

Water Supply Seminar

**U.S. Army Corps of Engineers
Institute for Water Resources
Alexandria, VA 22315**

***Authorities
Policies
Procedures***

Economic Analysis

***Reallocation
Reallocation Group Exercise***

***Database
Water Supply Study
Emerging Issues
National Needs***

***Model Format for
Reallocated Storage***

**Prepared by:
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Lost Creek Lake and William L. Jess Dam
Rogue River Basin, Oregon

PREFACE AND ACKNOWLEDGEMENTS

In the fall of 2002, the Corps of Engineers reinstated the Planning Associates (PA) Program. The PA Program is monitored in Headquarters, USACE (HQ) by Mr. Russell S. Rangos. As part of this program, the Northwestern Division was tasked to put together a one-week module that covered hydropower, water supply and recreation. Each of the components would be a one-day session followed by a field trip later in the week. Mr. Martin L. Hudson, Chief of Planning in the Portland District was responsible for the development of the weeklong program. Mr. Hudson, in the development of the program contacted the author of this report who agreed to be responsible for developing and teaching the water supply class. The author then proceeded to search for assistance for this endeavor. Three outstanding Corps employees and leaders in their field readily agreed to participate. These three were: Steven R. Cone, HQ; Edwin J. Woodruff, Northwestern Division; and Janet Holsomback, Tulsa District.

The report presented herein is a slightly modified version of the presentations given to the PA class. It has been modified by lessons learned during the class. The material presented herein is meant to be a starting point for any similar one-day water supply seminar that may be given in the future. While laws, policies and procedures do change, the use of this report as a starting point will prevent the need to “reinvent the wheel.”

The author wishes to first thank his three co-presenters who willingly and unselfishly gave of their time and energy to make this a truly professional seminar. Special recognition must also go to the eight Planning Associates who made up the class. Their professionalism, thought provoking comments and insights on how the program could be improved is much appreciated. All presenters as well as the class of Planning Associates owe Mr. Hudson a vote of thanks for the outstanding manner he served as the program coordinator, facilitator and host.

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INTRODUCTION

The Planning Associates (PA) Program was reinstated in fiscal year 2003 to be a pilot program of the highly successful development program, which spanned four decades until it was terminated in the mid '90's. This restructured version of the PA Program, which has been dubbed "Not your father's PA Program," was designed to distill all the elements of the original PA Program while recognizing today's demographic realities. The goals of the program are to broaden the competencies of high potential fully functional planners who will guide complex planning studies that lead to quality decision documents and who will provide water resources leadership in the future. While the former format of the PA Program was an 11-month residency at the Water Resources Support Center at Ft. Belvoir, VA the modern program consists of training modules requiring 13-15 weeks of TDY taken in 1-2 week segments spread over 8 months.

Those selected for the 2003 fiscal year PA Program were:
Jonathan Brown, Economist, Buffalo District
Noel Clay, Community Planner, Wilmington District
Kayla Eckert, Community Planner, Phoenix Area Office, Los Angeles District
Margaret Johannig, Physical Scientist, Tulsa District
David A. Martinson, Civil Engineer, Alaska District
Steven Pugh, Ecologist, Baltimore, District
Bruce Sexauer, Civil Engineer, Seattle, District
Bradley Thompson, Community Planner, Rock Island District

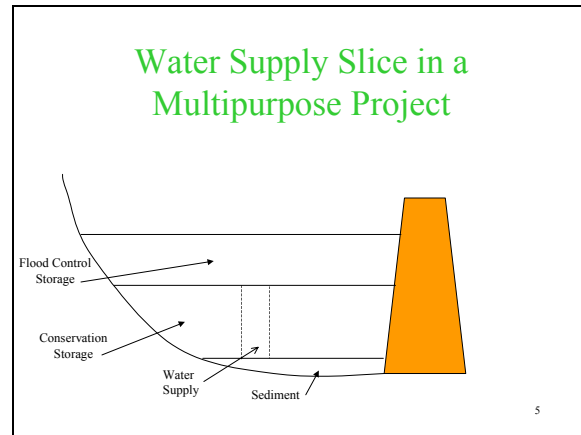
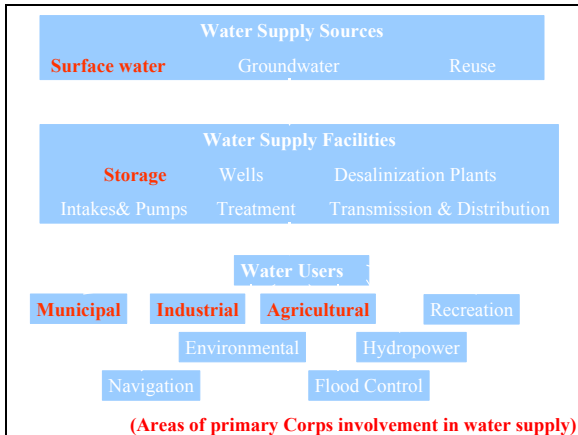
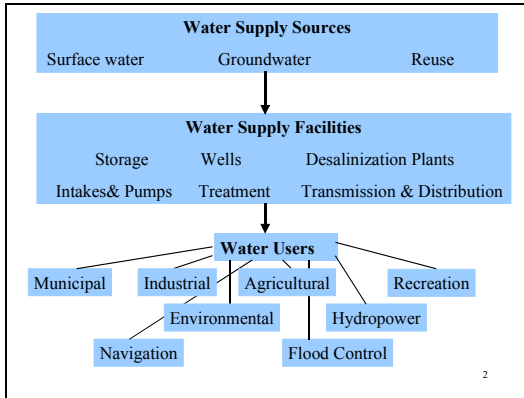
One of these Planning Associate modules took place during the week of 23-27 June 2003 in Portland, Oregon. This series of classes covered the Corps programs of hydropower, water supply and recreation. The report presented herein is a "remodeled" version of the one-day water supply seminar presented on 24 June. The report is a remodeled version as it has been slightly reformatted based on "lessons learned."

The format of the water supply class and presenters were as follows:
Authorities, Policies and Procedures: Steve Cone
Water Supply Economic Analysis: Ed Woodruff
Reallocation and Reallocation Group Exercise: Janet Holsomback
Database, Water Supply Study, Emerging Issues and National Needs: Ted Hillyer
Review of Standard Water Supply Format for Reallocations: Steve Cone

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AUTHORITIES POLICIES and PROCEDURES

Presentation by Steven R. Cone
 Policy Compliance Support Branch
 Directorate of Civil Works
 Headquarters USACE



- ## WATER SUPPLY Guidance
- ER 1105-2-100 PGN
www.usace.army.mil/inet/functions/cw/cecwp/pgncover
 - EP 1165-2-1 Policy Digest
www.usace.army.mil/inet/functions/cw/cecwp/digest/index
 - IWR Report 96-PS-4 Water Supply Handbook
www.iwr.usace.army.mil/iwr/pdf/96ps4.pdf
 - Steve Cone (CECW-PC) 202/761-4591

- ## WATER SUPPLY Primary Authorities
- Section 6 of the Flood Control Act of 1944
 - Section 8 of the Flood Control Act of 1944
 - The Water Supply Act of 1958

WATER SUPPLY Primary Authorities

- Sec. 6, 1944 FCA:
 - Sec Army can enter into agreements for surplus water with states, municipalities, private entities and individuals.
 - Prices and terms as he/she deems reasonable.
 - Agreements for M&I but not for crop irrigation.
- Sec. 8, 1944 FCA:
 - Include irrigation in Corps lakes in 17 contiguous Western States upon recommendation of Sec DoI and in conformity with reclamation law.
 - DoI constructs, operates and maintains irrigation works and enters into agreements for use of storage.

