

# DASHBOARD Puerto Rico & U.S. Virgin Islands Territories Biosolids Statistics

Data Quality & Methods	2018	explanations & sources
<p><b>Quality &amp; Confidence</b> in these territories' data:</p> <p>Data sources &amp; methods:</p> <p>State biosolids included in 2018 EPA ECHO data</p>	<p><b>MODERATELY HIGH</b></p> <p>Data for PR from U.S. EPA ECHO database, with additional information from online sources. Data for USVI estimated by NBDP.</p> <p>90% % in ECHO vs. the total presented here, for PR</p>	<p>ranking by survey team based on information provided in survey (options: High, Moderate, Low, None)</p> <p><a href="https://echo.epa.gov/facilities/facility-search?mediaSelected=bioAnnual">https://echo.epa.gov/facilities/facility-search?mediaSelected=bioAnnual</a></p>
<p><b>Demographics &amp; Wastewater</b></p> <p>Territories population:</p> <p>Total land area in territories (acres):</p> <p>Population density (persons/square mile):</p> <p>Total number of WRRFs reported in territories' surveys:</p> <p>total number of WRRFs permitted/reported elsewhere:</p> <p>number of WRRFs in EPA ECHO reports for 2018:</p> <p><b>Average population served per WRRF:</b></p> <p><b>Average wastewater flow statewide (MGD, NBDP):</b></p> <p>avg.wastewater flow for both territories (MGD, Seiple):</p> <p><b>Number of WRRFs that treat &gt;75% of territories' flow:</b></p> <p><b>% of population served by on-site (septic) systems:</b></p> <p><b>Biosolids used or disposed / person in 2018 (lbs):</b></p>	<p>3,302,153</p> <p>2,277,120</p> <p>928.1</p> <p>PR: 49 USVI: 8</p> <p>45</p> <p>50 PR only</p> <p><b>40,360</b></p> <p><b>PR: ~200 USVI: ~27</b></p> <p>233 PR only</p> <p><b>7</b></p> <p><b>PR: 40+% USVI: ~50%</b></p> <p><b>10</b></p>	<p>U.S. Census estimate for July 1, 2018</p> <p><a href="https://www.census.gov/newsroom/press-kits/2018/pop-estimates-national-state.html">https://www.census.gov/newsroom/press-kits/2018/pop-estimates-national-state.html</a></p> <p>calculated</p> <p>PR: EPA ECHO database; USVI: online i Seiple et al., 2020; state experts, etc.</p> <p><a href="https://echo.epa.gov/facilities/facility-search?mediaSelected=bioAnnual">https://echo.epa.gov/facilities/facility-search?mediaSelected=bioAnnual</a></p> <p>calculated</p> <p>U.S. EPA ECHO data &amp; online sources</p> <p>Seiple et al., 2020</p> <p><a href="https://doi.org/10.1016/j.jenvman.2020.110852">https://doi.org/10.1016/j.jenvman.2020.110852</a></p> <p>Seiple et al., 2020</p> <p><a href="https://doi.org/10.1016/j.jenvman.2020.110853">https://doi.org/10.1016/j.jenvman.2020.110853</a></p> <p>U.S. EPA ECHO data &amp; online sources</p> <p>calculated</p>
<p><b>Biosolids Application</b></p> <p>Agricultural land cropland (acres):</p> <p><b>% of territory area in cropland:</b></p> <p>Number of farms with that cropland:</p> <p><b>% cropland to which biosolids were applied:</b></p> <p><b>Application rate</b> if both territories' biosolids were applied to cropland (dry U.S. tons/ac.):</p> <p><b>% cropland needed</b> if both territories' biosolids were applied at typical rate (~3 dt/ac):</p>	<p>503,166 PR &amp; USVI</p> <p><b>22%</b></p> <p>calculated</p> <p>8,318 PR &amp; USVI</p> <p><b>no data</b></p> <p><b>0.03</b></p> <p><b>1.1%</b></p>	<p><a href="https://quid.state.nass.usda.gov/results/DCBBADR4-6032-3776-4F8B-624DB8825822">https://quid.state.nass.usda.gov/results/DCBBADR4-6032-3776-4F8B-624DB8825822</a></p> <p>calculated</p> <p><a href="https://quid.state.nass.usda.gov/results/F56563D1-C9CD-30EE-8274-2F91CC0649EC">https://quid.state.nass.usda.gov/results/F56563D1-C9CD-30EE-8274-2F91CC0649EC</a></p> <p>calculated</p> <p>calculated</p> <p>calculated</p>
<p><b>Nutrient Sources - Comparison</b></p> <p>Nitrogen (N) in all these territories' biosolids (metric tonnes, 2018):</p> <p>N in this these territories' animal manures (metric tonnes):</p> <p>N in this these territories' purchased fertilizer (metric tonnes, 2011):</p> <p><b>If all these territories' biosolids applied, what % of these territories' applied N would come from biosolids?</b></p> <p>Phosphorus (P) in this these territories' biosolids (metric tonnes, 2018):</p>	<p>767</p> <p>no data</p> <p>no data</p> <p><b>no data</b></p> <p>319</p>	<p>calculated assuming avg. 4.8% biosolids N</p> <p><a href="https://www.epa.gov/nutrient-policy-data/estimated-animal-agriculture-nitrogen-and-phosphorus-manure">https://www.epa.gov/nutrient-policy-data/estimated-animal-agriculture-nitrogen-and-phosphorus-manure</a></p> <p><a href="https://www.epa.gov/nutrient-policy-data/commercial-fertilizer-purchased">https://www.epa.gov/nutrient-policy-data/commercial-fertilizer-purchased</a></p> <p>calculated</p> <p>calculated assuming avg. 2% biosolids P</p>

