

BIOSOLIDS RECYCLING

fact sheet



SOIL IMPROVEMENT/ LAND RECLAMATION

Biosolids provide nutrients and organic matter to damaged soils, enabling renewed plant growth.

Seeking Solutions

Human activities often disturb native landscapes and underlying soils. Heavy equipment used in construction can compact soils. Mining can result in loss of topsoil. Overgrazing disturbs native vegetation and wind and water erosion occurs when ecosystems are disturbed.

Benefits of Biosolids

Disturbed soils can be restored and revitalized through the addition of organic matter. Nutrient-rich, organic biosolids replace lost topsoil and improve soil fertility and stability, thus decreasing erosion and aiding in revegetation. Biosolids have been used successfully to reclaim large construction sites, surface mines, parks and road cuts. Biosolids composts are an excellent organic soil for building or renewing wetlands. Wildlife habitat and rangelands have been restored using biosolids products.



How It Works

Soil improvement and land reclamation projects use onetime or infrequent applications of large quantities of biosolids to increase the amount of nutrients and organic matter in the poor or damaged soil. The nutrients in the biosolids jump-start the growth of plants on the site and provide a pool of nutrients which plants can access over time. Soil, following biosolids application is better aerated and lighter. Water enters into the soil rather than eroding off the soil surface. Unlike nutrients in commercial fertilizers, nutrients added in the biosolids will stay in the topsoil over time and the restored ecosystem will prosper over time.



What's Happening?

- ***Wildlife habitat enhancement:*** In 1995, King County's Biosolids Management Program and Seattle Parks and Recreation worked together to enhance wildlife habitat at the popular Discovery Park in Seattle. The agencies cleared nearly 14 acres of Scotch broom and blackberry vines, tilled King County biosolids into the soil and reseeded with grasses and other native plant species. In addition, shrubs and trees were planted and fertilized with composted biosolids to create wildlife corridors. A nearby biosolids park project conducted in the 1980s remains a lush meadow, free of Scotch broom.

- **Copper mine reclamation:** After seeing the results of successful demonstration plots, the Greater Vancouver Regional District in British Columbia has begun using biosolids to reclaim portions of the Similco copper mine near Princeton, B.C. The goal of this project is to revegetate extensive areas of piled rock and mine tailings and stabilize slopes. Tree establishment screening trials through the University of British Columbia are underway here to determine the best species for establishment in reclaimed mine tailings.

- **Wetlands restoration:** As part of a drainage maintenance project, the City of Everett, Washington, restored 1.25 acres of land to its previous wetland characteristics by using biosolids, biosolids compost and yard debris compost. The nutrient-rich organic material provided an excellent growth medium for native wetland plant species, while stabilizing slopes. This successful venture may lead the way for other wetland restoration projects in urban environments.

- **Shoreline reclamation:** Biosolids is being used in shoreline stabilization and the establishment of wildlife habitat protecting sensitive west coast fish populations.

- **Road reclamation:** The Mountains to Sound Greenway Trust, centered in King County, Washington, is applying GroCo biosolids compost to revegetate logging road scars and landings in the foothills of the Cascade Mountains along the Interstate 90 corridor. The Mountains to Sound Greenway Trust is a public-private partnership dedicated to maintaining a green belt for approximately 100 miles along Interstate 90 from Ellensburg to Seattle.



- **Rangeland restoration:** King County, Washington and Portland, Oregon biosolids are used in Yakima County, WA as well as in Umatilla and Morrow Counties in OR to restore degraded rangeland. Surface application of biosolids is enough to turn the rangeland green and significantly improve soil fertility resulting in increased biomass, enhanced forage quality and higher beef yields. Windblown dust is reduced on the biosolids amended soils and water-holding capacity is increased.

- **Gravel pit reclamation:** Pierce County Water Resources, Washington, is working with the sand and gravel mine next-door to its treatment facility to establish vegetation on past mining sites. Twenty acres of this site are dedicated to demonstrating the value of Pierce County biosolids as a soil amendment, through forestry, landscaping and rate trial research conducted by the University of Washington College of Forest Resources.

- **Strip mine reclamation:** A large strip mine near Centralia, Washington, used biosolids from a number of cities during the 1970s and 1980s to reclaim disturbed sites. Several hundred acres were amended with biosolids, then planted with tree seedlings.

- **Hard rock mine reclamation:** The U.S. EPA Superfund program has used biosolids to restore sites devastated by hard rock mining activities. By applying high rates of biosolids to these contaminated lands, EPA has been able to restore plants and wildlife. Biosolids are part of EPA's answer in some of the biggest Superfund sites in the country including Jasper County, MO; Leadville, CO and Bunker Hill, ID.

- **Golf course establishment:** Tacoma and Bremerton, Washington, collaborated to apply Exceptional Quality biosolids to a new golf course, helping enable it to open several months earlier than planned and with better grass vitality.