

**UK Cooperative Extension BAE Logic Model for Urban Water Resources Management and Design:
Stormwater Management, Carmen Agouridis, Ph.D., P.E.**

Situation Analysis

Through the National Pollutant Discharge Elimination System (NPDES), the U.S. Environmental Protection Agency requires municipalities to obtain permits to discharge stormwater into receiving bodies such as streams, rivers and lakes. These permits, termed MS4 for Municipal Separate Storm Sewer Systems, apply to communities with populations greater than 10,000 and a population density of 1,000 people per square mile (KDOW, 2012). Kentucky has over 100 MS4 permits in 32 counties (ENRI, 2016). MS4 permits have six main requirements: 1) public education and outreach, 2) public involvement and education, 3) illicit discharge detection and elimination, 4) construction site runoff control, 5) post-construction runoff control, and 6) pollution prevention/good housekeeping (USEPA, 2016). Meeting all of these permit requirements is challenging, particularly MS4 communities without a MS4 coordinator. MS4 communities would benefit from the development of research, educational materials, and programs intended to reduce stormwater impacts, minimize costs, and protect the environment.

[ENRI] Environment and Natural Resources Issues. 2016. MS4 Communities. Available at <http://water.ca.uky.edu/MS4>

[KDOW] Kentucky Division of Water. 2012. MS4 FAQ for Citizens. Available at http://water.ky.gov/wet_weather/Pages/MS4.aspx

[USEPA] United States Environmental Protection Agency. 2016. National Pollution Discharge Elimination System (NPDES), Stormwater Discharges from Municipal Sources. Available at <https://www.epa.gov/npdes/stormwater-discharges-municipal-sources#overview>

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Inputs	Outputs		Outcomes/Impact		
	Activities	Participation	Initial/Short Term	Intermediate Term	Long Term
<ul style="list-style-type: none"> • Time • Funding • Equipment • Laboratory (water quality) • Personnel • Landowner collaboration • Consultant collaboration • Agency (federal, state and local) collaboration 	<ul style="list-style-type: none"> • Fact sheets and Cooperative Extension publications • Refereed journal articles • On-site visits and consultations • Workshops • In-service trainings for agents • Presentations at state/ national conferences • Web-based resources 	<ul style="list-style-type: none"> • Consultants • Extension agents • College students • Watershed stewards • Federal, state and local government employees 	<p>Participants will gain knowledge about one or more of the following:</p> <ul style="list-style-type: none"> -Stormwater -Stormwater management practices -Resources to contact for design/construction assistance 	<p>Participants will:</p> <ul style="list-style-type: none"> -Adopt proper stormwater management practices (e.g. rain gardens, rainwater harvesting, green roofs, permeable pavement, stormwater wetlands, bioswales, riparian buffers, etc.) -Use research-based information to make decisions on selection, design, construction, and maintenance of stormwater management practices -Contact design/construction experts for assistance, as needed 	<ul style="list-style-type: none"> Improved stormwater management Improved water quality Improved stream health Improved natural environment Improved communication amongst entities