

Comments regarding Florida's "Stormwater Quality Applicant's Handbook"

<http://www.dep.state.fl.us/water/wetlands/erp/rules/stormwater/index.htm>

June 5, 2010.

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Comments do not represent the position of ARCSA

Florida Department of Environmental Protection Draft "Stormwater Quality Applicant's Handbook" (July, 2009) details regulatory criteria for stormwater systems that "may incorporate methods to collect, convey, store, absorb, inhibit, treat, use or reuse water to prevent or reduce flooding, overdrainage, environmental degradation and pollution, or otherwise affect the quality and quantity of discharges." Under these criteria, stormwater permits are only required for modest- and larger-scale buildings (over 9,000 square feet) and projects larger than one acre.

The author believes that the stormwater goals of DEP would be well served by a broader application of rainwater-harvesting principles that encourage greater use of rainwater for those projects that require permits, as well as encouraging it for existing facilities *not* requiring permits. Full use of rainwater harvesting systems represents "untapped" stormwater-treatment capacity.

Since the DEP document addresses only narrow use of rainwater, comments to specific passages would not adequately identify the potential. Full use of rainwater harvesting should be viewed as a supplemental stormwater mitigating resource that precedes stormwater treatment.

Thus, the author recommends:

- **Widespread rainwater harvesting and broad use of this high-quality resource for potable and non-potable use in all buildings prior to its degradation into a vehicle that delivers nutrients to surface waters should be fully encouraged by the Florida Department of Environmental Protection. Greater domestic use of rainwater would mean more potential stormwater would be receive greater treatment. Regular emptying of storage tanks as a result of that use provides the greatest reserve capacity to impound stormwater.**
- **DEP should partner with other agencies and resource managers to encourage use of thousands of soon-to-be abandoned septic tanks that could be put to use sequestering millions of gallons of rainwater that would otherwise deliver nutrients directly to surface**

waters.

- **Harvesting and full use of rainwater should be encouraged as the first step in Best Management Practices Treatment Trains that provide cumulative benefit from treatment systems linked in series.**

- **FDEP's stormwater handbook harvests rainwater only through the use of "green roofs."** It is the author's opinion that while "green" or vegetated roofs have benefit in some urban settings to deliver oases where space for vegetation is limited, in most cases resources and funds dedicated to installing a vegetated roof should instead be applied to installing a similarly long-lived white metal roof with high albedo and high emissivity along with rainwater-harvesting components to enable the full use of rainwater by the humans in, or near the subject roof. **Because of the naturally high quality of rainwater, use of rainwater by vegetation should be secondary and subordinate to human use.** *[It should be noted that among knowledgeable parties the value of vegetated roofs is controversial.]*

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While the goal of Florida's Department of Environmental Protection Stormwater Rule and Handbook is control of nutrient runoff to surface water systems, it is in the state's and society's collective best interests to take a less narrow view of the benefits of harvesting rainwater. If a partial solution to the stormwater challenge also contributes to potable, non-potable and energy solutions, that partial solution should be given greater consideration because of its broader benefits to society.

In southern California, the "Tree People" <http://www.treepeople.org/> helped to solve potable, non-potable, stormwater and energy challenges simultaneously by capturing rainwater to create verdant parks. Many partial-solution stakeholders contributed to the success that would not have been possible if each discipline concerned themselves only with their parochial interests. Perhaps most importantly, the contribution of rainwater harvesting to ALL of those sectors would have been lost if they'd attended only to their insular goals.

Although the contributions of harvested rainwater to water-related solutions (potable, non-potable and stormwater) are easily explained, some are not aware of the strong connection of water and energy. For the purposes of these comments, a few simple examples may suffice.

- In California, 18-20% of the state's energy is used to treat and transport water.
- Throughout the world, the production of reverse-osmosis (RO) fresh water is increasingly common. RO water carries with it the burden of between 5 and 15 kWh per 1,000 gallons, depending on the salinity of the feed water. To compound matters, the power required to create RO water requires more water use.
- The Florida Keys use approximately 20 million gallons of fresh water a day. Two new nuclear reactors planned for the Turkey Point facility would consume 80 million gallons a day.

Saving water saves energy.

Harvesting water is harvesting energy.

There is truly a “once in a lifetime” opportunity in various areas of Florida to take advantage of the Florida Department of Health’s rule (64E-6.0185 Conversion of a Septic Tank into a Cistern) that allows conversion of septic tanks (tanks that would otherwise be abandoned) into non-potable landscape cisterns. Several communities in Florida are converting from septic, cesspool and other on-site wastewater systems to central sewer systems, mainly for the purpose of reducing the nutrient levels of the ultimate effluent. The tanks involved will either be converted to stormwater-impounding vessels that would sequester millions of gallons of stormwater, or they will be abandoned and those millions of gallons of stormwater will remain untreated.

When central sewer systems are fully installed in the Florida Keys and wastewater is treated to Advance Waste Treatment standards (as defined in Section 403.086 of the Florida Statutes), harvested rainwater used inside the house would be treated to very low nutrient levels before being returned to groundwater or injection wells. Thus, where central sewer systems exist, rainwater that is used inside the house would be treated to very low nutrient levels. Because it is widely thought otherwise, it is important to state here that the Department of Health does not prohibit use of rainwater for potable purposes.

In conclusion, full use rainwater-harvesting's potential should be enlisted to help solve Florida's stormwater challenges, particularly because of its ancillary benefits to the state. The potential of converted septic tanks to sequester stormwater is truly a once-in-a-lifetime opportunity that should be exploited.

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