<p>P in this these territories' animal manures (metric tonnes):</p> <p>P in this these territories' purchased fertilizer (metric tonnes, 2011):</p> <p><b>If all these territories' biosolids applied, what % of these territories' applied P would come from biosolids?</b></p>	<p>no data</p> <p>no data</p> <p><b>no data</b></p>	<p><a href="https://www.epa.gov/nutrient-policy-data/estimated-animal-agriculture-nitrogen-and-phosphorus-manure">https://www.epa.gov/nutrient-policy-data/estimated-animal-agriculture-nitrogen-and-phosphorus-manure</a></p> <p><a href="https://www.epa.gov/nutrient-policy-data/commercial-fertilizer-purchases">https://www.epa.gov/nutrient-policy-data/commercial-fertilizer-purchases</a></p> <p>calculated</p>
<p><b>Territory Regulatory Involvement</b></p> <p><b>Biosolids oversight agency / division:</b></p> <p>Permitting.... of biosolids programs:</p> <p>...of land application sites:</p> <p>FTEs: territory biosolids regulatory program:</p> <p><b>Biosolids program FTEs per million population:</b></p> <p><b>Enforcement: Inspections of biosolids facilities &amp; field sites in 2018:</b></p> <p><b>Formal violations issued:</b></p> <p><b>Amount of territory regulations beyond Part 503:</b></p> <p><b>Amount of territory regulation of nutrient management &amp; phosphorus:</b></p> <p><b>Accessibility of biosolids data to public:</b></p> <p><b>Territory encouragement of biosolids recycling to soils:</b></p> <p>Voluntary additional protections by land appliers known &amp; reported by territory coordinator:</p>	<p>(Manejo de Desperdicios Sólidos No Peligrosos) of the Puerto Rico environment agency (La Junta de Calidad Ambiental)</p> <p>thru WRRF's NPDES permit</p> <p>no site permits for Class A EQ compost</p> <p>0.05</p> <p><b>0.02</b></p> <p><b>no data</b></p> <p><b>no data</b></p> <p><b>Low</b></p> <p><b>None</b></p> <p><b>Low</b></p> <p><b>Low</b></p> <p>None</p>	<p>NBDP estimate</p> <p>calculated</p> <p>rankings by survey team based on information provided in survey (options: High, Moderate, Low, None)</p>
<p><b>Trends</b></p> <p><b>New land application activity, 2018 - new permits &amp; acreage, acres applied:</b></p> <p>acres applied in 2018:</p> <p><b>Local regulations &amp; their impacts?:</b></p> <p>details...</p> <p><b>Legislative &amp; territory regulatory actions in 2018 &amp; their impacts?:</b></p> <p>details...</p> <p><b>Biosolids beneficial use increasing... ..in 2018?:</b></p> <p><b>....in 2020?:</b></p> <p>details...</p>	<p><b>Low</b></p> <p>no data</p> <p><b>None</b></p> <p><b>None</b></p> <p><b>no data</b></p> <p><b>no data</b></p>	<p>rankings by survey team based on information provided in survey (options: High, Moderate, Low, None)... With quotes of survey responses by state expert(s)</p>
<p><b>Changes in Biosolids Use &amp; Disposal, 2004 - 2018</b></p> <p><b>Change* in solids reported used or disposed (in units used by territories)</b></p> <p><b>Beneficial Use - percentage point increase or decrease (-):</b></p> <p><b>Landfill &amp; surface disposal - % point increase or decrease (-):</b></p> <p><b>Incineration - percentage point increase or decrease (-):</b></p> <p><b>Class A - percentage point increase or decrease (-):</b></p> <p><b>Class B - percentage point increase or decrease (-):</b></p> <p><b>No class or not known - percentage point increase or decrease (-):</b></p>	<p>N/A - no 2004 data available for comparison</p>	<p>*Change may be due to population increase/decrease, change in treatment at a large WWTP, and/or different systems of data tracking and reporting.</p> <p>calculated comparing these 2018 data to 2004 data compiled by the same survey team (NEBRA, 2007)</p>