to working together in the shared interest of the survival of our planet.

The Power Of Waste

A big challenge with climate awareness and action is the largely invisible nature of the issue: greenhouse gases are odorless, colorless and non-detectable by the human eye. Similarly, many of the macro-strategies for reducing emissions – like converting a coal power plant to one fueled by natural gas – are beyond the realm of interest for the average citizen. There are, however, a growing number of choices and actions that can be taken on the individual, household or organizational level. For example, you can purchase hybrid or electric vehicles; you can opt to install rooftop solar panels or buy clean, renewable electricity; or, you can recycle your organic waste. Organics recycling is a topic of particular interest to me, and the primary topic of this piece.

Food waste ranks as the third largest source of greenhouse gas emissions, behind the US and China, according to the Food and Agriculture Organization of the UN (FOA). And the UN Secretary General Ban Ki-moon is woefully aware of that fact. At a Sustainable Development Summit during UN week last month, the UN tweeted that 30 world leaders were served a “landfill lunch” that included vegetable scraps, rejected apples and pears, chickpea water and cow corn fries. I smiled because I knew the top brass over at the UN had the right idea.

A simple Google search will yield dozens of lists on how you can reduce your food waste, but for the food that is thrown out – or all organic waste for that matter – there is a golden opportunity. Organic wastes are an abundant, and renewable feedstock for generating power, heating homes and fueling vehicles. By throwing our food away, and/or not capturing the gases emitted as food and other organics break down, we are discarding a valuable fuel source, simultaneously depleting public budgets and contributing to climate change.

Put simply, when organic wastes are thrown away in the developed world, they are most often either discarded in a landfill/incinerator or they are separated from other garbage so that they can be taken to a compost site or special airtight tanks known as “anaerobic digesters.” Wherever they go, as the organics break down, they release biogases, mostly methane, which would go into the air as powerful greenhouse gases if allowed to escape. But these gases can be collected through piping systems and can then be used in several ways. They can be fed into utility pipelines and used to produce electricity or to heat homes. Or, they can be refined and used to fuel vehicles.

Since this vehicle fuel, called Renewable Natural Gas (or RNG) is just like fossil natural gas, it can be used in any vehicle with a natural gas engine. But it requires no drilling. And natural gas engines, which have been developed over the last 25 years, are commercially available today. The best use of this new RNG fuel is in heavy-duty bus and truck fleets which consume huge amounts of fuel and which go back to home bases at night where natural gas refueling equipment can be installed.

I was first introduced to the waste-to-fuel strategy by Energy Vision, a New York City-based environmental organization recognized for its research, outreach and education on the alternative energy and fuel options necessary for a sustainable future.

The more I read about Energy Vision, the more I was convinced of the importance of this strategy. And, fast-forward a few months, I was now a member of the Energy Vision team, studying waste-based fuels and working towards promoting ways to secure a sustainable future not just for future generations, but also for my generation.

From a climate mitigation standpoint, and a big reason why this strategy is so important, the use of RNG as a vehicle fuel achieves an 88% reduction in greenhouse gas emissions as compared to diesel vehicles when derived from landfill gas, and as much as a 115% reduction when produced via anaerobic digestion of food waste, making it the lowest carbon commercially viable transportation fuel that exists. Moreover, every fleet converted to RNG actually exceeds the international goal of cutting greenhouse gases 80% by 2050 TODAY!

This strategy is a winner. But I have been burdened by thoughts about whether the climate talks will be successful. On a recent night, I stayed up late to research what exactly countries planned to propose at the climate conference. The question always seems to be: What more can they do? The waste-to-fuel strategy is one important answer to that question. Countries need to propose solutions that can get their citizens directly involved. Viable solutions.

Zero Waste

Let's take the case of New York City. It is one of 10 major US cities with zero waste goals. At the close of 2013, NYC made commitments to divert 75 percent of its waste from landfills by 2030; and this year Mayor de Blasio has raised the 2030 diversion goal to 90%.

The challenge presented here is the huge flow of organic wastes (yard wastes, food wastes and waste from other sources including campuses, institutions food processing facilities, etc.) and the associated health impacts, pollution and climate-changing greenhouse gas emissions. But this challenge is also an opportunity. NYC has 14 wastewater treatment plants, Fresh Kills landfill and the more than 2 million tons of organic materials generated each year in the city. With the necessary collection and processing capacity, enough RNG could be produced from extensive organic waste and biogas sources to replace 30 million gallons of gasoline or diesel with ultra-low-carbon RNG, industry estimates suggest. This would provide enough fuel for all the public and private sanitation fleets operating in NYC and cut greenhouse gas emissions by 300,000 tons or more every year. Other large cities are similarly positioned to implement an RNG strategy.

