Appendix B - Logic Model

Measuring Environmental Results:
Outputs and Outcomes

Beginning in early 2005, EPA has required that all grant recipients document outputs and "to the extent practicable" outcomes. Outputs and outcomes differ both in their nature, and in how they are measured.

OUTPUTS: Outputs are the activities or deliverables that are to be accomplished as a result of a grant. Outputs are generally described as deliverables or milestones in a workplan or timeline. EPA project officers track the completion of outputs to monitor the progress of a grant. Outputs include things like number of workshops held, number of volunteers trained, field work completed, study completed, watershed management plan completed, etc.

OUTCOMES: Outcomes are the measurable impacts or results of the work of the grant. While outputs are accomplished during the life of the grant, outcomes generally occur after the completion of the grant. It is useful to categorize outcomes as short, medium, and long-term. Measuring environmental outcomes can be challenging, especially for small grants.

Medium and long-term outcomes can be costly, especially if monitoring, sampling and analysis are involved. In addition, it can take many years for the long-term impact of a grant to have a measurable effect on the environment. For small grants, we tend to focus on short and medium-term outcomes, but we want to see the grant in the context of long term goals and objectives.

- *Short-term outcomes* may include things like: increased knowledge, active stewardship program.
- *Medium-term outcomes* might include: documented widespread adoption of best management practices, documented reduction of pesticide use (3 of pounds of pesticides per acre no longer being used on 2000 acres).
- *Long-term outcomes* might include: documented reduction of nutrients in lake, documented reduction in # of children with asthma, documented improvement of indoor air quality, meeting water quality standards.

Logic Models

Logic models come in many forms and shapes. You may find that a very simple version does the trick, or you can really get into the details. In any case, they all go something like this:

We need to conduct this research
so that
Scientists and the public understand why the fish are dying
so that
Decision makers can institute protective land use policies
so that
Residents can modify detrimental behaviors
so that
Conditions in the stream improve
so that
Salmon mortality is reduced in urban streams
so that
Beneficial uses are achieved.

Logic Model Example 1

Proposal:	

Link to EPA Strategic Plan	Resources/Input	Activities (and targets, if any)	Stated Outputs (with targets)	Anticipated Outcomes (with targets)	Baseline
Goal 2=Clean and Safe Water Objective 2.1: Protect Human Health Subobjective 2.1.1= Water Safe to Drink Objective 2.2= Protect Water Quality Subobjective 2.2.1= Improve Water Quality on a Watershed Basis 2.2.2= Improve Coastal and Ocean Waters Goal 4=Healthy Communities and Ecosystems Objective 4.3= Ecosystems. Protect, Sustain, and Restore the Health of Natural Habitats and Ecosystems Sub-objective 4.3.1=Protect and Restore Ecosystems Sub-objective 4.3.2=Increase Wetlands	Describe the resources … funding amounts from EPA and match; in-house and/or contractor expertise; property; etc ← delete sub-objectives that are not relevant	Describe actions, not results… e.g. conducting NEPA review, developing plans for… getting public input… purchasing equipment… constructing …. developing ordinance… watershed characterization	Describe actual products, reports, meetings, plans, for each activity. Include numbers and dates expected if known. These should be accomplishments during the grant period.	**Examples:** …. Broader results that continue or occur after the end of the grant project period. Include numbers and dates expected if known **Short Term**: (1) volume of cleaner water discharged or supplied for X number of people (2) Increased infiltration; (3) Increased public support or scientific understanding of watershed. **Interim:** (1) Reduction of pollutant loadings. (2) Environmental awareness within community. (3) Protection of X acres of wetland. (4) Reduction of risk to watershed **Long term**: restoration and maintenance of the chemical, physical, and biological integrity of … or improved health of population…. Supportive of strategic subobjectives in column 1	Data on current conditions …. discharge volumes, quality, high quality waters in need of protection, impervious cover against which to measure change due to funded activity.

Logic Model Example 2

INPUTS	OUTPUTS		OUTCOMES		
	ACTIVITIES	**PARTICIPANTS**	**SHORT TERM**	**MEDIUM TERM**	**LONG TERM**
EPA funds $148768 *Logan County Planning Division Manager time in project management $1748* *(other stated inputs)*	*Conduct a ecosystem valuation of a small watershed in Logan County to determine cost-benefit of protecting natural systems over engineered stormwater structures.* *Develop land use designations and development standards and incentive programs to implement recommendations of valuation.*	*Logan County staff and University staff conduct valuation.* *Logan County staff, with assistance from outside contract and local citizen committee, develop land use designations and development standards and incentive programs.*	*Ecosystem Valuation* *Develop land use designations and development standards and incentive programs*	• *Increase in acreage protected from development.* • *No net increase in effective impervious cover.* • *Reduced risk of increased flooding in down stream flood plain.*	*Preservation of the naturally functioning ecosystem/ watershed processes so that all species dependant on all the functions of that ecosystem are maintained in plentiful supply on the watershed.*
			OUTCOME MEASURES		
			Final report with recommendations for implementation **Specific land use designations in sub area plan** **Incentive program**	**# of wetland acres protected** **# of functioning riparian miles protected** **Peak flow hydrology maintained or reduced with increase development**	**Watershed hydrology maintained. Less need for new restoration projects. Species maintenance or recovery.**