WATER SUPPLY Primary Authorities

- Title III, 1958 R&HA, “The 1958 Water Supply Act”:
 - Include M&I water supply storage in reservoir projects.
 - Reallocate storage in existing projects to M&I water supply.
 - Modification to add M&I water supply which would seriously affect other authorized purposes require congressional authorization.
 - Section 301 (a): *“It is hereby declared to be the policy of the Congress to recognize the primary responsibilities of the States and local interests in developing water supplies for domestic, municipal, industrial and other purposes and that the Federal Government should participate and cooperate in developing such water supplies in connection with the construction, maintenance and operation of Federal navigation, flood control, irrigation or multiple purpose projects.”*

WATER SUPPLY Secondary Authorities

- The War Dept. Civil Appropriations Act of 1938
- PL 88-140, 1963
- Section 22 of WRDA 74 (PL 93-251)
- Sec. 82 of WRDA 74 and 1974 Disaster Relief Act
- Sections 103, 931 and 932 of WRDA 1986 (PL99-662)
- Section 322 of WRDA 90 (PL 101-640)
- Non-traditional Authorizations (WRDA 86 – WRDA 00)
- 1952 Independent Offices Appropriation Act (31 U.S.C. 9701)

WATER SUPPLY Secondary Authorities

- The War Dept. Civil Appropriations Act of 1938:
 - Sec Army can receive contributed funds for adding water supply to flood control reservoir projects
- PL 88-140, 1963:
 - Non-Federal sponsor has right to use of storage for the physical life of the project.
- Sec. 22 of WRDA 74:
 - Provide planning assistance to states, including the preparation of comprehensive plans for water resources development and conservation.
- Sec. 82 of WRDA 74 and 1974 Disaster Relief Act
 - Provide emergency supply of water and construct wells and transport water in drought areas

WATER SUPPLY Secondary Authorities

- Sec. 103, WRDA of 1986:
 - Non-Federal cost sharing for M&I water supply = 100%
 - Non-Federal cost sharing for agricultural water supply = 35%
- Sec. 931, WRDA of 1986
 - Sec Army can allocate M&I water not under repayment agreement for interim irrigation.
- Sec. 932, WRDA of 1986
 - Modifies the 58 WSA for Corps projects but not Bureau Rec. projects.

WATER SUPPLY Secondary Authorities

- Section 322 of WRDA 90: Provides for a reduced price of water for low income communities.
- Non-traditional Authorizations: - 66 provisions in since WRDA 86. Studies and projects authorized for planning, design & construction assistance in water quality/wastewater treatment, water supply and distribution systems, reuse systems, streamflow enhancement, drainage facilities and flooding.
- 1952 Independent Offices Appropriation Act

WATER SUPPLY
Cost Sharing Policies for M&I Storage

- Three Main Situations
 1. Pre-WRDA '86
 2. Reallocations/Project Modifications
 3. Post WRDA '86
- All revenue received goes to U.S. Treasury

WATER SUPPLY
Cost Sharing Policies for M&I Storage

- Pre-WRDA '86 Projects
- Non-Federal sponsor pays 100% of investment cost with interest
- 1st 10-years interest free
 - Interest based on year the project went under construction.
 - 30-year repayment from plant-in-service date
 - Pro-rata share of OMRR&R costs
 - All conveyance, treatment, and distribution; Non-Federal

WATER SUPPLY
Cost Sharing Policies for M&I Storage

- Reallocations and Project Modifications
- Non-Federal sponsor pays 100% of new construction costs during construction
 - If storage reallocated, sponsor repays over 30-years with interest
 - Interest rate as established in Section 932 of WRDA '86
 - Pro-rata share of OMRR&R costs
 - All conveyance, treatment, and distribution; Non-Federal

WATER SUPPLY
Cost Sharing Policies for M&I Storage

- Post WRDA '86 Projects
- Non-Federal sponsor pays 100% of new construction costs during construction*
 - Pro-rata share of OMRR&R costs
 - All conveyance, treatment, and distribution; Non-Federal
- * This is policy, law permits repayment over 30-years with interest at WRDA '86 rate

WATER SUPPLY
Additional Policies

- Reallocations at Existing Projects
 - Higher of updated costs, revenues forgone, benefits forgone, or replacement costs
 - Limit to users most likely alternative
 - User acquires a permanent right to storage
 - Separate presentation on reallocation will follow
- Surplus Water
 - Interim Use (normally 5-years)
 - Annual price same as reallocation and includes a pro-rata share of OMRR&R

WATER SUPPLY
Additional Policies
Addition of Water Supply Storage and Seasonal Operations

- Use "WILLINGNESS TO PAY" Concepts.
- Non-Federal Share is 100% of costs of all modifications/construction, payment of losses to others, plus a pro-rata share based on the time of the year used
- Upper Limits on non-Fed costs
- May Require Authorization

WATER SUPPLY
Additional Policies

Section 221 and M&I Agreements

- Non-Federal parties to water storage agreements must meet the requirements of Section 221 of the 1970 FCA, as amended, where costs are incurred for new construction activity. Under Section 221, such parties must be a “legally constituted public body.”
- The requirements of Section 221 do not apply to sales of storage originally included at projects where construction commenced before 1 January 1972 or where new construction activity is not required. In these cases, all non-Federal interests (public or private) are eligible.

WATER SUPPLY
Additional Policies

Irrigation

- Western States
 - Bureau of Reclamation
 - Corps of Engineers
- Outside Western States

WATER SUPPLY ECONOMIC ANALYSIS

Presentation by Edwin J. Woodruff
Planning and Policy Division
Civil Works Management Directorate
Northwestern Division

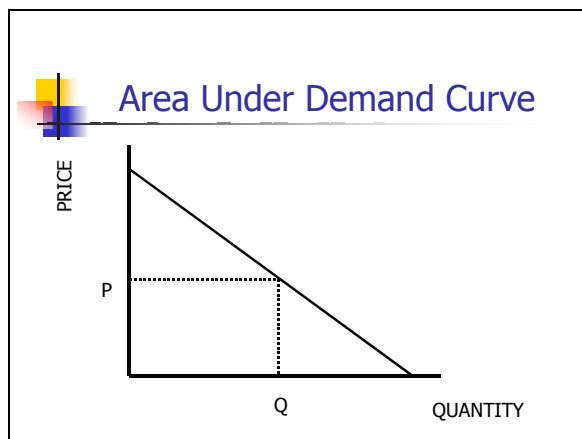
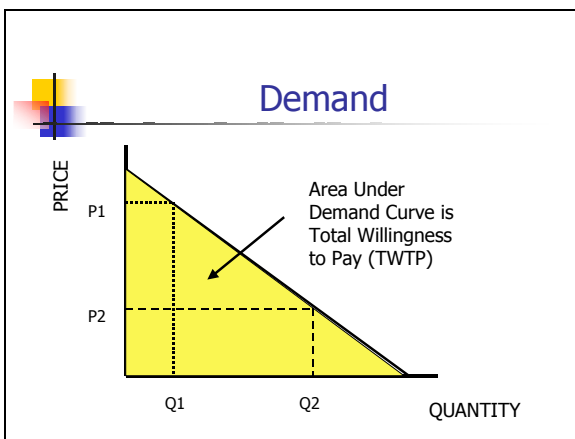
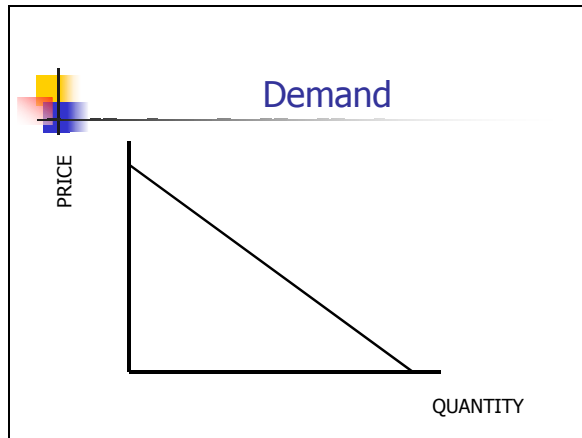
Water Supply Economic Analysis

