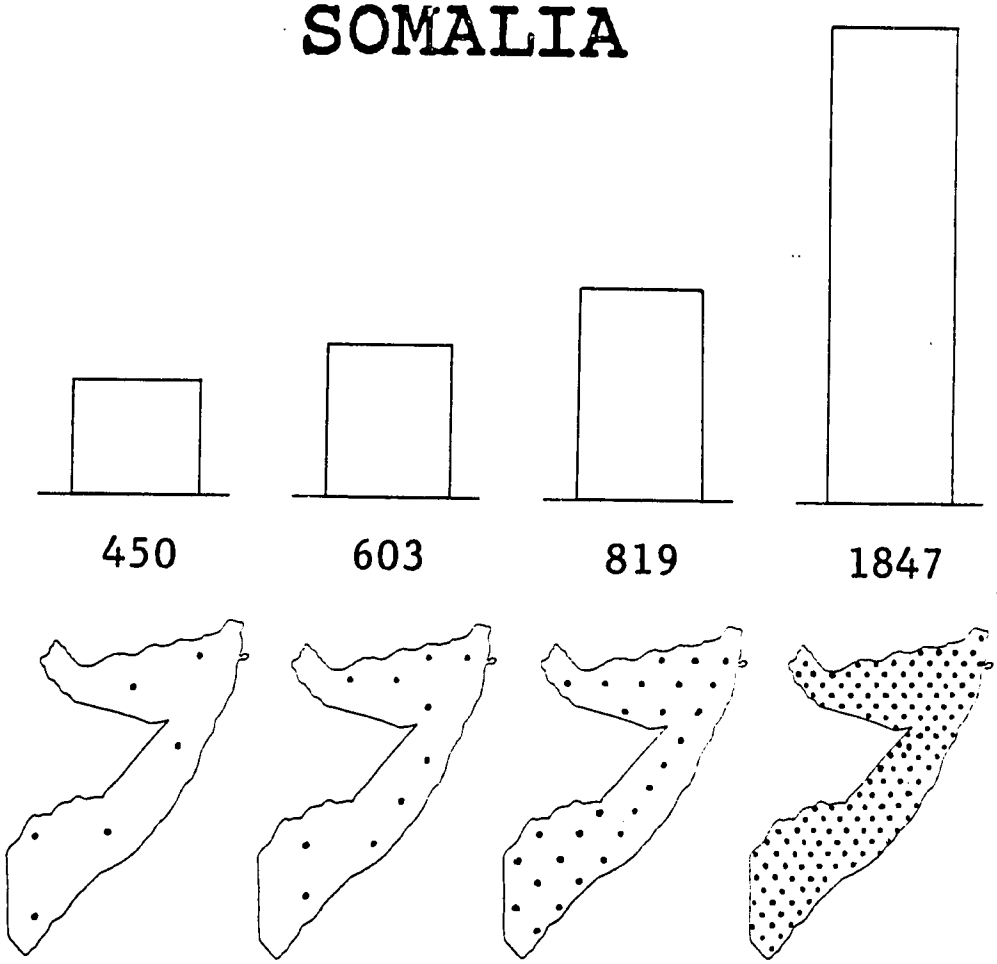
PN-ABI-883

WATER INDUSTRY DEVELOPMENT PROJECT

NEEDS AND BENEFITS FOR SOMALIA



Louis Berger International, Inc.

WATER INDUSTRY DEVELOPMENT PROJECT
NEEDS AND BENEFITS FOR SOMALIA
Tuesday, May 13

I. **WATER INDUSTRY STRUCTURE**

II. **WATER CONSUMPTION NEEDS**

- A. Current Consumption
- B. Projected Consumption
- C. National Goals
- D. Minimum Needs

