



# Defining Opportunities & Showcasing Examples

## Build awareness

**2**

Process improvement

Conservation

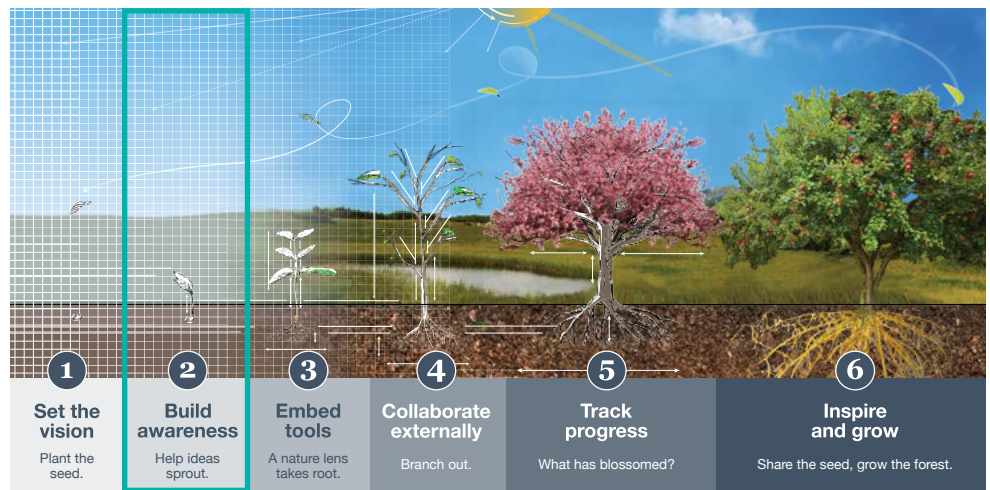
Nature-based solutions

New products

For Dow, a pipeline of projects came from four key areas: process improvements, nature-based solutions, conservation, and new products.

## Examples of projects that value nature

- Process improvement**  
Process changes that improve efficiency, reduce inputs/outputs and alleviate pressure on the environment
- Nature-based solutions**  
Engineered systems that use or mimic natural processes and can deliver the same design functionality as a man-made solution, while affording benefits to the triple bottom line
- Conservation**  
Putting surplus and greenbelt land into conservation through sale or donation; or enhancing ecosystem services on Dow-owned land
- New products**  
New products that solve environmental problems and enhance nature



## Case studies by project type



Nature-based solution

### **Valuing nature can be your technical solution**

Dow's Seadrift Site needed to increase the level of water treatment to meet EPA effluent guidelines for suspended solids.

**Solution:** Dow converted 110 acres of an existing treatment pond into a man-made wetland for the purpose of natural treatment. The net present value (NPV) exceeded **\$280 million**, and the area now serves as a freshwater habitat for fish, alligators, raccoons, bobcats, deer and birds. See [case study](#) and [published article](#) for more details.



Process improvement

### **Valuing nature can be simple**

The Oyster Creek Water Recycle project contributed an NPV of **\$500,000**. It was a simple piping change that diverted **450 gallons per minute** of water to be recycled rather than discharged. This diversion reduced the amount of freshwater demand on the Brazos River, a seasonally stressed watershed. The nature benefits were quantified using a sustainable cost of water calculation.



New product

### **Valuing nature can be your next product**

Dow brought meaningful change to the textile industry by developing a product that made the textile dyeing process more sustainable. The product, ECOFAST™ Pure Sustainable Textile Treatment, allowed better color fastness, brighter hues and broader color ranges, and required up to **90% less chemicals, 50% less water and 40% less energy** when compared to the traditional dyeing process. You can learn more about [ECOFAST™ Pure](#) or [read a message](#) from a Dow Marketing Manager.



Photo courtesy of:  
Heritage Conservancy

Conservation

### **Valuing nature can be property sold into conservation**

Croydon Woods is 80 acres of coastal plain wetland forest adjacent to a Dow manufacturing facility in Pennsylvania. Dow sold the strategically important-for-preservation land to the Heritage Conservancy in 2016. Business value included cash from the discounted sale and reduced long-term maintenance costs (**\$2 million**). In return, some of the last remaining wetland forest in the region is being preserved, along with ecosystem services benefits including recreation, stormwater storage, and air and water filtration. See [published article](#) for more information.

## Case studies by applications and geographies



Aratu,  
Brazil

### **Nature can be used in bank stabilization and erosion control**

An **example** of a business-driven project that enhanced ecosystems took place at Dow's Aratu site in Brazil. An area of Matarandiba Island was excavated in 2009, which left 24-meter-high slopes that had eroded and caused safety hazards. In lieu of conventional solutions, such as removing the slopes or stabilizing them with concrete and tie-back anchors, the project team installed green gabion walls. The use of this natural engineered technology contributed **\$1.6 million NPV** in energy and material savings. And as a result, deforestation decreased, CO2 emissions were **reduced by 90%**, and the surrounding community benefited from an aesthetically pleasing green slope. This project was featured in **USACE's Engineering With Nature, An Atlas Volume 2** (pg. 284).



Terneuzen,  
Netherlands

### **Nature can be a feedstock that is certified sustainable**

The use of renewable feedstock is one of the solutions to the challenges of sustainable food packaging. Today's consumers find packaging's eco-friendliness just as important as its performance. We know this is only possible if we rethink all aspects of packaging, including the adhesives that hold it together. **AFFINITY™ RE Bio-based Polyolefin Elastomers** is made using bio-based feedstock such as tall oil – a byproduct created by the paper-milling industry, sourced from sustainably managed forests and certified on a mass balance basis by the International Sustainability & Carbon Certification (ISCC) system. [Watch this video to learn more.](#)



Arkansas,  
USA

### **Nature can be used in water treatment such as in environmental remediation**

Acidic water with high levels of zinc that originated from a closed mining site in Arkansas (US) required treatment. A sinuous channel lined with limestone was constructed, which added alkalinity to the water. The alkalinity increased the water's pH and created an environment for lowering metal concentrations via biological processes within the channel. This project resulted in a natural streambed with no operations or maintenance costs (**\$11 million NPV**) that treats water before it enters the creek further down. This project was also featured in **USACE's Engineering With Nature, An Atlas Volume 2** (pg. 68).



Guangzhou,  
China

### **Nature can benefit from waste reduction and circular economy opportunities**

Dow's waste management strategy is aligned with the revised **Waste Framework Directive**, giving top priority to preventing waste in the first place. When waste is created, the priority is to attempt re-use, then recycle, followed by other tactics like energy recovery and finally— disposal. This project was centered around a successful effort to re-use steel drums that contained raw materials from a facility to dispose of waste eliminating the need for purchasing new steel drums. Dow's waste reduction efforts resulted in a NPV savings of **\$722,000** in 2019 alone.