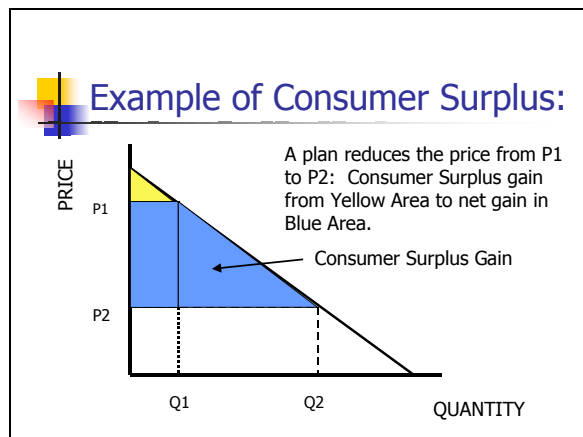
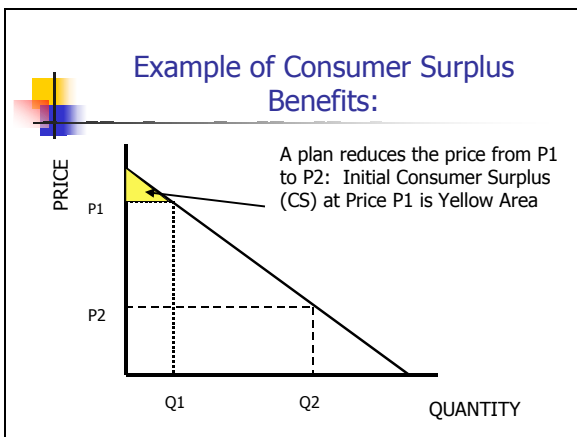
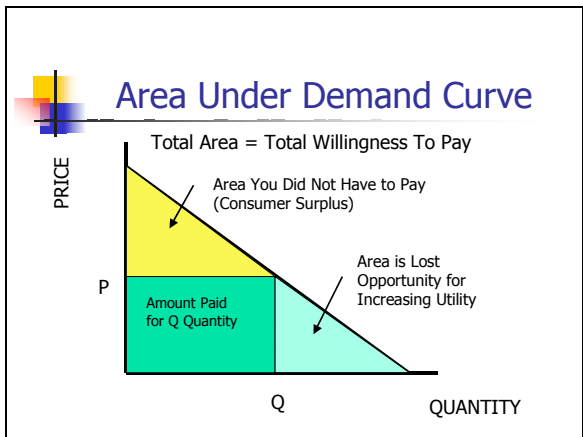
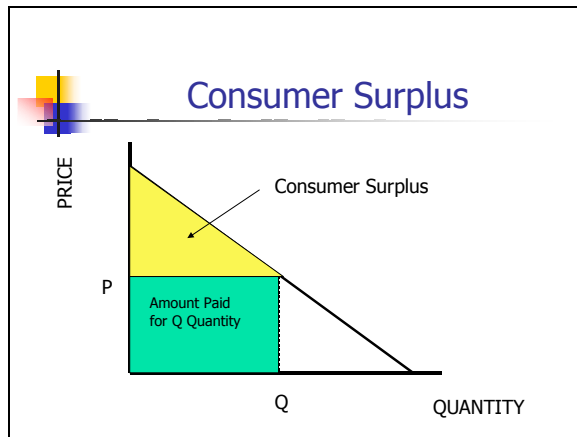
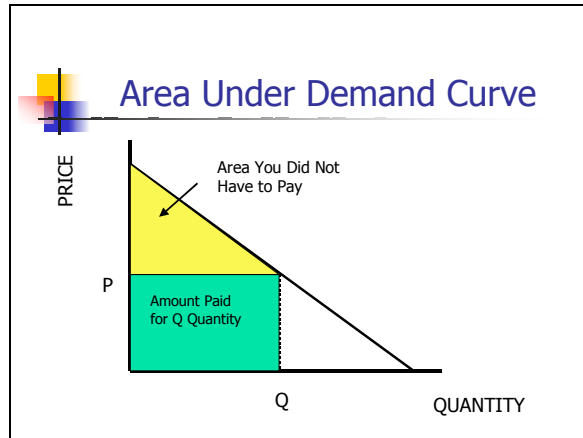
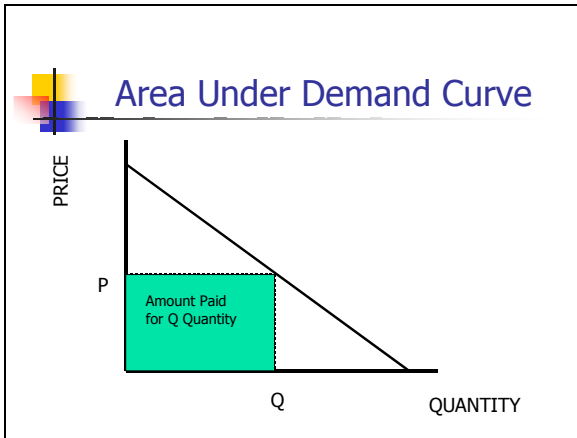
Water Supply Economic Analysis

- Objective: The student will be able to describe the methodology for computing NED benefits for Water Supply projects.

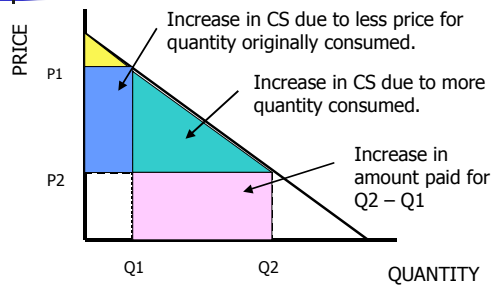
Water Supply Economic Analysis - Outline

- Economic Concepts
- Water Supply Analysis – Steps
- Short Examples





Components of Consumer Surplus:



Conceptual Basis For NED

- **From the P&G:**
- Society's willingness to pay for the increase in the value of goods and services attributable to the water supply. **Where the price of water reflects its marginal cost**, use that price to calculate willingness to pay.

Conceptual Basis For NED

- Water Supply **is normally priced on the average**, not on the margin. So, must use one of the other accepted methods described in P&G.

WTP Benefit Estimation

- Actual or simulated market price
- Change in net income
- Cost of the most likely alternative
- Administratively established values

Conceptual Basis For NED

- **From P&G:**
- In the absence of such direct measures of marginal willingness to pay, the benefits from a water supply plan are measured instead by the resource cost of the alternative **most likely to be implemented in the absence of that plan.**

Benefit Analysis - Steps

- **Step 1 - Identify the Study Area**
 - Area where significant impacts will accrue from use of water supplies.
 - Area that will incur benefits and/or costs from the water supply – direct or indirect effects



Benefit Analysis - Steps

- **Step 2 - Estimate Future M&I Water Supplies**
 - Sources of supply expected to be available to the M&I water user
 - Analysis should be by time period and include existing water supplies, institutional arrangements, additional water supplies, and water quality.



Benefit Analysis - Steps

- **Step 3 - Project Future M&I Water Use**
 - Project future water use by sector in consideration of seasonal variation.
 - By time of use – seasonal, maximum day use.
 - Determine the relevant determinants of water demand



Benefit Analysis - Steps

- **Step 4 - Identify the Deficit Between Future Water Supplies and Use**
 - Look at quantity, frequency, and duration of expected deficits.
 - Identify probable non-structural, conservation measures.
 - Identify more efficiency through structural measures.



Benefit Analysis - Steps

- **Step 5 - Identify Alternatives Without Federal Plan**
 - Identify plans likely to be implemented by communities or industry.
 - May not be a single source, but a combination.
 - Consider and discuss institutional obstacles.



Benefit Analysis - Steps

- **Step 6 - Rank and Display the Alternative Plans Based on Least Cost Analysis**
 - Rank from highest cost to lowest.
 - Calculate costs based on Federal discount rate, no taxes or insurance.
 - Include any external diseconomies.



Benefit Analysis - Steps

- **Step 7 - Identify the Most Likely Alternative**
 - Normally the least cost alternative.
 - If not least cost, present justification for selecting the higher cost plan.



Benefit Analysis - Steps

- **Step 8 - Compute M&I Water Supply Annualized Benefits**
 - Benefits of Federal project equal the annualized cost of most likely alternative.
 - Must reflect differences in treatment, distribution and other costs.
 - For very small communities, alternatives may not exist.



Economic Evaluation Concepts: Reallocations

- Identify and measure benefits and costs using “with and without” principle and “willingness to pay” principle
- Benefit is most-likely, least costly alternative
- Apply opportunity cost concept (e.g. what is foregone)



Summary



NED Conceptual Benefits

- Benefits based on the costs of the most likely alternative to be implemented in the absence of the Federal project.



Benefit Analysis - Steps

- **Step 1 - Identify the Study Area**
- **Step 2 - Estimate Future M&I Water Supplies**
- **Step 3 - Project Future M&I Water Use**
- **Step 4 - Identify the Deficit Between Future Water Supplies and Use**



Benefit Analysis – Steps (Cont.)

- **Step 5 - Identify Alternatives Without Federal Plan**
- **Step 6 - Rank and Display the Alternative Plans Based on Least Cost Analysis**
- **Step 7 - Identify the Most Likely Alternative**
- **Step 8 - Compute M&I Water Supply Annualized Benefits**

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MUNICIPAL and INDUSTRIAL WATER SUPPLY: REALLOCATION

Presentation by Janet Holsomback
Water Supply Specialist
Programs and Project Management Office
Tulsa District

MUNICIPAL & INDUSTRIAL WATER SUPPLY

REALLOCATION

- ### OBJECTIVES
- Provide background information and authorization authorities associated with reallocations
 - Familiarize the PA class with contents required in a reallocation report
 - Introduce the PA class to the 4 economic analysis methods of pricing reallocated storage

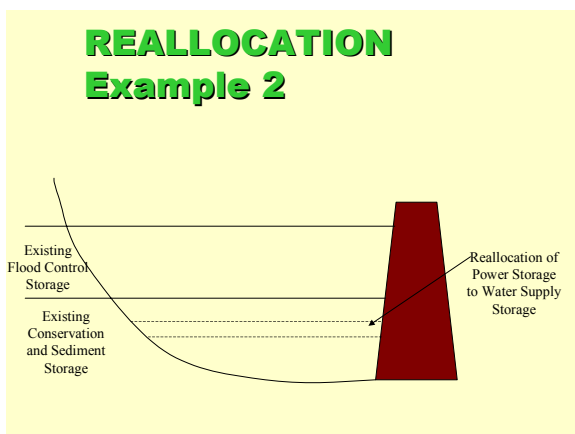
- ### OUTLINE
- Historical Information on Reallocations
 - Opportunities for Reallocation
 - Approval Authorities
 - Cost Analysis
 - Report Requirements
 - Group Exercise