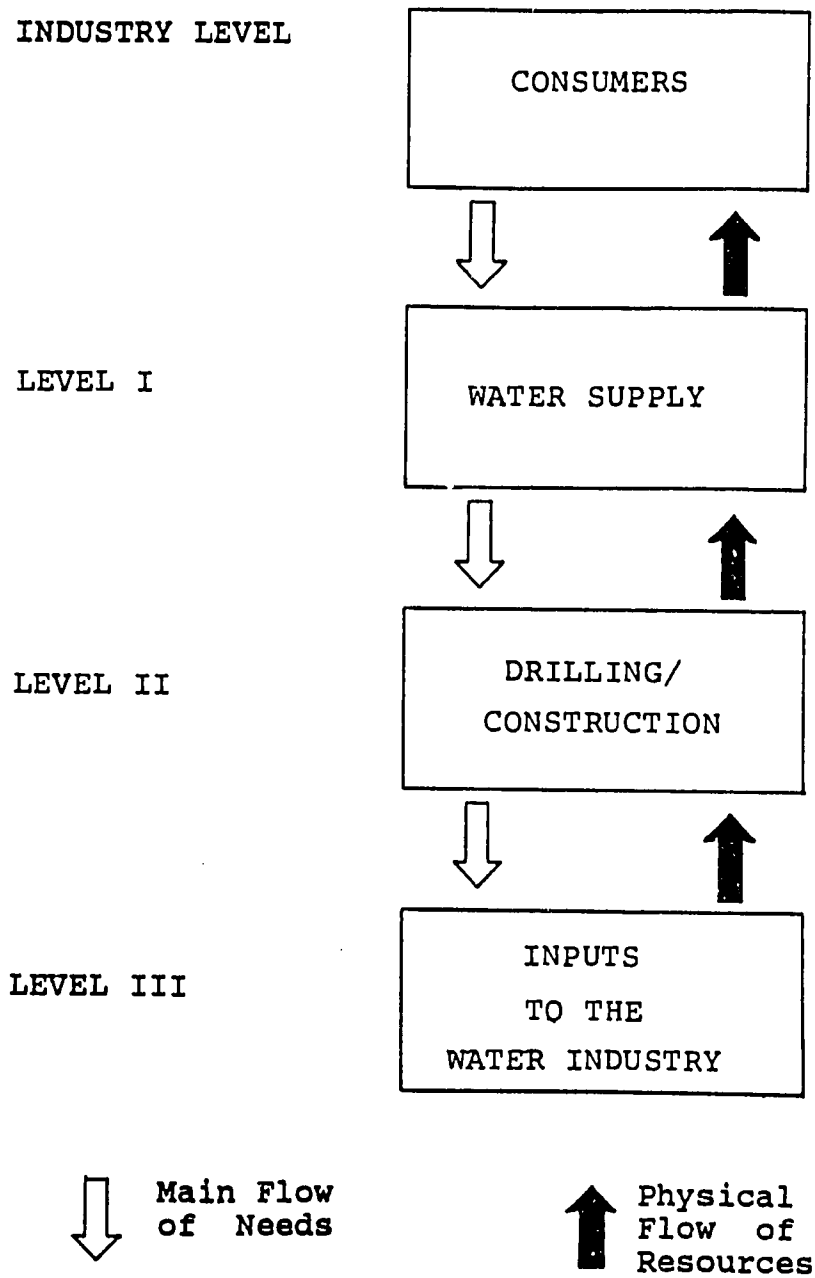
III. **ANALYSIS OF WELL DRILLING SUPPLY IN SOMALIA**

- A. Foreign Drilling
- B. Government Drilling
- C. Local Private Drilling
- D. Constraints to Expansion of Well Drilling
- E. Consultants' Projections Without Program
- F. Downside Risk
- G. Consultants' Projections with Program

IV. **PUBLIC VS. PRIVATE SECTOR EFFICIENCY IN DRILLING**

- A. Accounting Costs
- B. Physical Inputs
- C. Real Costs
- D. Adjustments to Accounting Costs
- E. Cost of Contract Administration & Supervision

