

# WFPO Project Purposes and Economics

Updated 3/31/2021

## Program Purposes

National Watershed Program Manual (NWPM)<sup>1</sup>, 500.3 Eligible Purposes lists the eligible Watershed & Flood Prevention Operations (WFPO) project purposes. Refer to the NWPM for what each purpose includes.

- (i) Flood Prevention (Flood Damage Reduction)
- (ii) Watershed Protection
- (iii) Public Recreation
- (iv) Public Fish and Wildlife
- (v) Agricultural Water Management
- (vi) Municipal and Industrial Water Supply
- (vii) Water Quality Management
- (viii) Watershed Structure Rehabilitation

## WFPO Plan-EA Project Purposes

Multiple project purposes may be chosen to solve the needs of the project area. The project purpose(s) will dictate the screening criteria and thus define the range of alternatives to be considered along with the No-action alternative. CAUTION: Multiple project purposes will increase the complexity of the alternatives analyses. Should a Clean Water Act (CWA) individual permit be required, justifying a secondary project purpose, such as recreation, adds a new level of analysis to justify the need geographically.

## Geographic Scope

### National Watershed Program Handbook (NWPH)<sup>2</sup> 600.4 Project Scope

The maximum watershed size or sub-watershed area authorized is 250,000 acres, in accordance with Public Law 83-566, Section 2. Please note that the Public Law 83-566 stipulates, if the Sponsoring Local Organization (SLO) so desires, a number of sub-watersheds that are less than 250,000 acres in size may be planned together if they are component parts of a larger watershed. A watershed area comprises all land and water within the confines of a drainage divide and must follow hydrologic boundaries.

The watershed area should include all direct tributary drainageways and lands from which, after project installation, water and sediment could adversely affect proposed measures included in the plan, such as an irrigation or drainage canal, floodways, or floodwater retarding structures. However, no single plan can be submitted for a watershed or sub-watershed area exceeding 250,000 acres. Areas from which water is brought in by diversion can be excluded from the watershed if these sources of water have no significant effect on the flood prevention and water management problems of the watershed area.

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<sup>1</sup> Manuals define policy to which adherence is required.

<sup>2</sup> Handbooks define procedure as to provide the end user with the "how to".

Currently, in yearly WFPO funding appropriations, the 250,000 acre maximum is waived for all project purposes EXCEPT Flood Prevention.

- If a project area with Flood Prevention as the only purpose and has over 250,000 acres then the area must be divided onto sub-watersheds for planning to continue in a single Plan-EA document.
- If a project area has multiple project purposes and is larger than 250,000 acres then define the area for which the Flood Prevention purpose applies and ensure the defined sub-watershed is below 250,000 acres.

### **Cost-Share**

Eligibility for WFPO cost-share and rates of cost-share are determined based on the purposes for which a project is formulated. (NWPM 500.41)

### **Defining “Water Resource Projects”**

(NWPM 501.11)

WFPO project plans are either “water resource projects” or “non-water-resource projects.”

“water resource projects” include:

- Projects having one or more of the following purposes:
- flood damage reduction,
- water supply,
- water-based recreation,
- water quality management
- large scale irrigation or drainage projects

“non-water resource projects” include:

- watershed protection
- land treatment
- habitat restoration
- ecosystem restoration

### **Application of the National Economic Development (NED) alternative**

“Water resource project” plans formulation will be based on the stated purpose and the need for action. The National Economic Development (NED) alternative will be developed and is the alternative that reasonably maximizes net economic benefits consistent with protecting the nation’s environment.

“non-water resource project” plans must be formulated in accordance with economic analysis of cost and benefit procedures, but development of the NED alternative is not required. The recommended alternative plan must be the least costly socially and environmentally acceptable method of achieving the agreed-upon level of resource protection.

### **Economics Background**

With the Federal Law passage of the 2007 Water Resources Development Act, Congress directed the federal government to update and consolidate its past guidance on federal investments. The original Principles and Guidelines (P&G) was replaced by Principles, Requirements and Guidelines in 2017 (PR&G). Direction to the federal government was to establish a “more balanced consideration of economic, social and environmental objectives” (PR&G, page 1). It further states that “A broadly inclusive analysis of beneficial and adverse effects is warranted when evaluating projects...” (PR&G, page 11). PR&G states: “The exclusion of relevant benefits and costs, biases the results and reduces the

robustness of a monetized benefit-cost analysis (BCA). A PR&G analysis should consider other quantified and qualified effects..." (PR&G, page 37).

### **Economic Application for Projects Funded Pre-April 2018**

Water resource project plans must be formulated in accordance with all requirements of the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (P&G). Formulation will be based on the stated purpose and the need for action. The National Economic Development (NED) alternative will be developed and is the alternative that reasonably maximizes net economic benefits consistent with protecting the nation's environment.