HISTORICAL INFORMATION

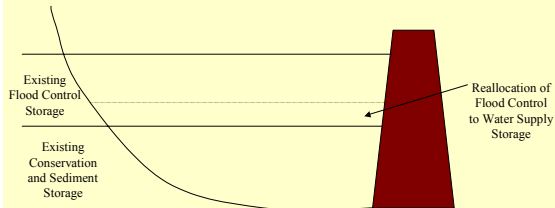
REALLOCATION

Summary of Reallocations 1965-1998

Reallocated From	Number of Reallocations	Storage Reallocated (Acre-Feet)
Hydropower	22	170,900
Flood Control	33	156,400
Conservation	13	128,600
Other	6	56,700
TOTAL	74	512,600



REALLOCATION Example 1



REALLOCATION DISTRICT DISTRIBUTION

District	Number	Acre-Feet
Baltimore	1	24,335
Wilmington	4	10,840
Savannah	6	2,795
Louisville	4	1,215
Rock Island	1	14,900
Vicksburg	2	3,575
Nashville	5	17,433
Kansas City	8	89,685

REALLOCATION DISTRICT DISTRIBUTION

District	Number	Acre-Feet
Little Rock	12	107,555
Fort Worth	2	97,526
Tulsa	45	215,300

REALLOCATION Costs for Reallocation Studies

Study	Report	NEPA	GIS	Total
#1	\$500k	\$270k	0	\$770k
#2	\$500k	\$511k	0	\$1.011M
#3	\$350k	\$500k	\$425k	\$1.275M

REALLOCATION STUDIES UNDERWAY

DISTRICT	NO. STUDIES
Huntington	1
Mobile	1
Nashville	4
Little Rock	1
Tulsa	6

REALLOCATION

OPPORTUNITIES

OPPORTUNITIES FOR REALLOCATION

- Reallocation of Flood Control Storage
 - Dependable Yield Mitigation Storage
- Reallocation of Sediment Storage
- Reallocation of Conservation Storage
 - Water Quality
 - Hydropower (most common)
 - Irrigation
 - Other

OPPORTUNITIES FOR REALLOCATION

- Water supply not under contract
- Modification of existing dam
- Operational changes
- System regulation of Corps non-Corps projects

OTHER OPPORTUNITIES FOR REALLOCATION

- Created through new partnerships with states and other agencies
- Memorandums of Understanding
 - State of Kansas
 - Special Legislation

REALLOCATION

APPROVAL AUTHORITIES

Water Supply Approval Authority

- WSA of 1958, as amended, allows reallocation without Congressional approval if it doesn't have a severe impact on original project purposes and involve major structural or operational changes

Water Supply Approval Authority

- Reallocation is permitted for M&I water supply only (exceptions)
- Corps policy limits reallocations to 50,000 acre-feet or 15% of the total usable storage, whichever is less

APPROVAL OF REALLOCATIONS

- **CONGRESS** – if severe effect on other authorized project purposes or would involve major structural or operational changes
- **SECRETARY OF THE ARMY** – if > 15% of total storage or > 50,000 acre-feet **and** not requiring Congressional approval

APPROVAL OF REALLOCATIONS

- **COMMANDER, USACE** – if <15% or <50,000 acre-feet **and** not requiring Congressional approval*
- **DIVISION COMMANDER** – if <499 acre-feet –delegated from Commander, USACE*

APPROVAL OF REALLOCATIONS EXCEPTIONS

- All reallocation reports are submitted to the ASA(CW) with the draft water supply agreement
- When the cumulative amounts of storage exceed the lesser of 4,000 acre-feet or 10% of available storage, reports will be submitted to HQ for review by the ASA(CW)

REALLOCATION Other Information

- Reallocation action - satisfies immediate needs
- Immediate need is the amount of storage the sponsor will make payment for immediately.
- Reallocation action is not complete until an agreement for immediate needs is approved.
- The reallocation report can cover more storage than needed for use in the near future by other users

REALLOCATION

COST ANALYSIS

Economic Evaluation of Reallocation is Application of Benefit-cost Analysis

- Identify and measure benefits and costs using “with and without” principle and “willingness to pay” principle
- Benefit is most-likely, least costly alternative
- Apply opportunity cost concept (i.e., what is foregone)

Cost Analysis of Reallocated Storage

1. Benefits Foregone
 - opportunity costs from economic evaluation
2. Revenues Foregone
 - revenues to Treasury lost due to reduced power production (current power rates)
3. Replacement Costs
 - replacement cost of flood control
 - benefits foregone for hydropower
4. Updated Cost of Storage

Cost Analysis of Reallocated Storage

1. **Benefits Foregone**
 - based on the cost of the most likely alternative source of power (sum of capacity and energy)
 - generally estimated using standard Corps NED evaluation criteria
 - estimated for the remaining economic life of project or 50 years which is greater

Cost Analysis of Reallocated Storage

- Definitions:
- Capacity – the maximum power that can be produced by a generating resource at specified times under specified conditions; the real power output rating of a generator or system expressed in megawatts.
- Energy – the capability of doing work (potential energy), expressed in terms of kilowatt-hours or the conversion of this capability to motion (kinetic energy). Energy used by a typical household is 175,000 kWh/year.

Cost Analysis of Reallocated Storage

2. **Revenues Foregone**
 - from hydropower - reduction in revenues accruing to the Treasury as a result of the reallocation
 - based on existing rates charged by the PMA
 - from other project purposes – reduction in revenues accruing to the Treasury based on any existing repayment agreements.

Cost Analysis of Reallocated Storage

3. **Replacement Costs**
 - considered equal to the benefits foregone; calculated by P&G procedures for hydropower benefits evaluation
 - if existing contracts with customers exist, estimated as PMA's cost of obtaining power from least costly alternative for duration of the contracts.
 - when contracts expire the remainder period of analysis should be equal to benefits foregone

Cost Analysis of Reallocated Storage

4. **Updated Cost of Storage =**

$$\frac{(TC-SP) \times \text{Storage reallocated (ac-ft)}}{\text{Total usable storage space (ac-ft)}}$$
 - TC = total cost of construction updated using Civil Works construction Cost Index System (CWCCIS) and ENR
 - SP = specific costs are costs of identifiable project features for a specific purpose updated using CWCCIS and ENR

REALLOCATION

Hydropower Credit

Where Federal Hydropower is affected:

- **if hydropower revenues are reduced, the Power Marketing Agency (PMA) will be credited for the amount of revenues foregone to the Treasury**
- **where existing PMA contracts require acquisition of replacement power, additional credit covering costs can be made to PMA for duration of contracts**

REALLOCATION REPORT GROUP EXERCISE

Presentation by Janet Holsomback
Water Supply Specialist
Programs and Project Management Office
Tulsa District

REALLOCATION REPORT GROUP EXERCISE

- ### PURPOSE OF REALLOCATION REPORT
- Identify and quantify new use and user
 - Evaluate impacts on other purposes and users
 - Determine environmental effects
 - Determine price to be charged new user
 - Determine appropriate compensation, if any, to existing users

- ### REALLOCATION REPORT REQUIREMENTS
1. Purpose
 2. Project Background
 3. Economic Analysis (reallocation feasibility)
 4. Derivation of User Cost
 5. Test of Financial Feasibility
 6. Cost Account Adjustments
 7. Environmental Consideration
 8. Conclusions
 9. Recommendation of District Commander
 10. Appendices

REALLOCATION REPORTS

PURPOSE OF REPORTS

- ### Reallocation Report Purpose
- Who is requesting the M&I water supply and what amount of storage is involved?
 - The city of Cartersville, Georgia has requested an addition 3.6 MGD. It will take 1,436 acre-feet to yield the 3.6 MGD.

- ### Reallocation Report Purpose
- Why is Cartersville requesting the reallocation?
 - They have an immediate need for additional storage so that the Anheuser-Bush Brewery can expand its existing brewing plant.

Reallocation Report Project Background

- Briefly identify the Project authorization and construction history.
- Flood Control Acts of 1941 and 1944 for FC and HP, with WS and Rec as additional functions. Construction began in March 1944 and completed in Oct 1955. Impoundment began in 1949 and filled in 1950.