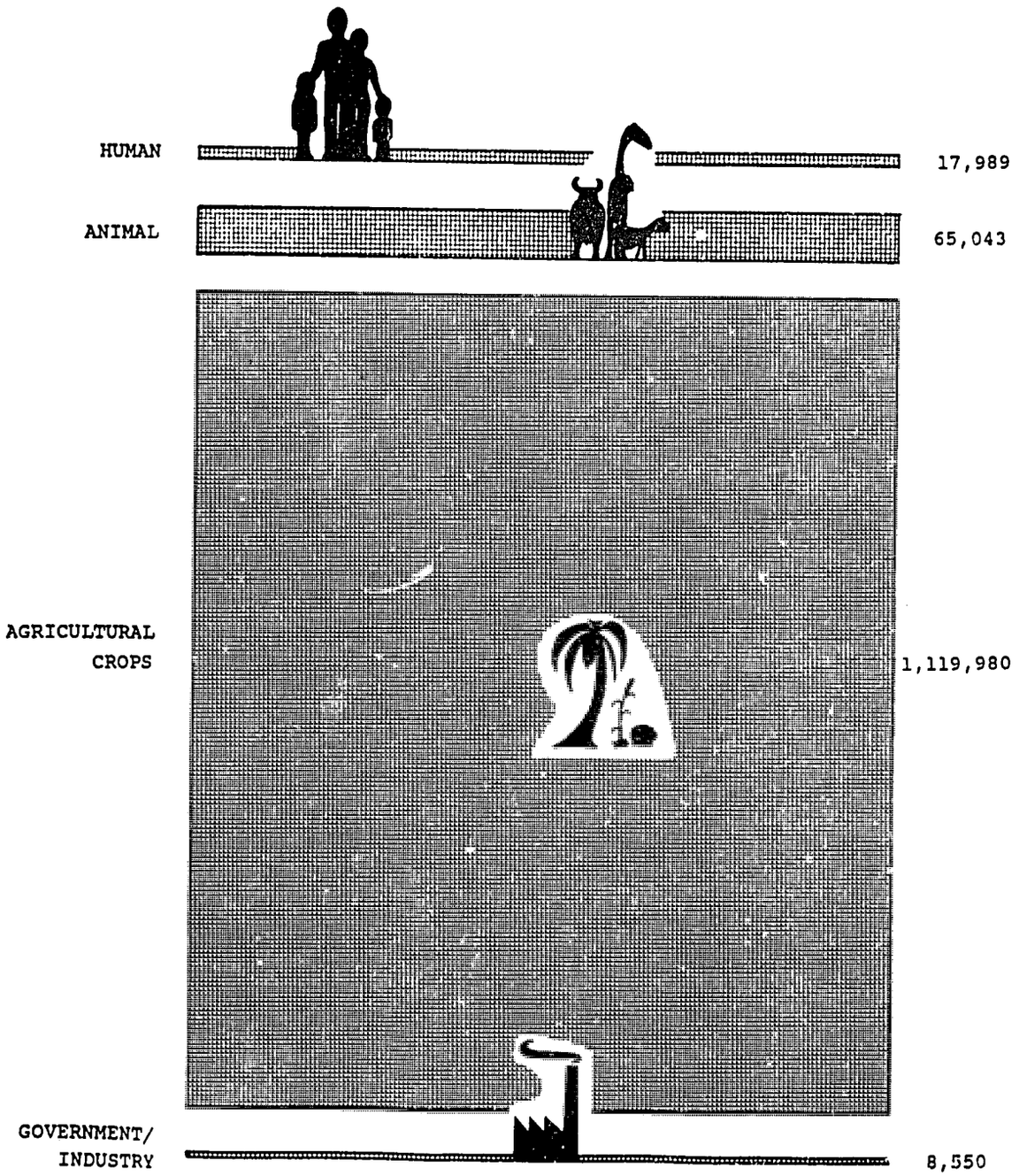
OVERVIEW OF RELATIONSHIPS AMONG LEVELS OF THE WATER INDUSTRY



DISTRIBUTION OF WATER FROM SUPPLY STRUCTURES

BY TYPE OF CONSUMER BEFORE PROGRAM

TOTAL 1,211,562 (in Thousands of Cubic Meters)



