Environmental Research & Analysis

What is Environmental Research and Analysis?

Our environment consists of multiple layers of elements and systems. Truly sustainable development requires recognition of the broad and diverse implications of human designs on the natural world. At EDD, we consider environmental research and analysis central to the development of appropriate design solutions and policies.

Data collection and the **design of sampling plans** are fundamental to our work in this sector. On a recent World Bank study of water contamination in drinking water wells in the State of Kerala, India, EDD developed sampling protocol to characterize the variability of fecal coliform concentrations in a heterogeneous terrain over a one year period. On a local bio-fuel study, EDD designed survey and sampling plan to estimate the total volume of useable waste vegetable oil generated by restaurants and food processing industries in Brooklyn, NYC.

We have conducted extensive data collection in **wetlands**. Recent projects have involved the installation of tide gages and the determination of tidal datum planes; the monitoring of groundwater wells and the measurement of substrate hydraulic properties; as well as the topographic referencing of vegetative communities and the use of this information in the formulation of invasive species control plans.

EDD worked with Cooper Union civil engineering students to measure the runoff characteristics of green roof test plots using a rainfall simulator.

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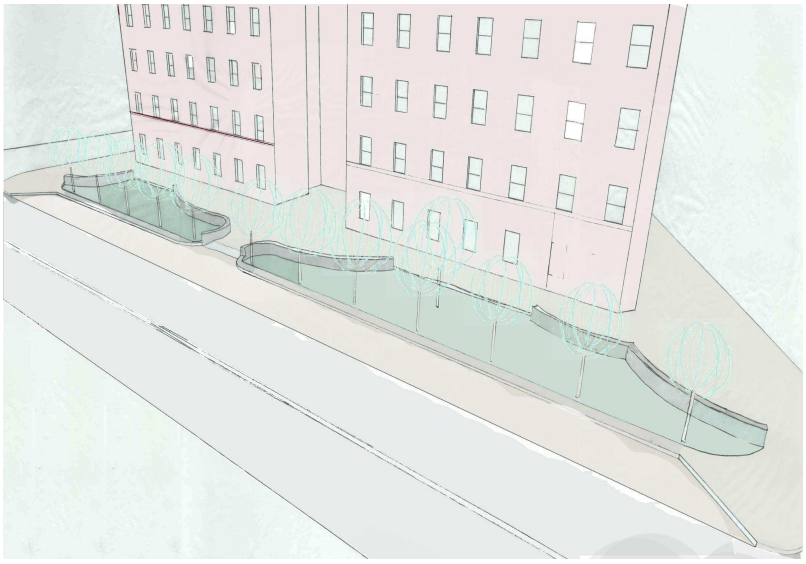
EDD backs up our data collection and sampling skills with high level **analysis**. The Kerala and Brooklyn projects involve the development of innovative **statistical and risk models** that will be used to convert the information gathered into appropriate local policies and practices. EDD developed a predictive model of transmission losses in ephemeral streams in the US Southwest, to be used as a tool for minimizing the ecological impacts of urbanization. Additional work on that project will refine this statistical model with new information on stream bed particle size distribution and other characteristics.

In the water resources arena, our projects involve developing and validating **water budgets**, and running a variety of **hydraulic and hydrologic models** for stormwater, infrastructure, and ecological restoration projects. EDD is currently working for the NYC Department of Environmental Protection to model the cost-effectiveness of a pollution prevention approach to combined sewer overflow abatement using **low impact development** technologies such as green roofs, porous pavement, and rainwater harvesting. Another recent public project involved researching, for the Borough of Roosevelt, NJ, the cost-effectiveness of removing phosphorus from secondary municipal effluent using **constructed wetlands**.



Renderings for a "green corridor" in the Bronx. Infiltration gardens could divert stormwater from sewers, while adding public green spaces to the urban streetscape.