Reallocation Report Project Background

- Where is the Project located? What are its purposes and outputs?
- Physical location – 4 mi W of Lake Allatoona close to Atlanta metro area. FC, HP, WS and Recreation

Reallocation Report Project Background

- Have there been other reallocations? Who were they for and how much storage was involved?
- Yes, previous reallocations for Cartersville and Cobb County Marietta Water Authority for a total of 19,511 af. has already been reallocated. 6,371 af for Cartersville (16.8 mgd) and 13,140 for Cobb Co (34.51 mgd)

Reallocation Report Project Background

- What is the authority that allows us to accomplish this reallocation? What is the approval authority level for this report?
- Authority is the Water Supply Act of 1958, as amended; the report is within the discretionary authority of the Commander, USACE. Why? Because it is <15% and <50,000 af.

Reallocation Report Project Background

- Was a water supply demand analysis performed? How are the demands expected to increase over the study period?
- Yes, a water demand analysis was performed. Cartersville will have a demand of 22.05 mgd in the year 2005. They already had an average daily withdrawal during low-flow periods of 16.8 mgd and they exceeded their withdrawal allowances in the year 2000.

Reallocation Report Project Background

- Does this fit the definition of a reallocation action?
- Yes, this reallocation storage will be to satisfy the City of Cartersville's immediate needs.

Reallocation Report Economic Analysis Alternatives

- What water supply alternatives were investigated?
 - No Action
 - Construct Reservoirs
 - Divert water below Allatoona Dam
 - Use of Groundwater
 - Use of Flood Control Storage
 - Interim Water Supply Contract
 - Conservation Methods
 - Divert Water from another Basin

Reallocation Report Derivation of Users Cost Reallocation of Flood Control Storage

- Lost FC benefits in the entire system must be investigated as well as impacts on other purposes (HP, recreation, existing water supply users). Was reallocation of flood control considered in this report?
- Considered in the alternatives but no cost analysis was performed.

Reallocation Report Derivation of User Cost Benefits Foregone

- What are hydropower benefits based on?
 - Cost of most likely alternative source of power to replace that lost by the reallocation (sum of energy and capacity)
- What are the annual energy and capacity losses?
 - Energy \$26,280
 - Capacity 1,500
 - Annual Benefits \$27,780
- What is the amount of hydropower benefits foregone?
 - \$458,090 over the 50-year economic life at 6-1/8% interest

Reallocation Report Derivation of User Cost Revenues Foregone

- What do hydropower revenues foregone represent?
 - Represents the value of the income lost to the regional PMA as a result of the reallocation (sum of capacity and energy)
- What is the annual amount of hydropower revenues foregone?
 - Energy \$ 4,050
 - Capacity 18,481
 - Annual Benefits \$22,468
- What is the amount of revenues foregone based on the economic life?
 - \$370,530 over the 50-year economic life at 6-1/8% interest

Reallocation Report Derivation of User Cost Replacement Cost

- Replacement cost of power for a reallocation is an NED cost. By definition, replacement power is identical to what?
 - Identical to power benefits foregone
- What is the value of the replacement cost for this reallocation report?
 - \$458,090

Reallocation Report Derivation of User Cost Updated Cost of Storage

Updated Cost of Storage = $\frac{\text{Updated Joint Use Costs} \times \text{Storage Reallocated (AF)}}{\text{Total Usable Storage Space (AF)}}$

- Updated Cost of Storage = $\frac{\$266,139,050 \times 1,436 \text{ AF}}{588,000 \text{ AF}}$
- Updated Cost of Storage = \$ 649,379

Reallocation Report Derivation of User Cost Summary of Costs

Benefits Foregone	\$458,090
Revenues Foregone	\$370,530
Replacement Cost	\$458,090
Updated Cost of Storage	\$649,400

Reallocation Report Financial Feasibility

- The governing annual cost of storage derived in the analysis is compared to what?
- Most likely, least costly alternative that provides an equivalent quantity and quality of water the User would have to use if the Federal project wasn't there.

Reallocation Report Conclusion

- What does the report suggest we do?
- Because of the minimal impact to other project purposes it was concluded that storage be reallocated from the hydropower pool.

REALLOCATION REFERENCES

- ER 1105-2-100, the "Planning Guidance Notebook"
- IWR Report 96-PS-4, the "Water Supply Handbook"

DATABASE, WATER SUPPLY STUDY, EMERGING ISSUES AND NATIONAL NEEDS

Presentation by Theodore M. Hillyer
Senior Policy Analyst
Planning and Policy Studies Division
Institute for Water Resources

WATER SUPPLY

- DATABASE
- WATER SUPPLY STUDY
- EMERGING ISSUES and NATIONAL NEEDS

1

WATER SUPPLY Investment - 1996 Data

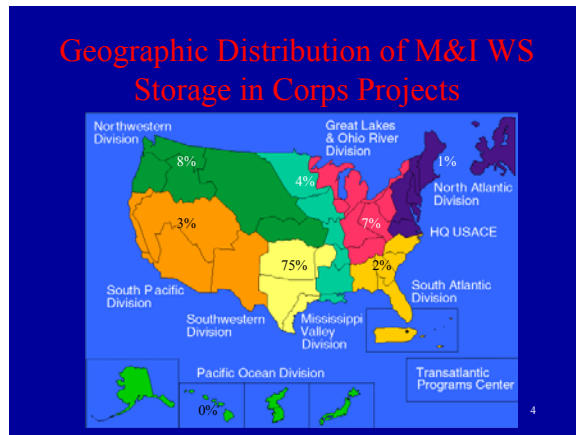
- 9.5 million AF of M&I storage space in 117 reservoirs
- 24 States + PR, covered by 237 water supply agreements
- \$1.3 billion in contract value
- 775,000 AF of M&I storage in 20 reservoirs not under contract.
- 57 million AF of storage for irrigation and other uses in 40 reservoirs
- Over 500 reservoirs where possibility exists to add M&I storage

2

WATER SUPPLY M&I Storage Distribution

Division Proj./Cont.	Storage Space (acre-feet)		
	Present Use	Future Use	Total
NAD: 7/8	138,450	4,000	142,450
SAD: 10/19	120,626	96,740	217,366
LRD: 17/19	577,940	53,469	631,409
MVD: 6/5	181,900	187,750	369,650
NWD: 12/15	184,360	622,880	807,240
SWD: 63/168	4,873,217	2,012,399	6,885,616
SPD: 2/3	258,900	212,000	470,900
Total: 117/237	6,335,393	3,189,238	9,524,631

3



WATER SUPPLY M&I Contract Price Distribution

Division Proj./Cont.	Contract Price (\$000)			
	Present	Future	Conduit	Total
NAD: 7/8	127,133	7,500	0	134,633
SAD: 10/19	107,984	9,586	219	117,789
LRD: 17/19	54,393	15,996	68	70,456
MVD: 6/5	22,757	18,904	0	41,661
NWD: 12/15	25,032	86,623	2,696	114,351
SWD: 63/168	319,667	394,484	35,591	749,742
SPD: 2/3	8,290	96,625	0	104,915
Total: 117/235	665,256	629,718	38,574	1,333,548

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WATER SUPPLY M&I Storage Not Under Contract

State	No. Projects	Storage (AF)	% of Total
W. Virginia	1	2,200	0.3
Oregon	1	8,600	1.2
Missouri	3	101,900	13.1
Arkansas	2	167,800	23.7
Oklahoma	13	494,500	61.7
Total	20	775,000	100.0

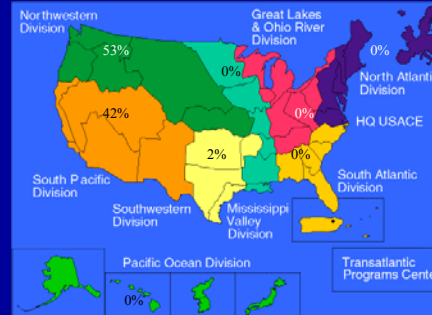
6

WATER SUPPLY Irrigation Storage Distribution

Division / Number of Projects	Non-Federal Cost (\$millions)	Joint-Use Storage (AF)	Specific Irrigation Storage (AF)
Northwestern 21	915.2	50,348,000	312,000
South Pacific 17	316.4	5,677,000	597,000
Southwestern 2	43.4	0	63,800
Total 40	1,275.0	56,025,000	972,800

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Geographic Distribution of Corps Projects that Contain Irrigation Storage



8

WATER SUPPLY Location

Corps Projects with Water Supply and Irrigation Storage



9

WATER SUPPLY Washington Aqueduct



10

Current Projects



Howard Hansen, WA



Lake Lanier, GA



Seven Oaks, CA

11

WATER SUPPLY

Comprehensive Water Supply Study

Purpose – To describe some current activities in water supply that do not fit well within current policy and procedures and to provide recommendations to fix.