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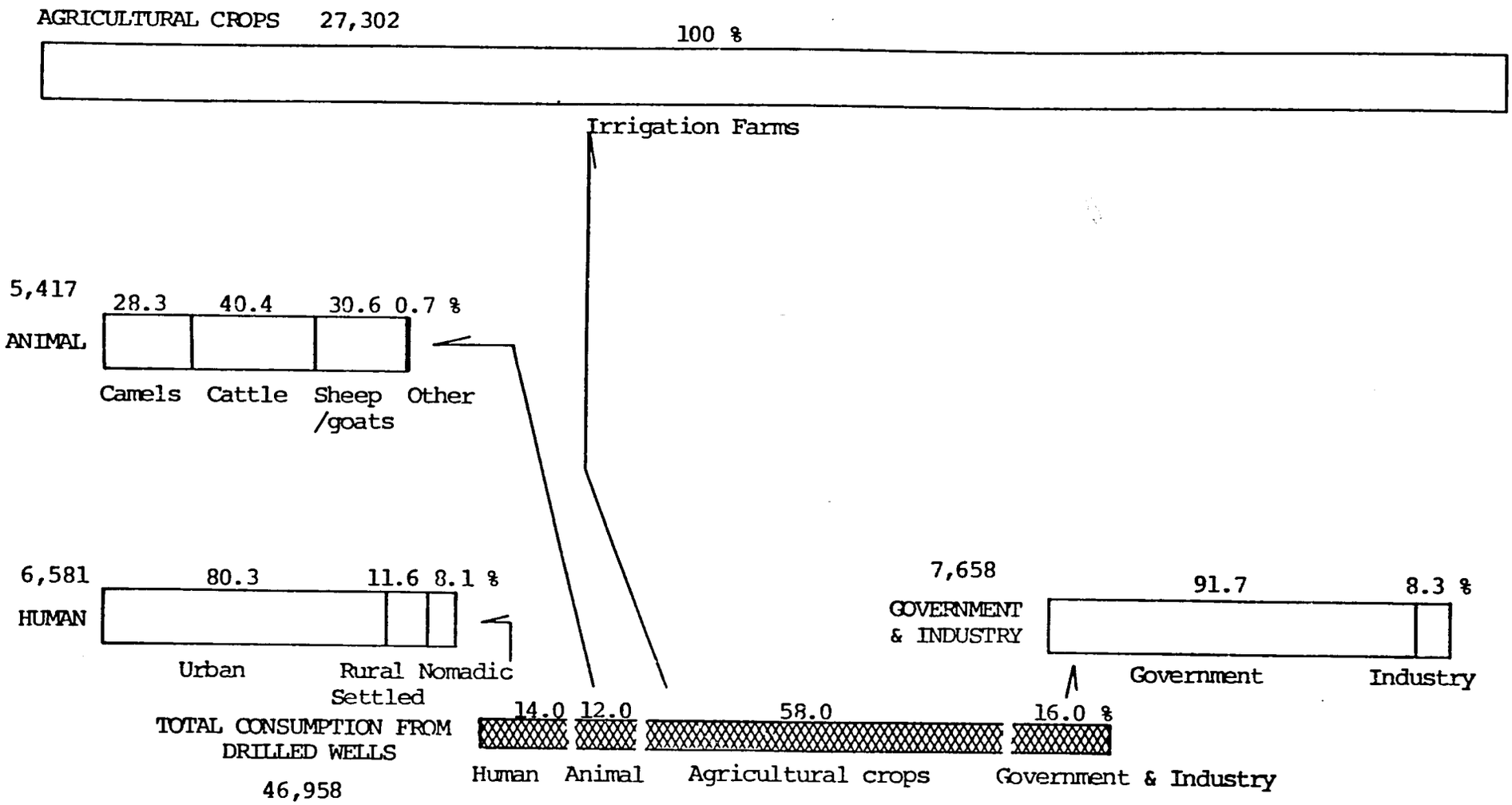
DISTRIBUTION OF WATER FROM DRILLED WELLS BY TYPE OF CONSUMER BEFORE PROGRAM

