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# How plastic waste can stop global warming



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You may have read about a teenage boy who designed an ocean clean-up technology that consists of a central station with two long reaching booms on the surface of the ocean, capturing floating plastics as natural currents flow by, and capable of [removing some 7,250,000 tons of plastic](#) from the world's oceans. This technology is brilliant, and could help avert an environmental catastrophe that is becoming less and less easy to ignore.

Another technology – pyrolysis – may also play a crucial part, and appears to be compatible with 19-year-old Boyan Slat's Ocean Clean-up Array project.

## Turning waste into energy

**Pyrolysis** is a thermochemical decomposition of organic material at elevated temperatures in the absence of oxygen. It creates a solution for some of our most pervasive and seemingly unresolvable forms of waste today – organics and petroleum-based products. Petroleum-based products include the full range of plastics and synthetic rubber (such as that used in vehicle tyres). At its best, this technology can process all organic wastes, as well as almost all types of plastics and synthetic rubber (in separate systems). The end products of pyrolysis are bio-char and fuel.

### **Technology that clears the air**

Pyrolysis is considered a waste-to-energy technology. But it is unique and stands apart for one major reason: in and of itself it does not involve waste incineration. Incineration with the presence of oxygen releases harmful contaminants into the atmosphere; these are difficult, if not impossible, to control and capture.

Fuel produced during pyrolysis can be refined to various commonly used grades, and bio-char is an excellent form of carbon and contaminant capture. In its solid form, bio-char could be safely stored in the ground as a form of carbon-sequestration. Some bio-char (assuming the absence of other problematic contaminants) could even be useful in farming, integrated into composting processes to create better soil, or used directly as an additive to increase fertility.

How can this technology stop global warming? The answer may be a little indirect, but what the world needs right now is hope.

The waste situation, which we have generated through our consumer-driven culture, has escalated to become a world-wide epidemic. Advanced or first-world countries have managed to implement decent programmes to handle the vast amount of waste generated. They recover some of it as a reusable resource through recycling, and manage the rest in an acceptable way through disposal at well-designed and managed landfills. For a large portion of the world, however, these waste-management systems do not yet exist.

Consumer culture thrived over the past several decades, before the true extent of its environmental impact became common knowledge. Now that the facts are coming to light and can no longer be denied, many of the countries that didn't get to ride high on the consumer bandwagon feel it is their turn. For the majority of people in developing countries, the priority is not environmental conservation or correct waste disposal. In poverty-stricken areas, the focus is on survival; and in countries experiencing new economic development and opportunity, the focus is on success.

What is possible today? Large-scale technological solutions can do something significant – give people HOPE. The three “Rs” – reduce, reuse and recycle – continue to be the most effective guidelines for implementing solutions to waste issues. However, in a world where we see so much waste accumulated in our garbage cans, landfills, streets, rivers and oceans, it can be difficult for people to feel that their small efforts to reduce and reuse can really make a difference. But they can and do, and even if many feel that the current pace of environmental destruction is just too great to turn around, that too much damage is already done – hope can be instilled through recycling, the third R, via [closed loop systems](#) that convert waste into something useful.

## **Sustainability and profitability**

Pyrolysis has less stringent rules on segregation than traditional recycling, and can allow for much more simplified educational, collection and processing models. Everyone can appreciate the primary product of the pyrolysis process – fuel, one of the most precious resources in the world today. And the nature of pyrolysis entails high potential for economic sustainability and even profitability.

The pyrolysis technology, hand in hand with land and ocean waste-capture operations, and even the mining and processing of waste at existing landfills, can result in a massive source of pollution and environmental degradation transforming into a precious resource. Less than 1% of Sweden’s household waste ends up in a rubbish dump. The rest is recycled in different ways. For Sweden, [importing garbage for energy is good business](#).

In our race against time, large-scale solutions through new technologies and inventions could unite us all on a common path to recovery. Our future lies not only in learning how to do things the right way from now on, but in resolving the problems that have already been created. And our ability to do that can give us the hope we need; the hope that things can be turned around, that environmental catastrophe can be avoided.

Today we have smart solutions to overcome one of the biggest and longest-recognized forms of environmental contamination known to man – solid waste pollution. If mankind as a whole can witness the cleaning-up of waste from the world’s lands and oceans, I think it would truly be a milestone and unite us in a common understanding and message – this *can* be done. All things *are* possible. This might just be the rudder needed to steer us on to the right course.

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*Image: Plastic bottles are seen at a dumpsite in Drizla near capital Skopje.*

Written by

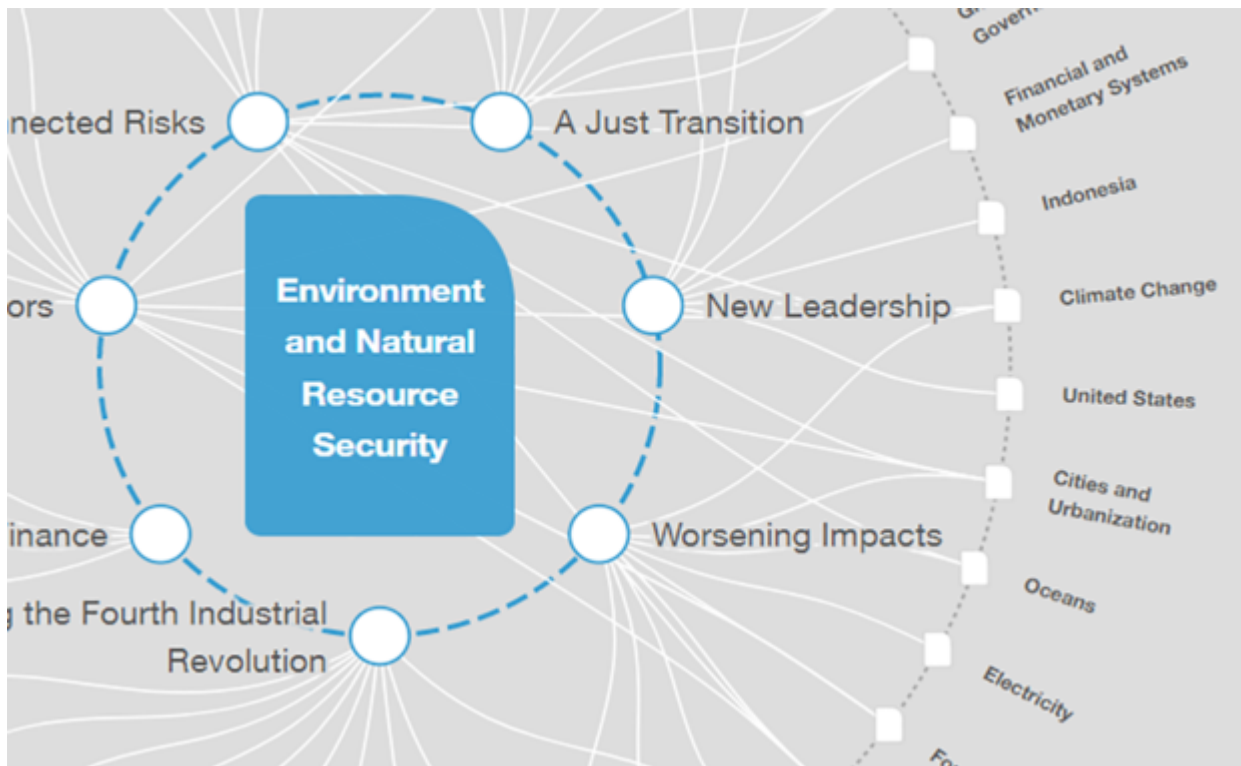
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