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WATER SUPPLY
Water Supply Study

1. Small Contracts from Originally Authorized Storage
2. Pricing Index in Reallocations
3. Drought Contingency Water Supply
4. Seasonal Operations for M&I Water
5. Seasonal Operations for Irrigation Water
6. Repair versus Reconstruction
7. Dam Safety
8. Charging for M&I Easements
9. Administrative Costs Associated with Reallocations
10. Gross versus Net Storage
11. Additional Delegations
12. Separate Standard Formats for Water Supply Agreements

13

WATER SUPPLY
Water Supply Study

1. **Small Contracts from Originally Authorized Storage**
 - not over 10 AF; cost same as large; repay storage in lump sum and include a pro-rata share of OMRR&R
2. **Pricing Index in Reallocations**
 - use CWCCIS after 1967; land is a weighted average
3. **Drought Contingency Water Supply**
 - reinforce existing regulations

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WATER SUPPLY
Water Supply Study

4. **Seasonal Operations for M&I Water**
 - Changes the "one-half the savings" concept to "a pro-rata share based on the time of the year used."
5. **Seasonal Operations for Irrigation Water**
 - Follow the authority, pricing policies for the Bureau; notify the Bureau of any OMRR&R expenses; the Bureau to collect as part of their contractual arrangements. OR
 - Follow Corps policies and procedures.
6. **Repair versus Reconstruction**
 - In water supply agreements clarify that reconstruction is considered to be a part of repair.

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WATER SUPPLY
Water Supply Study

7. **Dam Safety**
 - Fall under the provisions of major rehabilitation; costs as described in Section 1203 of WRDA 86 (15% of costs); policy requires up front repayment.
8. **Charging for M&I Easements**
 - Changes existing regulations to "at no cost" to "in accordance with Real Estate regulations."
9. **Administrative Costs of Reallocations**
 - Modify two paragraphs in the PGN: E-57d(6) and E-57e(3)(b)(3)

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WATER SUPPLY
Water Supply Study

10. **Gross versus Net Storage**
 - Can consider net if:
 - o water supply is the only purpose in the conservation pool
 - o there is only one user of the water supply storage space
11. **Additional Delegation for Original Storage**
 - Delegated to HQUSACE with further delegation to the districts permitted
12. **Separate Storage Agreements**
 - Three separate agreements instead of one agreement with a lot of options

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WATER SUPPLY
Emerging Issues
and
National Needs

18

WATER SUPPLY **Emerging Issues**

- Low priority mission
- Financial/repayment issues
- Operation of reservoirs to meet competing demands
- Challenge of allocating water among states/competing users
- Multiple entities/conflicting criteria

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WATER SUPPLY **Emerging Issues**

- Low priority mission from budgetary standpoint
 - Definition of Federal and non-Federal roles
- Financial/repayment issues
 - No Federal cost sharing
 - Up-front payment for storage in new reservoirs
 - Pricing policies for seasonal use of water
 - Lack of financial capability - low income communities

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WATER SUPPLY **Emerging Issues**

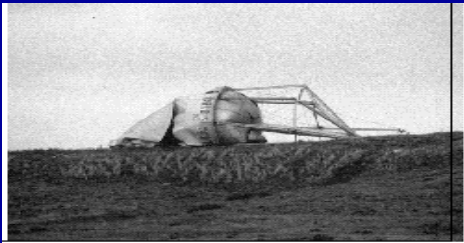
- Operation of reservoirs to meet competing demands under normal and drought conditions
- Challenge of allocating water among states/competing users
- Multiple entities, programs and activities and conflicting criteria

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WATER SUPPLY **National Needs**

- Aging infrastructure
- Improve efficiencies of local systems
- Balance competing uses
- Interstate transfer of water
- Identify conservation management measures
- Minimize geographic disparity between supply and demand centers
- Eliminate inequity in access to programs and facilities
- Assist foreign countries to meet their water needs²²

NATIONAL NEEDS **Modernize Aging Infrastructure to** **Insure Reliability and Quality**



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WATER SUPPLY **National Needs**

- Improve efficiency and reliability of local community systems.
- Balance competing uses.
- Facilitate the resolution of issues associated with interstate water transfers.
- Identify and evaluate effective conservation management measures.

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**WATER SUPPLY
National Needs**

- Eliminate/minimize geographical disparity between supply facilities and demand centers.
- Eliminate inequity in access to programs and facilities.
- Assist foreign countries to meet water resources management needs.

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**WATER SUPPLY
STRATEGIC TECHNOLOGY
REQUIREMENTS**

1. New and improved operating technologies and procedures to enhance management of projects and systems.
2. Effective analysis tools and techniques for new water supply facilities.
3. More effective (economically, environmentally, socially) structural and non-structural water supply measures.
4. Watershed/Systems level management and assessment technologies (e.g., GIS)

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**WATER SUPPLY
STRATEGIC TECHNOLOGY
REQUIREMENTS**

5. Water conservation and demand forecasting and assessment of system impacts from global climate change
6. Increased developmental priority to drought management components of water control system
7. Incorporate water management trade-off analyses into a decision support system.
8. Incorporate water management trade-off analyses into a decision support system

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SEEKING INNOVATIVE OPTIONS



28

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MODEL FORMAT FOR REALLOCATED STORAGE

Presentation by Steven R. Cone
Policy Compliance Support Branch
Directorate of Civil Works
Headquarters USACE

Three model formats for water supply storage have recently been developed: one for authorized municipal and industrial water supply storage in projects constructed or under construction prior to enactment of the Water Resources Development Act of 1986 (17 November 1986), one for authorized M&I storage in projects constructed after such date and one for reallocations. Because most water supply contracting action will be in the arena of reallocation, for this presentation, Mr. Cone limited his discussion to the following model format for reallocated water supply.

**MODEL FORMAT FOR REALLOCATED
WATER SUPPLY STORAGE AGREEMENTS**
(see www.hq.usace.army.mil/cecc/wtrsamp.pdf)

PART 2: WATER STORAGE AGREEMENT
BETWEEN THE UNITED STATES OF AMERICA
AND

FOR _____ IN
REALLOCATED WATER STORAGE SPACE _____

THIS AGREEMENT, entered into this ___ day of _____, 20__, by and between THE UNITED STATES OF AMERICA (hereinafter called the "Government") represented by the District Engineer executing this agreement, and _____ (hereinafter called the "User");

WITNESSETH THAT:

WHEREAS, the ** _____ Act of 19 __ (Public Law __, __Congress), authorized the construction, operation, and maintenance of the [Project]*** on [Waterway], [State], (hereinafter called the "Project"); and

WHEREAS, the User desires to enter into an agreement with the Government for the use of storage added to the Project by reallocation for municipal and industrial water supply, and for payment of the cost thereof in accordance with the provisions of the Water Supply Act of 1958, as amended (43 U.S.C. 390b-f); and

WHEREAS, the User as shown in Exhibit "A: attached to and made a part of this agreement, is empowered to enter into an agreement with the Government and is vested with all necessary powers of accomplishment of the purposes of this agreement [including those required by Section 221 of the Flood Control Act of 1970 (42 U.S.C. 1962d-5d) (as amended)].

Water Supply Seminar

NOW, THEREFORE, the Government and the User agree as follows:

* Other appropriate terms may be used in lieu of User here and uniformly throughout the agreement.

** Use correct authorization citation (e.g., WRDA of 19____, Public Law ____ - ____).

*** Language in [] brackets is to be used or deleted as appropriate.

ARTICLE 1 - Water Storage Space.

a. Project Construction. The Government, subject to the directions of Federal law and any limitations imposed thereby, [shall modify] [has modified] the Project so as to include therein space for the storage of water by the User.

b. Rights of User.

(1). The User shall have the right to utilize an undivided _____ percent (estimated to contain _____ acre-feet after adjustment for sediment deposits) of the usable conservation storage space in the Project (see column (5) of Exhibit B-1) between elevations _____ feet and _____ feet above National Geodetic Vertical Datum, which is estimated to contain _____ acre-feet after adjustment for sediment deposits. This storage space is to be used to impound water for present demand or need for municipal and industrial water supply.

(2). The User shall have the right to withdraw water from the lake, or to request releases to be made by the Government through the outlet works of the Project, subject to the provisions of Article 1c and to the extent the aforesaid storage space will provide; and shall have the right to construct all such works, plants, pipelines, and appurtenances as may be necessary and convenient for the purpose of diversion or withdrawals, subject to the approval of the District Engineer as to design and location. The grant of an easement for right-of-way, across, in and upon land of the Government at the Project shall be by a separate instrument in a form satisfactory to the Secretary of the Army, in accordance with ER 405-1-12, under the authority of and in accordance with the provisions of 10 U.S.C. 2669 and such other authorities as may be necessary. Subject to the conditions of such easement, the User shall have the right to use so much of the Project land as may reasonably be required in the exercise of the rights and privileges granted under this agreement.

c. Rights Reserved. The Government reserves the right to control and use all storage in the Project in accordance with authorized Project purposes. The Government further reserves the right to take such measures as may be necessary in the operation of the Project to preserve life and/or property, including the right not to make downstream releases during such periods of time as are deemed necessary, in its sole discretion, to inspect, maintain, or repair the Project.

d. Quality or Availability of Water. The User recognizes that this agreement provides storage space for raw water only. The Government makes no representations with respect to the quality or availability of water and assumes no responsibility therefor, or for the treatment of the water.

e. Sedimentation Surveys.