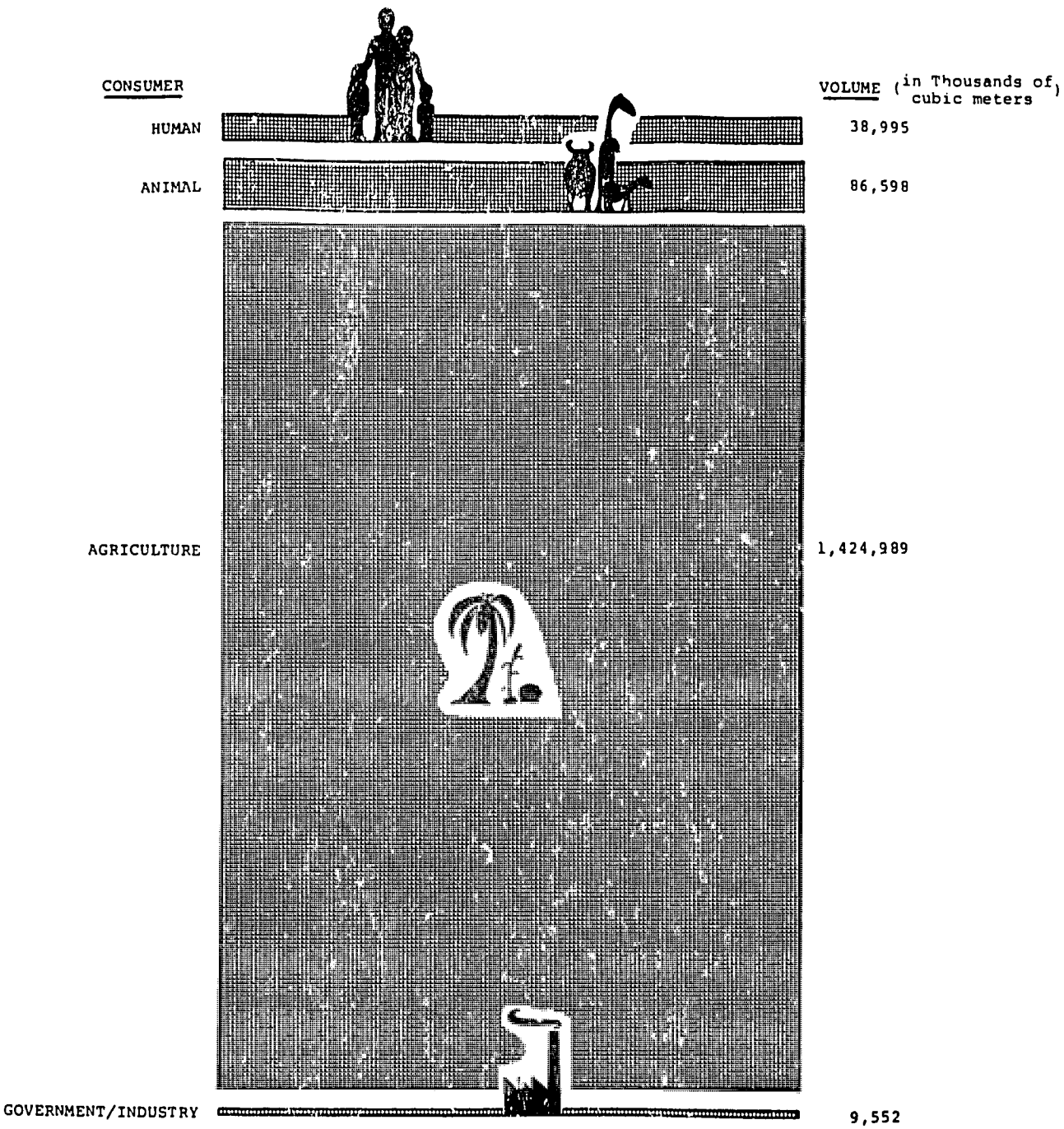
TOTAL 46,958 (in Thousands of Cubic Meters)



