

UpGreen - Development and Verification of Urban Analytics

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UpGreen is an ESA-funded project that harnesses satellite Earth Observation data, climate models, and advanced geospatial analytics to help cities plan, monitor, and expand their green infrastructure as part of climate adaptation and sustainability strategies. The system combines three complementary components: Assessment, which maps and quantifies the current state of urban greenery including canopy cover, tree productivity, stress levels, cooling effect, carbon sequestration, and overall greenery value; Prediction, which uses historical data and climate scenarios to forecast future tree performance and vulnerabilities such as heat stress, drought, and pollution exposure up to 2050; and Vision, which supports strategic planning by identifying where new trees or green areas would bring the greatest benefits. A central part of this is the 3-30-300 rule, a guideline for urban liveability that suggests every citizen should be able to see at least three trees from their home, live in a neighbourhood with at least 30% tree canopy cover, and be within 300 metres of a green space. UpGreen is designed for municipalities with more than 20,000 inhabitants, where the complexity of green infrastructure demands robust, data-driven tools. Through demonstration pilots in Copenhagen and Lisbon, the project has validated its ability to translate detailed remote sensing and modelling into actionable insights delivered via a user-friendly web platform. By addressing the needs of planners, investors, maintenance teams, and consultants, UpGreen provides a scalable and replicable service that enhances urban resilience, ensures equitable access to greenery, and contributes directly to European climate goals and the improvement of citizens' quality of life.