

# Sustainability Essentials: Take 5

---

## SMART AND DEFT: THE CITY AS A FORCE FOR GOOD IN ITS ENVIRONMENT

---

M. Bruce Beck



## SMART AND DEFT: THE CITY AS A FORCE FOR GOOD IN ITS ENVIRONMENT

---

Cities are the built environment; they are the creatures of Civil Engineering. Sir Alan Harris, an eminent British engineer, once said: "If it is meant to move, that is Mechanical Engineering; if it is meant to stay put, that is Civil Engineering". Mechanical engineers, in other words, mind about how their creations are operated. In the life cycles of urban infrastructure, that of water was conceived, born, and historically brought into maturity with precious little *forethought* given to operating such a product over all those many and long years of its adulthood. It was not primed to learn. So just how "smart" could the city be?

As much as might appeal the image of cities as "large animals grazing in their pastures" — for the purpose of calculating an urban ecological footprint ([Take 4](#)) — "large animals" seem unprepossessing candidates for smartness. "Bulls in china shops" some would say: cities metaphorically crashing about, breaking up the fragile environments of their surrounds.

The ecosystems we see in our environments are there because they have co-evolved with the pulsating and pounding variety of disturbances to which they are subject, over seconds, hours, minutes, days, weeks, months, years, centuries, millennia, and eons. Collectively, this "environmental chorus", this symphony of disturbances — from rain, sun, wind, storms, droughts, earthquakes — has shaped the ecosystem (and the ecosystem it).

Man enters the Environment, and bends the landscape to his purpose, agriculture. Cities are built; there is industrialization; and the ever-intensifying socio-economic life. Rivers are dammed and diverted, deliberately to subdue the now unwelcome variability in their discharges: to mute, if not eliminate, the (short) flood waves; to string things out and sustain them over extended periods of drought — to endure (long) heat waves. These manipulations of the river's flow regime are the "quick engineering fixes" ([Take 1](#)), to be banished from Ecologists' model schemes of watershed management in the 21st Century. For these pejorative "fixes" have stripped the environmental chorus of its treble and higher-pitched voices, and crowded things out with tenors and bass voices instead. Taken to its logical absurdity — because socio-economic life prizes constancy and the steady, unruffled 24-7

beat — the symphony of the chorus has been rendered incapable of uttering anything but a monotone “duuuuuh”. What kind of ecosystem should become attuned to that? What services might it then provide? Which of its providers might fail and fall by the wayside, as casualties of diminished biodiversity?

Bulls and china shops. Could the bull be shod with padded athletic trainers, thus to acquire deftness of metaphorical movement, hence to preserve the shop’s goods, even — given the intelligence — extend the range of what the shop has to sell?

Cities and watersheds. Could the city be re-engineered and its infrastructure re-deployed, not just to restore the impaired ecosystem services of the watershed, but yet enhance them?

Monotony of the 24-7 beat, and the symphony of the environmental chorus. Could the beat be muffled and something of the broader range of the chorus brought back to its former glory?

The city receives its daily bread and daily water on its upside. Some of this well-cleansed water is used to carry away the metabolic residuals of the daily bread, on the downside of the city. The one makes the other “water pollution” and undermines our capacity even to perceive as resources — not to mention, recover — the nutritious and energy-bearing elements in the residuals. It was not always so, as we know from the symbiosis of Paris and its watershed up until a century ago ([Take 1](#)). What Paris once returned as fertilizer to agriculture, so today we could in addition, in principle, use as feedstock for the

production of renewable biofuels ([Take 4](#)). Or there again ...

From time to time the city’s infrastructure might judiciously dispense these valuable recovered materials as “nutrient supplements” to the surrounding aquatic environment, deliberately to enhance its ecosystem services, and thereby its general well-being. The city would write back the richness of a tenor voice and others into the musical score of the environmental chorus. The bull would open up a health-food shop. The city would become a deliberate force for good in its environment.

To be sure, some fancy (smart!) footwork would be needed on the part of the city, on its downside: deftness of movement and smartness about the hind-quarters of the bull — smartness in its wastewater infrastructure. Yet some of us have waited 40 years for such (and given up). And for all the “smartness” claimed for the city, and for its water infrastructure, it is just that: smartness in just water supply, water distribution, and water use on the upside of the city and its water consumers; recalcitrant “dumbness” on the downside, impeded not least by the perception of an infrastructure intended but to handle *waste* and *water*, wastewater. We risk the farce of the city as a pantomime donkey — stumbling and lurching misguidedly about the theater stage of its environment; fore-legs moving quite out of syncopation with its hind-legs.