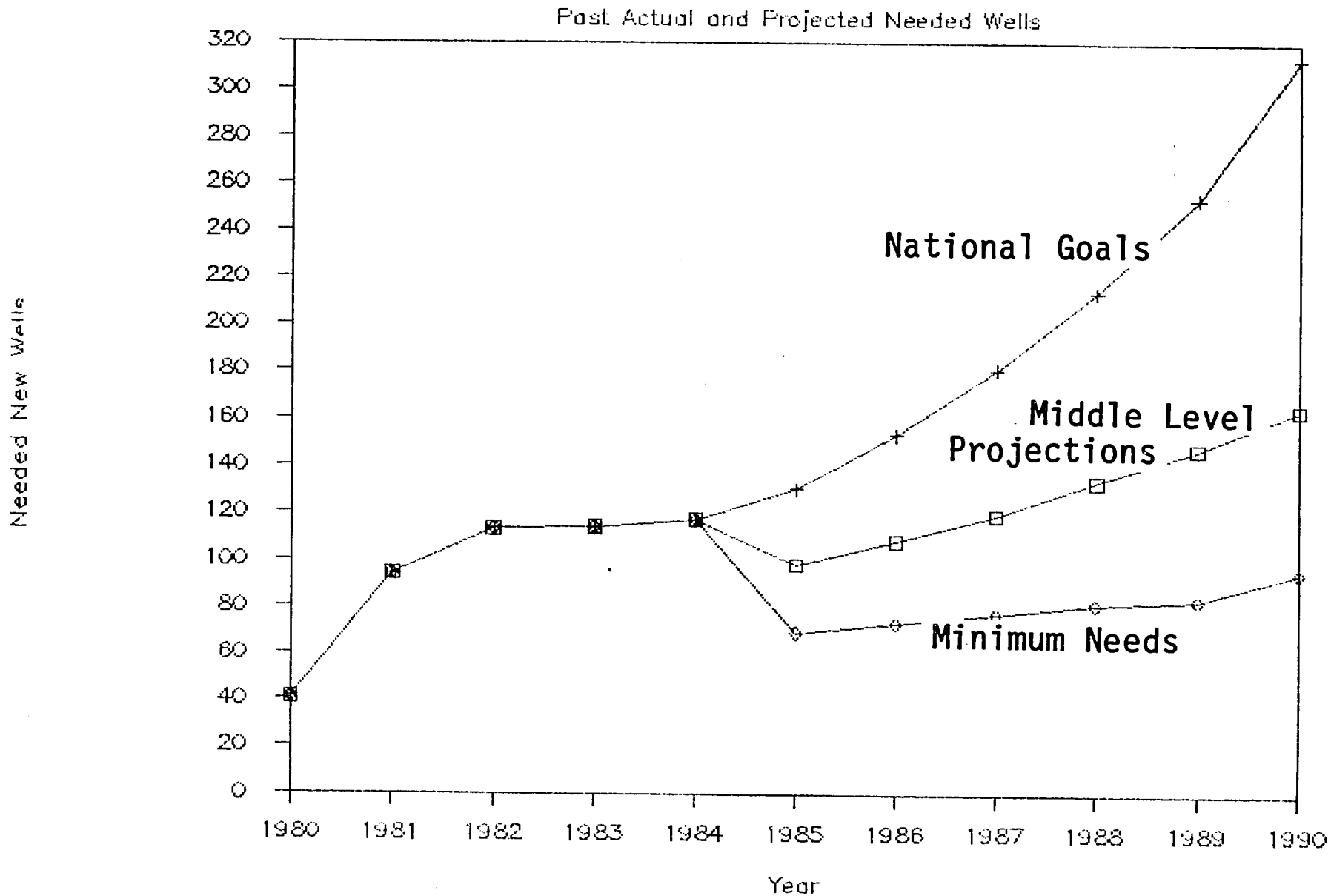
1984

1990 DISTRIBUTION OF WATER CONSUMPTION FROM SUPPLY STRUCTURES BY TYPE OF CONSUMER

TOTAL 1,560,134 (in Thousands of Cubic Meters)

