

Chapter 3

Wet Growth Principles and Overview

“Wet growth” policies and practices aim for land uses, development, and community growth that are sustainable with respect to water resources, water quality, and watersheds. Even though there are many different methods and tools for achieving wet growth from which communities can choose, there are some basic principles that communities should use in evaluating, selecting, and implementing wet growth policies and practices. They are:

1. Integration. Communities should integrate land use planning and management, water supply planning and conservation, and water quality planning and protection. Land use, water supplies, and water quality are interconnected and interdependent. Therefore, our policies and practices with respect to each of these areas should be integrated and comprehensive wherever and however possible, and coordinated if integration is not possible.

2. Watershed-Based Action. Planning, regulation, infrastructure, incentives, and development should have a focus on watersheds and on minimizing and mitigating the impacts of land uses on watersheds. The interactions between land and water occur at multiple (nested) watershed scales from small catchments to large basins and through watershed processes. In addition, land uses affect the health and integrity of watershed functioning. Wet growth aims to achieve and maintain healthy, well-functioning, sustainable watersheds. Wet growth policies are developed, implemented, and evaluated at various levels (scales) of watersheds from small catchments to large basins.

3. Regional or Inter-Local Cooperation. The impacts of land use and water quality occur far beyond local political jurisdictions of cities, towns, and counties. Watershed boundaries transcend the boundaries of localities. Although the adoption of wet growth policies by just a single city or county is preferable to inaction awaiting regional cooperation, local communities should seek ways to develop and implement wet growth strategies through cooperation among various communities within a region or watershed. New partnerships may need to be formed, or existing partnerships may need to be expanded to include watershed concerns and wet growth policies.

4. Study, Assessment, Learning, and Adaptation. Local governments should gather data about water quality, water supplies, watersheds, land use and development patterns and impacts, runoff, growth projections, and the like. They should periodically engage in water quality and watershed inventories. They should evaluate this data when engaged in planning and decision making, giving particular attention to the current and future threats of land uses to water quality or watershed functioning. Local officials and community stakeholders have available to them a wide variety of data and tools, including GIS (geographic information systems) software, watershed mapping websites, modeling tools to predict the impacts of various land use scenarios, and, existing and emerging data on land uses, growth trends (including likely locations), existing and proposed

infrastructure (e.g., roads, water and sewer systems), water quality, the conditions of waterways, water supplies and demands, demands and stresses on water supplies, instream flows, and groundwater conditions, conservation lands, and so forth. Wet growth requires that land-use decisions and policies be based on good information and the best analysis of that information that is possible under the circumstances. In addition, the assessment of information enables decision makers and all of us (who have a stake in our water resources) to learn from our experiences with land and water. Local governments need to monitor water and environmental conditions, evaluate the results (including water-quality and water-use results) of particular policies in systematic and rigorous ways, use this monitoring and evaluative data as part of “feedback loops” that allow for review and modification of policies, and allow programs and policies to evolve as conditions change and as both new and feedback-based information is received.

5. Planning. Communities should avoid problems by proactive planning, instead of managing problems through reactive responses. Local governments, through broad participatory and multi-stakeholder processes in their communities, should set clear goals for watershed protection, water conservation, and water quality attainment/preservation, and to establish priorities for policies and programs. They should tailor their strategies to the region’s needs and the particular context of the community’s land-water problems. Most of all, each community and the participants in its planning processes should think of planning as creating a “greenprint” (environmentally responsible uses of land) and a “blueprint” (water resource protections) for the community.

6. Implementation: Turning Wet Growth Goals into Wet Growth Standards into Wet Growth Decisions and Actions. The greatest risk of wet growth planning is that the goals remain mere aspirations, while day-to-day practices remain unsustainable and continue to harm our waters. Therefore, communities and their many stakeholders need to incorporate goals and plans into regulations (ordinances), permit decisions, infrastructure projects, funding priorities, design and development practices, and many other actions. Local ordinances should adopt specific criteria to protect water quality, water supplies, and watersheds. These criteria should legally apply to local governments’ decisions about zoning, land-use permits, and infrastructure projects, but they should also actually be considered and applied fully and thoughtfully as local decision makers consider specific land development projects. In addition, local staff should help private developers and land owners to select land uses and design their development projects to meet these criteria. Finally, local governments need to enforce legal or regulatory requirements with effective enforcement methods and tools. Wet growth goals require accountability for actions, which can be achieved with strong incentives, routine monitoring, and consistent enforcement.