(1). Sedimentation surveys will be made by the District Engineer during the term of this agreement at intervals not to exceed fifteen (15) years unless [the District Engineer determines that such surveys are unnecessary] [otherwise agreed to in writing by both parties]. When, in the opinion of the District Engineer, the findings of such survey indicate any Project purpose will be affected by unanticipated sedimentation distribution, there shall be an equitable redistribution of the sediment reserve storage space among the purposes served by the Project including municipal and industrial water supply. The total available remaining storage space in the Project will then be divided among the various Project features in the same ratio as was initially utilized. Adjusted pool elevations will be rounded to the nearest one-half foot. Such findings and the storage space allocated to municipal and industrial water supply shall be defined and described as an exhibit, which will be made a part of this agreement, and the water control manual will be modified accordingly

(2). The Government assumes no responsibility for deviations from estimated rates of sedimentation, or the distribution thereof. Such deviations may cause unequal distribution of sediment reserve storage greater than estimated, and/or encroachment on the total storage at the Project.

[f. Dependable Yield Mitigation Storage. In addition to the () acre-feet of water supply storage space acquired by the User, the User will pay for an additional () acre-feet of dependable yield mitigation storage.]

ARTICLE 2 - Regulation of and Right to Use of Water. The regulation of the use of water withdrawn or released from the aforesaid storage space shall be the sole responsibility of the User. The User has the full responsibility to acquire in accordance with State laws and regulations, and, if necessary, to establish or defend, any and all water rights needed for utilization of the storage provided under this agreement. The Government shall not be responsible for diversions by others, nor will it become a party to any controversies involving the use of the storage space by the User except as such controversies may affect the operations of the Project by the Government.

ARTICLE 3 - Operation and Maintenance. The Government shall operate and maintain the Project and the User shall pay to the Government a share of the costs of such operation and maintenance as provided in Article 5c. The User shall be responsible for operation and maintenance of all installations and facilities, which it may construct for the diversion or withdrawal of water, and shall bear all costs of construction, operation and maintenance of such installations and facilities.

ARTICLE 4 - Measurement of Withdrawals and Releases. The User agrees to furnish and install, without cost to the Government, suitable meters or measuring devices satisfactory to the District Engineer for the measurement of water, which is withdrawn from the Project by any means other than through the Project outlet works. The User shall furnish to the Government monthly statements of all such withdrawals. Prior to the construction of any facilities for withdrawal of water from the Project, the User will obtain the District Engineer's approval of the design, location and installation of the facilities including the meters or measuring devices. Such devices shall be available for inspection by Government representatives at all reasonable times. Releases from the water supply storage space through the Project outlet works shall be made in accordance with written schedules furnished by the User and approved by the District Engineer and shall be subject to Article 1c. The measure of all such releases shall be by means of a rating curve of

Water Supply Seminar

the outlet works, or by such other suitable means as may be agreed upon prior to use of the water supply storage space.

ARTICLE 5 - Payments. In consideration of the right to utilize the aforesaid storage space [and the water supply conduit] in the Project for municipal and industrial water supply purposes, the User shall pay the following sums to the Government:

a. First Cost of Storage.

(1). The User shall repay to the Government, at the times as hereinafter specified, the amounts stated below which, as shown in Exhibit B-II attached to and made a part of this agreement, constitute the entire actual amount of the first cost allocated to the water storage right acquired by the User under this agreement. The cost is based on [revenues foregone] [benefits foregone] [replacement cost] [updated cost of storage] [provisions of Section 322 of Public Law 101-640] [(other as appropriate)]. The costs shown in Exhibit B are for (____) acre-feet of storage space. [Of this space (____) acre-feet are for the User and (____) acre-feet are for dependable yield mitigation storage.] The interest rate to be used for purposes of computing interest on the unpaid balance will be the yield rate adjusted at five-year intervals as determined by the Secretary of the Treasury on the basis set forth in Section 932 of the 1986 Water Resources Development Act. For this agreement, the starting interest rate shall be that rate in effect at the time the agreement is approved. For FY _____, such rate is ____ percent. Should the agreement not be signed in FY ____, the amounts due herein will be adjusted to reflect the application of the appropriate rate.

(2). The cost allocated to the storage space indicated in Article 1b(1) is currently estimated at \$_____ on the basis of the costs presented in Exhibit B-II. These costs shall be repaid within the life of the Project in not to exceed 30 years from the date of approval of this agreement by the Secretary of the Army or his duly authorized representative. The payments shall be in equal consecutive annual installments, adjusted at 5-year intervals as shown in Exhibit "C". The first payment shall be due and payable within 30 days after the User is notified by the District Engineer [of approval of this agreement by the Secretary of the Army] [that the project modification is completed and operational for water supply purposes.] Annual installments thereafter will be due and payable on the anniversary date of the date of notification. Except for the first payment, which will be applied solely to the retirement of principal, all installments shall include accrued interest on the unpaid balance at the rate provided above. The last annual installment shall be adjusted upward or downward when due to assure repayment of all of the investment costs allocated to the storage within 30 years from the above date.

[(3). (For use if the project is being modified to accommodate the reallocation action.) Project construction costs associated with the reallocation are currently estimated at \$_____, on the basis of the costs presented in Exhibit B-IV. These costs shall be repaid during the period of construction in the following manner. (Fill in as appropriate). The last payment shall be adjusted upward or downward as appropriate to assure repayment of all the construction cost allocated to the Users storage right during the period of construction.]

b. Repair, Rehabilitation, and Replacement (RR&R) Costs. The User will be required to pay [_____] percent of the cost of any RR&R of specific water supply facilities. In addition, the User will be required to pay]_____] percent of the cost of joint-use RR&R of Project features. Payment of these costs shall be made either incrementally during construction or in lump sum (including interest during

Model Format for Reallocated Storage

construction) upon completion of construction. Modifications to the Project and related facilities deemed necessary for safety purposes shall be considered to fall under the provisions of rehabilitation except for cost sharing in which case the cost to the User will be fifteen (15) percent of the cost as determined above.

c. Annual Operation and Maintenance (O&M) Expense. The User will be required to pay [____ percent of the annual O&M expense of specific water supply facilities. In addition, the User will be required to pay] ____ percent of the annual experienced joint-use O&M expense of the Project. Payments for O&M expense are due and payable in advance on the date for payment of the first cost of storage as set forth in Article 5a(2) and shall be based on O&M expense for the Project in the Government fiscal year most recently ended. The amount of each annual payment will be the actual experienced O&M expense ([specific plus] allocated joint-use) for the preceding fiscal year or an estimate thereof when actual expense information is not available.

d. Prepayment. The User shall have the right at any time to prepay the indebtedness under this Article in whole or in part, with accrued interest thereon to the date of such prepayment.

e. Delinquent Payments. If the User shall fail to make any of the aforesaid payments when due, then the overdue payments shall bear interest compounded annually until paid. The interest rate to be used for overdue payments due under the provisions of Articles 5a, 5b, 5c and 5d above shall be that determined by the Department of Treasury's Treasury Fiscal Requirements Manual (1 TFRM 6-8000, "Cash Management"). The amount charged on payments overdue for a period of less than one year shall be figured on a monthly basis. For example, if the payment is made within the first month after being overdue after a 15-day grace period from the anniversary date of the date of notification, one month's interest shall be charged. Thereafter a month's interest will be charged for any portion of each succeeding month that the payment is delinquent. This provision shall not be construed as giving the User a choice of either making payments when due or paying interest, nor shall it be construed as waiving any other rights of the Government, at law or in equity, which might result from any default by the User.

ARTICLE 6 - Duration of Agreement. This agreement shall become effective when approved by the Secretary of the Army or his duly authorized representative and shall continue in full force and effect for the life of the Project.

ARTICLE 7 - Permanent Rights to Storage. Upon completion of payments by the User, as provided in Article 5a herein, the User shall have a permanent right, under the provisions of the Act of 16 October 1963 (Public Law 88-140, 43 U.S.C. 390e), to the use of the water supply storage space in the Project as provided in Article 1, subject to the following:

a. The User shall continue payment of annual operation and maintenance costs allocated to water supply.

b. The User shall bear the costs allocated to water supply of any necessary reconstruction, rehabilitation, or replacement of Project features, which may be required to continue satisfactory operation of the Project. The District Engineer will establish such costs and repayment arrangements shall be in writing in accordance with the terms and conditions set forth in Article 5b for reconstruction, rehabilitation, and replacement costs, and be made a part of this agreement.