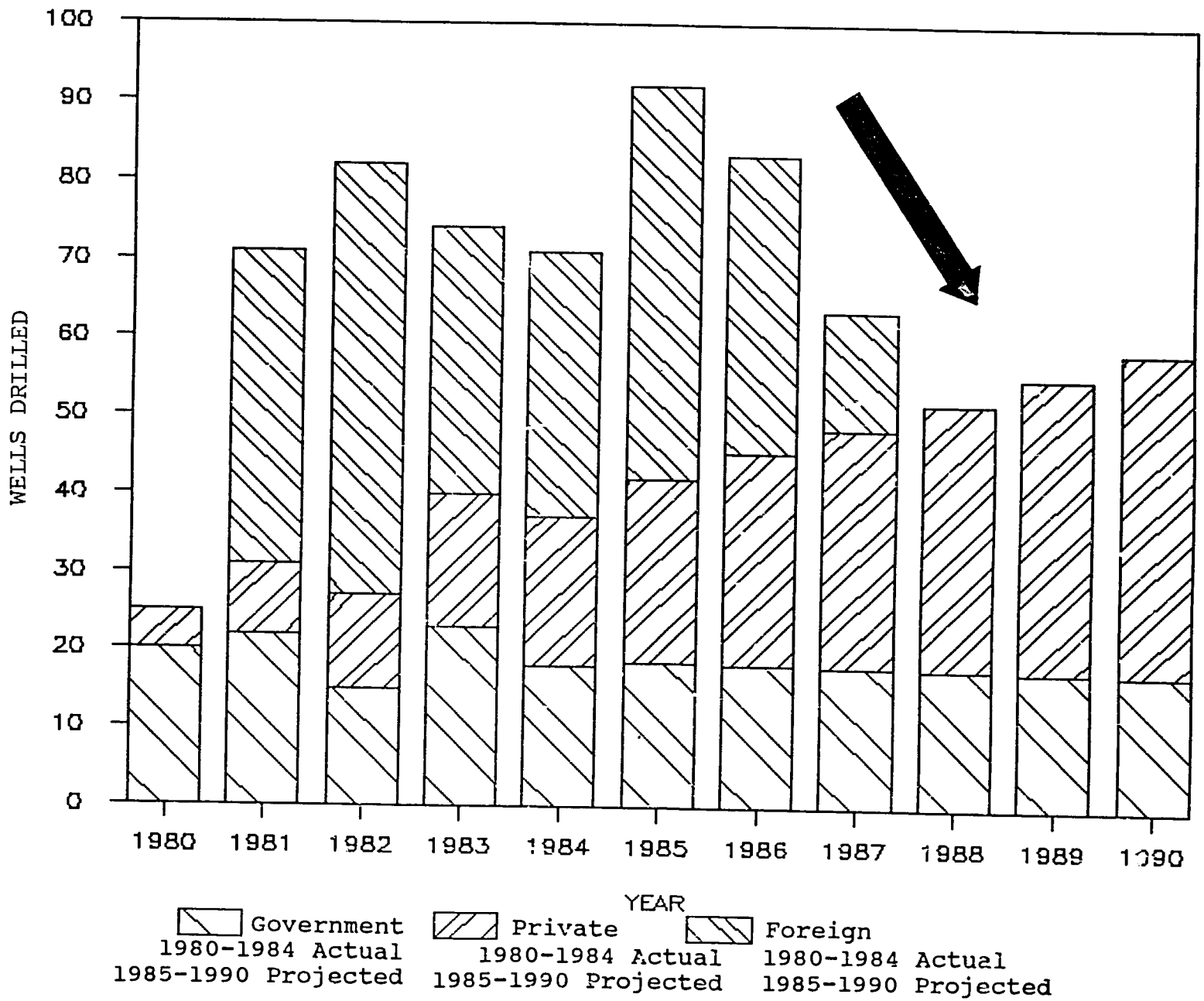


PROJECTIONS OF NEEDED WELL DRILLING