7. Policy Diversity. Local governments should mix regulatory and non-regulatory methods and tools. Neither land use regulations nor market-based financial incentives by themselves will be sufficient to prevent water quality degradation, wasteful water practices, or harms to our watersheds. Local governments should provide incentives to developers and landowners and should invest in “wet growth” infrastructure for the public’s benefit. However, local governments should also review and modify their codes

and ordinances to allow low-impact and wet growth development practices, to evaluate the water resource impacts of development proposals, and to restrict land uses and development that are environmentally unsustainable. In other words, there should be more development flexibility with respect to sustainable (wet growth) projects and less development flexibility or permissiveness with respect to unsustainable (water-degrading) projects. As discussed in Chapter 1 of this handbook, wet growth policies take a “tool box” approach that enables local governments to select among a variety of methods and tools that will achieve wet growth goals in light of local conditions and needs.

8. Conservation and Use of Natural Features and Processes. Communities should maintain natural stream conditions to the extent possible. They should protect riparian or aquatic buffers along water bodies from development or significant alteration, using these buffers to protect water quality and watershed health and integrity. They should retain existing green infrastructure and develop new green infrastructure, giving particular attention to the role of trees and native vegetation in both natural resources conservation and site design and development. They should adopt open space conservation policies throughout a watershed, giving particular protection to environmentally sensitive lands with critical watershed-supporting functions. More generally, they should protect critical lands from development, including wetlands, riparian zones, aquifer recharge zones, and ridges and steep hillside slopes. They should restore degraded water bodies, riparian areas, wetlands, and aquatic habitat.

9. Low-Impact Development. Local governments should encourage, facilitate, and require site design and development methods that reduce and minimize the impacts of development on water quality, runoff, and watersheds, and developers and land owners should embrace and use these methods. Development sites and neighborhoods should minimize the amount and velocity of runoff generated as a first priority, provide for natural infiltration and absorption of runoff as a second priority, retain and regulate water runoff as a third priority, and then treat and release runoff only as a last resort. Efficient design and development of streets, parking lots, sidewalks, driveways, and other paved areas (i.e., narrower or smaller) should reduce the overall proportion of development sites or areas that are covered by impervious surfaces. Sites should contain water-servicing design features like swales, retention/detention/infiltration basins, preserved, restored or created wetlands, native vegetation, stands of trees, and filters, among other features that control runoff. Communities, developers, and land owners should fully utilize in many contexts the variety of stormwater best management practices (BMPs) that are encouraged or required for municipal stormwater sewer management.

10. Pollution Prevention. Communities should choose prevention over treatment. They should, through both voluntary programs and local regulations, prevent or reduce pollution-creating uses of land. They should control erosion and sediment from construction and other soil-disturbing activities. In particular, developers and contractors should use construction techniques that minimize soil disturbance and prevent sediment from running off of construction sites. A variety of waste and chemical management techniques should be broadly and highly publicized, educating the many people and entities who are potential sources of pollution to manage these sources so as to prevent

pollution of our waters. Local officials should evaluate proposed development projects for their potential to introduce pollutants into our waters.

11. Efficiency (No Waste). Local governments should encourage and direct development towards areas of existing water infrastructure. Communities should re-use already developed land, promote infill development, and revitalize brownfields (clean-up and redevelopment). They should conserve water and use it efficiently, conscientiously seeking to avoid wasting water and to price water in ways that discourage waste. Local governments should encourage, facilitate, and require water-efficient design, operation, and maintenance of new development, as well as retrofitting of existing development with water-conserving features. Communities, developers, and land owners should minimize the amount of land developed with structures and impervious cover by using clustering, compact development, smaller ratios of paved areas (efficient streets, parking, sidewalks, and driveways), and other methods, and by conserving open space and existing natural features of land. Local land use policies and regulations should discourage urban sprawl and encourage better use of already developed areas.

12. Broad Participation and Engagement. Local governments and communities should encourage and facilitate broad public participation in the development and implementation of wet growth policies and practices. In particular, planning and decision making processes should be multi-stakeholder, involving a very wide variety of people and groups who have a stake in water quality, water supply, and land use policies. In addition, wet growth programs should educate and engage the public in taking aquatically and environmentally responsible actions, avoiding aquatically and environmentally irresponsible or harmful actions, and being aware of the issues of land use and development, water quality, water use and conservation, and watershed health and integrity. These programs should not only inform, but also engage people in experiential involvement with local water resources and special places of environmental value and participation in actions and decisions to protect our waters. They should encourage public support of wet growth policies and engage the entire public – including many different types of stakeholders – in deliberations about local growth and land use policies. Moreover, wet growth requires leadership in several different sectors of a community: among policy makers, among program administrators, among businesses and industries, among professional experts, among neighborhoods and civic leaders, and among advocates.