Water Supply Seminar

c. Upon completion of payments by the User as provided in Article 5a, the District Engineer shall redetermine the storage space for municipal and industrial water supply in accordance with the provisions of Article 1e. Such redetermination of reservoir storage capacity may be further adjusted from time to time as the result of sedimentation resurveys to reflect actual rates of sedimentation and the exhibit revised to show the revised storage space allocated to municipal and industrial water supply.

d. The permanent rights of the User under this agreement shall be continued so long as the Government continues to operate the Project. In the event the Government no longer operates the Project, such rights may be continued subject to the execution of a separate agreement or additional supplemental agreement providing for:

(1). Continued operation by the User of such part of the facility as is necessary for utilization of the water supply storage space allocated to it;

(2). Terms which will protect the public interest; and,

(3). Effective absolvment of the Government by the User from all liability in connection with such continued operation.

ARTICLE 8 - Release of Claims. (Project documents for certain projects require a specific hold and save harmless agreement from the water supply sponsor. In those cases, the project document language should be used). The User shall hold and save the Government, including its officers, agents and employees harmless from liability of any nature or kind for or on account of any claim for damages which may be filed or asserted as a result of the storage in the Project, or withdrawal or release of water from the Project, made or ordered by the User or as a result of the construction, operation, or maintenance of the water supply facilities and appurtenances thereto owned and operated by the User except for damages due to the fault or negligence of the Government or its contractors.

ARTICLE 9 - Transfers and Assignments.

a. The User shall not transfer or assign this agreement nor any rights acquired thereunder, nor suballot said water supply storage space or any part thereof, nor grant any interest, privilege or license whatsoever in connection with this agreement, without the approval of the Secretary of the Army, or his duly authorized representative provided that, unless contrary to the public interest, this restriction shall not be construed to apply to any water that may be obtained from the water supply storage space by the User and furnished to any third party or parties, nor any method of allocation thereof.

b. Regarding approval of assignments, references to restriction of assignments shall not apply to any transfer or assignment to the Rural Economic Community Development (RECD), formerly Farmers Home Administration, or its successor agency, or nominee, given in connection with the pledging of this water storage agreement as security for any loans or arising out of the foreclosure or liquidation of said loans. The User will notify the Corps in writing 15 days prior to applying for a RECD loan. A copy of the final loan instrument will be furnished to the Corps for their record.

ARTICLE 10 - Officials Not to Benefit. No member of or delegate to Congress, or Resident Commissioner, shall be admitted to any share or part of this agreement, or to any benefit that may arise

Model Format for Reallocated Storage

therefrom; but this provision shall not be construed to extend to this agreement if made with a corporation for its general benefit.

ARTICLE 11 - Covenant Against Contingent Fees. The User warrants that no person or selling agency has been employed or retained to solicit or secure this agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the User for the purpose of securing business. For breach or violation of this warranty the Government shall have the right to annul this agreement without liability or in its discretion to add to the price or consideration, or otherwise recover the full amount of such commission, percentage, brokerage, or contingent fee.

ARTICLE 12 - Protective Covenant. (Should be deleted when not applicable).

a. In order to utilize the water storage space, the User must acquire a loan from _____. Pending approval of this loan, the Government shall reserve for the User _____ acre-feet of storage for municipal and industrial water supply purposes for a period of up to ____ months. For this privilege, the User shall pay the Government \$1.00 per acre-foot of storage space per year for a total of \$_____. The payment is not refundable and shall be due and payable within 30 days after the User is notified by the District Engineer that the agreement has been approved. Should the User be unable to secure said loan it shall notify the District Engineer of said failure and the agreement shall be considered terminated at that time.

b. In the event of any termination pursuant to this Article, the User shall, upon request of the District Engineer, promptly remove at User's own expense, any facilities constructed on Project land for water withdrawal and restore premises around the removed facilities to a condition satisfactory to the District Engineer.

ARTICLE 13 - Environmental Quality. During any construction, operation, and maintenance by User of any facilities, specific actions will be taken to control environmental pollution, which could result from such activity and to comply with applicable Federal, State, and local laws and regulations concerning environmental pollution. Particular attention should be given to:

a. Reduction of air pollution by control of burning, minimization of dust, containment of chemical vapors, and control of engine exhaust gases, and of smoke from temporary heaters;

b. Reduction of water pollution by control of sanitary facilities, storage of fuels and other contaminants, and control of turbidity and siltation from erosion;

c. Minimization of noise levels;

d. On-site and off-site disposal of waste and spoil; and,

e. Prevention of landscape defacement and damage.

ARTICLE 14 - Federal and State Laws.

a. Compliance. In acting under its rights and obligations hereunder, the User agrees to comply with all applicable Federal and State laws and regulations, including but not limited to the provisions of

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the Davis-Bacon Act (40 U.S.C. 276a et seq.); the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-333); Title 29, Code of Federal Regulations, Part 3; and Sections 210 and 305 of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (PL 91-646).

b. Civil Rights Act. The User furnishes, as part of this agreement, an assurance (Exhibit D) that it will comply with Title VI of the Civil Rights Act of 1964 (78 Stat. 241, 42 U.S.C. 2000d, et seq.) and Department of Defense Directive 5500.11 issued pursuant thereto and published in Part 300 of Title 32, Code of Federal Regulations.

c. Regulatory Program. Any discharges of water or pollutants into a navigable stream or tributary thereof resulting from the User's facilities and operations undertaken under this agreement shall be performed only in accordance with applicable Federal, State, and local laws and regulations.

d. Lobbying Activities. The User furnishes, as part of this agreement, a certification (Exhibit E and if applicable, a Disclosure of Lobbying Activities) that it will comply with Title 31 U.S.C. Section 1352 of the limitation on use of appropriated funds to influence certain Federal contracting and financial transactions (Public Law 101-121, October 23, 1989) and Federal Acquisition Regulation 52.203-12 issued pursuant thereto.

ARTICLE 15 - Definitions. (Delete those inappropriate)

a. First cost of storage. This is the cost assigned to the Users right to the storage space in the project. This cost was developed by (insert appropriate term, e.g. benefits foregone, updated cost of storage, etc.) and is summarized in Exhibit B-II.

b. Interest on the unpaid balance. When the Project cost is amortized, this is the interest on the unpaid balance (see Exhibit C). When payments are made in "lump sum," there is no amortization schedule and therefore, no "interest on the unpaid balance."

c. Specific costs. The costs of Project features normally serving only one particular Project purpose.

d. Joint-use costs. The costs of features used for any two or more Project purposes.

e. Annual operation and maintenance (O&M) expense. Annual expenses funded under the O&M, General account. These expenses include the daily Project O&M costs as well as those O&M costs, which are not capitalized.

f. Repair, rehabilitation and replacement (RR&R) costs. Costs funded in part under the Operation and Maintenance, General, or Construction, General accounts but not associated with first cost of storage. Such expenditures are for costly, infrequent work and are intended to ensure continued satisfactory operation of the Project. For the purposes of this agreement the term "reconstruction" used in Article 7 "Permanent Rights to Storage" shall be included in this definition of repair, rehabilitation and replacement; repayment of those costs shall be the same as described in Article 5b.

g. Fiscal Year. Refers to the Government's fiscal year. This year begins on 1 October and ends on 30 September. The September calendar year corresponds to the fiscal year.

Model Format for Reallocated Storage

h. Life of the Project. This is the physical life of the Project.

i. District Engineer. Refers to the District Engineer of the _____ District of the United States Army Corps of Engineers, or his/her successor or designee.

j. Dependable Yield Mitigation Storage. The use of the reallocated space for water supply storage diminishes the dependable yield of water to prior water supply users. To compensate for that loss, additional conservation storage, above and beyond the storage required by the new user, is provided and made available to the prior users. The new user pays for this space. The reallocated storage mitigation space becomes part of the total storage space jointly shared by all the water supply users.

ARTICLE 17 - Approval of Agreement. This agreement shall be subject to the written approval of the Secretary of the Army or his duly authorized representative and shall not be binding until so approved.

IN WITNESS WHEREOF, the parties have executed this agreement as of the day and year first above written.

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APPROVED:

THE UNITED STATES OF AMERICA

1/

(District Engineer)

By

DATE: _____

[Insert name of User]

By _____
(Title)

(Necessary approvals and countersignatures required by State and local law with respect to execution on behalf of the User must be ascertained by the District Engineer and his Counsel and added to the signature block.)

1/ Fill-in Title of appropriate approving government official if other than District Commander. The approving official for HQUSACE is the Director of Civil Works.