### **Economic Application for Projects Funded Post-April 2018**

As of April 2019, P&G was replaced with Principles, Requirements, and Guidelines (PR&G). Water resource project plans must now be formulated in accordance with all requirements of PR&G.

DECISION MEMORANDUM FOR THE ACTING CHIEF, Implementation of the Principles, Requirements, and Guidelines for NRCS Watershed Programs, April 2018, Decision Process:

*"The Federal Objective, as set forth in the Water Resources Development Act of 2007, specifies that Federal water resources investments shall reflect national priorities, encourage economic development, and protect the environment by:*

- (1) seeking to maximize sustainable economic development;*
- (2) seeking to avoid the unwise use of floodplains and flood-prone areas and minimizing adverse impacts and vulnerabilities in any case in which a floodplain or flood-prone area must be used; and*
- (3) protecting and restoring the functions of natural systems and mitigating any unavoidable damage to natural systems."*

*"PR&G allows for maximizing public benefits (of all types) relative to costs, the use of quantified and unquantified information in the tradeoff analysis, flexibility in decision making to promote localized solutions, ability to rely on the best available science and objectivity, and advance transparency for Federal investments in water resources."*

PR&G, Part 9 ECONOMIC ANALYSIS, 1st paragraph states:

*"Federal investments in water resources as a whole should strive to maximize public benefits, with appropriate consideration of costs. Public benefits encompass environmental, economic and social goals; include monetary and non-monetary effects; and allow for the consideration of both quantified and unquantified measures."*

PR&G Part 4 ANALYTIC REQUIREMENTS E. Integration with Existing Processes, including NEPA, (1) PR&G and NEPA (a) Comparing PR&G and NEPA 1. Federal Objective:

*"The lead agency's purpose and need for the proposed action frames the NEPA analysis, and is not part of the PR&G analysis."*

PR&G Part 9 ECONOMIC ANALYSIS a. Benefit-Cost Analysis (1) Benefits (d) Other Direct Benefits and Externalities:

*"Many economic activities provide incidental benefits which represent net increases in national economic efficiency to parties other than those for whom the project was intended. The occurrence of these benefits are considered incidental or external to the main project beneficiaries and the purpose for which the plan is being formulated."*

*A beneficial externality can be defined as an increase in utility or welfare due to the increase in output of goods and services and incidental reductions in production costs to indirect beneficiaries under conditions with the activity. The increase or reduction is compared to the FWOFI(no action) and accounts for the opportunity cost of any additional factors of production employed by the indirect beneficiaries.*

*The term “indirect beneficiaries” in this definition means firms or individuals benefitting from the project other than the direct users of project outputs. “Opportunity cost” means the income, produced by a factor of production in its next best alternative use. This concept is a critical part of the definition because only the increase in goods and services of production over its return without the project may be properly identified as an externality. For example, the return to labor and capital resources imported into the study area would not be considered an externality because presumably these resources could have earned an approximately equal return elsewhere in the national economy.*

*There are no uniform factors which can be applied to direct benefits to estimate other direct benefits/externalities, but the same methods or procedures used to measure direct benefits can be used. Identification and measurement must be treated on a case-by-case basis and care should be taken to eliminate the possibility of any double counting.”*

## **Benefits/Costs**

PR&G defines two types of benefits, direct and incidental; incidental meaning benefits that accrue to the public outside the watershed project boundaries. Both types of benefits “represent net increases in national economic activity” (PR&G, page 42) and therefore should be counted in the BCA.

The National Water Management Center summed this issue up best in this example: “If a reservoir was built for the purpose of Flood Prevention, the immediate recognizable benefits would be flood reduction benefits. However, there is also a use demand by recreational users, who by definition are non-primary beneficiaries, are benefitting from the project even though recreation is a non-stated purpose. These recreation benefits are considered “incidental” but are direct benefits that can be counted. If costs were planned to be spent for recreation, then it becomes a purpose.”

The Plan-EA designated project purpose does not limit what may or may not be counted as project “benefit”. In layman’s terms, project benefits are simply any benefits that come to be due to the implementation of the project. The concept of ecosystem services has emerged over the past several decades as a way of framing and describing the comprehensive set of benefits that people receive from nature. They can be characterized as the ecological goods and services provided by a healthy, functioning environment. Four examples of service categories are (PR&G, page 42):

- Provisioning services are tangible goods provided for direct human use and consumption, such as food, fiber, water, timber or biomass.
- Regulating services maintain a world in which it is possible for people to live, providing critical benefits that buffer against environmental catastrophe – examples include flood and disease control, water filtration, climate stabilization, or crop pollination.
- Supporting services refer to the underlying processes maintaining conditions for life on Earth, including nutrient cycling, soil formation, and primary production.
- Cultural services make the world a place in which people want to live – recreational use, spiritual, aesthetic viewsheds, or tribal values.