13. Investment. Communities and local governments must invest in wet growth programs, policies, and infrastructure. This includes making wet growth a funding priority, and seeking out sources of funding, including partnerships with state and federal programs and leveraging resources by combining funding resources. It means investing in innovation and new technologies. It means investing in information, data, assessment methodologies, and educational processes. It means obtaining necessary technical assistance and dedicating the expertise, time, and effort of both staff and volunteers (community stakeholders) to develop and implement wet growth policies. It means investing in water supply planning, management, and conservation. It means investing in watershed planning and management.

Putting these wet growth principles into actual practice requires methods and tools to do so. This handbook describes seven methods of wet growth – systematic approaches that are organized around certain principles aimed at particular aspects of land use and development that affect water quality – and seven tools of wet growth – ways of implementing any or all of the seven methods so that they have actual effect and impact.

The seven methods of wet growth are:

- **watershed planning;**
- **low-impact development;**
- **water conservation;**
- **green infrastructure;**
- **smart growth;**
- **land conservation;** and
- **restoration, remediation, and re-use.**

The seven tools of wet growth are:

- **planning;**
- **regulation;**
- **incentives, markets, and private efforts;**
- **public infrastructure;**
- **impact assessment;**
- **participatory processes;** and
- **public education and engagement.**

We encourage Kentucky communities to consider all seven methods and to utilize all seven tools in implementing the wet growth methods and policies that they select. The specific policies and practices selected and the specific tools utilized will vary by local circumstances, community goals, available resources, and perceptions of the water resources issues that particular communities face. However, most communities in Kentucky face enough land-use impacts on water resources and water quality that they will only achieve sustainable growth and development if they use many different methods and

tools. These are not simple problems with simple solutions. But they are important problems with extensive harms and costs if they are not addressed in systematic, committed, extensive ways.

Sources:

Arnold, Craig Anthony (Tony), ed. 2005a. Wet Growth: Should Water Law Control Land Use?

Arnold, Craig Anthony (Tony). 2005b. "Is Wet Growth Smarter Than Smart Growth?: The Fragmentation and Integration of Land Use and Water." *Environmental Law Reporter* 35: 10152. Available from SSRN at <http://ssrn.com/abstract=1040821>.

Arnold, Craig Anthony (Tony). 2006a. "Clean-Water Land Use: Connecting Scale and Function." *Pace Environmental Law Review* 23(2): 291. Available from SSRN at <http://ssrn.com/abstract=1024265>.

Arnold, Craig Anthony (Tony). 2006b. "For the Sake of Water: Land Conservation and Watershed Protection." *Sustain: A Journal of Environment and Sustainability*. 14:16. Available from SSRN at <http://ssrn.com/abstract=1089026>.

Center for Watershed Protection. 1995. Site Planning for Urban Stream Protection. Available at http://www.cwp.org/Resource_Library/Center_Docs/BSD/ELC_BSDpart1.pdf, and http://www.cwp.org/Resource_Library/Center_Docs/BSD/ELC_BSDpart2.pdf.

Center for Watershed Protection. 2000. "The Economics of Watershed Protection." *Watershed Protection Techniques* 2(4): 469.

Commonwealth Water Education Project. Kentucky Growth Readiness for Water Quality, PowerPoint slide presentation.

Honachefsky, William B. 2000. Ecologically Based Municipal Land Use Planning.

Kentucky Division of Water. Is City Living Polluting Your Water? (Pamphlet).

Kentucky Division of Water. Is Country Living Polluting Your Water? (Pamphlet).

National Association of Local Government Environmental Professionals et al. (NALGEP et al.). 2003. Smart Growth for Clean Water: Helping Communities Address the Water Quality Impacts of Sprawl. Available at <http://www.resourcesaver.com/file/toolmanager/Custom093C337F42157.pdf>.

Natural Resources Defense Council (NRDC). 1999. Stormwater Strategies: Community Responses to Runoff Pollution. Available at <http://www.nrdc.org/water/pollution/storm>.

Postel, Sandra and Brian Richter. 2003. Rivers for Life: Managing Water for People and Nature.

Southeast Watershed Forum. Kentucky Growth Readiness Workshop 1 Powerpoint.

10,000 Friends of Pennsylvania. 2007. Water and Growth: Toward a Stronger Connection Between Water Supply and Land Use in Southeastern Pennsylvania. Available at http://10000friends.org/sites/10000friends.org/files/water_report_07_final_with_covers.pdf.

United States Environmental Protection Agency (U.S. EPA). 2001. Protecting and Restoring America's Watersheds: Status, Trends, and Initiatives in Watershed Management, EPA 840-R-00-001. Available at <http://www.epa.gov/owow/protecting/restore725.pdf>.

United States Environmental Protection Agency (U.S. EPA). 2007. Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices, EPA 841-F-007-006. Available at www.epa.gov/mps/lid.