Sustainable Transition in the Middle East

Large cities in developed countries aren't the only places ripe for waste-to-fuel action. Countries in North Africa and the Middle East are still reeling from the effects of the Arab Spring uprisings, and tensions over the Iranian nuclear deal and the Syrian war have preoccupied leaders. But this preoccupation doesn't mean that they should not adopt such a strategy. Jillian Schwedler, professor of political science at Hunter College and the Graduate Center, City University of New York, author and member on the Editorial Committee of the Middle East Research and Information Project, agrees. "I do believe that sustainable environmental strategies are needed everywhere, so a

place like the Middle East shouldn't be ignored just because of other conflicts there," she explained when I questioned her about the need for sustainable strategies in the region. The water situation in the region, as one example, is a serious problem and Yemen is expected to run out of clean drinking water in the next 5 years. Schwedler added, "Most states are doing very little to protect the environment because they are struggling with other issues."

But there are environmental movements in the region, such as in Jordan. The country's regime tried to promote a healthy environment, but, according to Schwedler, "Jordan is also considering nuclear energy, and there is a small but vocal movement against it, in large part because of the effects it will have on the people and the environment." It seems, then, that the countries are not particularly aware of other viable alternatives.

An invitation from the Environmental Protection Agency (EPA) for Energy Vision to speak at the SWEEP-Net conference in Tunisia came at the right time. The conference saw officials from nine nations in North Africa and the Middle East (including Yemen and Jordan) focusing on how to address their waste challenges. There, EV President Joanna Underwood introduced the strategy of converting organic waste into sources of sustainable energy, fuel and compost.

EV has found that building this environmentally sustainable strategy in Tunisia can bring attendant environmental, economic, and job creation benefits. Aicha Zakraoui, coordinator for EV's Tunisian initiative and who is also from that country, told me how much excitement there is on the ground to undertake such a strategy. "We have never been an energy producer and this is the first time we can be that...and we're doing it in a sustainable way which is great!" Zakraoui accompanied Underwood at the SWEEP-Net conference where politicians and business leaders were energized and keen to get projects going. One Member of Parliament said to Underwood, "We take this idea very seriously and we are going to bring it to the government's environmental committee."

Ripe with Opportunity in Trinidad and Tobago

I often listen to my colleagues talk about progress on EV's project in Tunisia with a tinge of envy. I am proud of Tunisia for wanting to take this important step in securing its energy future, but on a personal note, I want my home country of Trinidad and Tobago to do the same. Tunisia has already embedded a climate change clause to its constitution (one of only three countries worldwide) and I am looking forward to seeing Trinidad and Tobago outline serious climate policies, particular because it is a small island state and therefore more vulnerable to the effects of climate change. Trinidad and Tobago has a very carbon intensive economy because of its oil and gas production and is the second highest per capita producer of greenhouse gas emissions, according to University of Trinidad and Tobago 2013 statistics. The country is currently ranked as the number one single site exporter of methanol and ammonia in the world, the UN Framework Convention On Climate Change's country profile confirms.

In addition to emissions concerns in the industrial sector, management of the country's waste is also critical in ensuring local sustainable development. UNFCCC's profile states, "Waste in the domestic sector, e.g. from small household livestock units, as well as in the industrial sector and municipalities, is most often left unutilized, to decay, or rarely used for purposes of fertilizer or

burning in open pits. The waste is, therefore, both harmful to the surrounding environment, and often a health issue.” Additionally, the document notes that the highest potential, by far, for emission reductions in the waste sector is from municipal domestic waste – particularly for its energy generation potential.

Lack of regulation or incentives for managing emissions from waste appears to be an issue, but the country has signaled its intention to address climate change head-on. In his address to the UNGA, Foreign and CARICOM Affairs Minister Dennis Moses said, “The real challenge begins now, and the success of the Paris Climate Change Conference will be a key determinant of the likelihood that we will achieve the goals and targets set out in the global sustainable development agenda.”

I tuned in to the reading of the national budget on October 5th by the country’s new finance minister just in time to hear him briefly mention the government’s intention to promote environmental awareness in the country, primarily among young people. That’s an important first step.

But the buck doesn’t stop with the leaders, so we should not expect world leaders at COP21 in Paris, France to do the heavy lifting alone. We Millennials have been described as more civic-minded and if we all get involved, we will certainly make an impact and ensure a sustainable future.

You can play an important role by composting your organics at home or taking them to drop-off locations in your area. Talking to your friends and family about climate change also helps. But most importantly, contact your local and state leaders about the potential of waste-to-fuel and other strategies that will make a difference. We have a voice to be heard and should use it.

If the seeming willingness of world leaders at the UNGA meeting is any indication, COP21 will be a success. Sustainability is being made a priority, even in regions preoccupied by armed conflict. Evidence that a sustainable fuel is commercially available today is especially significant, and I hope that countries around the world place it high on the agenda. The waste-to-fuel industry is growing and people are paying more attention to food waste. But most importantly, with each of us acting responsibly and setting the right examples, we can secure a sustainable future.

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