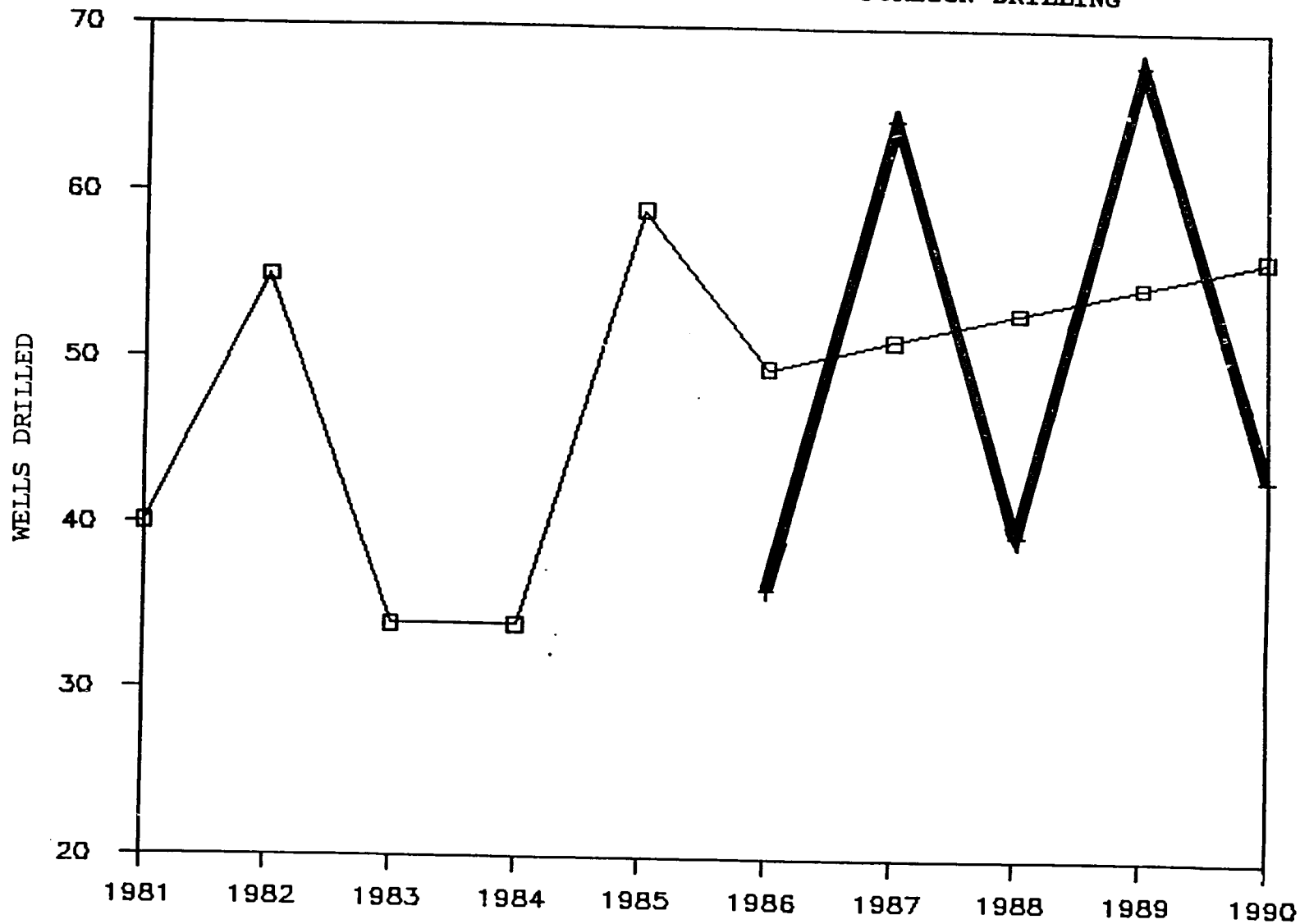


6.

PAST ACTUAL AND PROJECTED/PLANNED WELL DRILLING THROUGH 1990



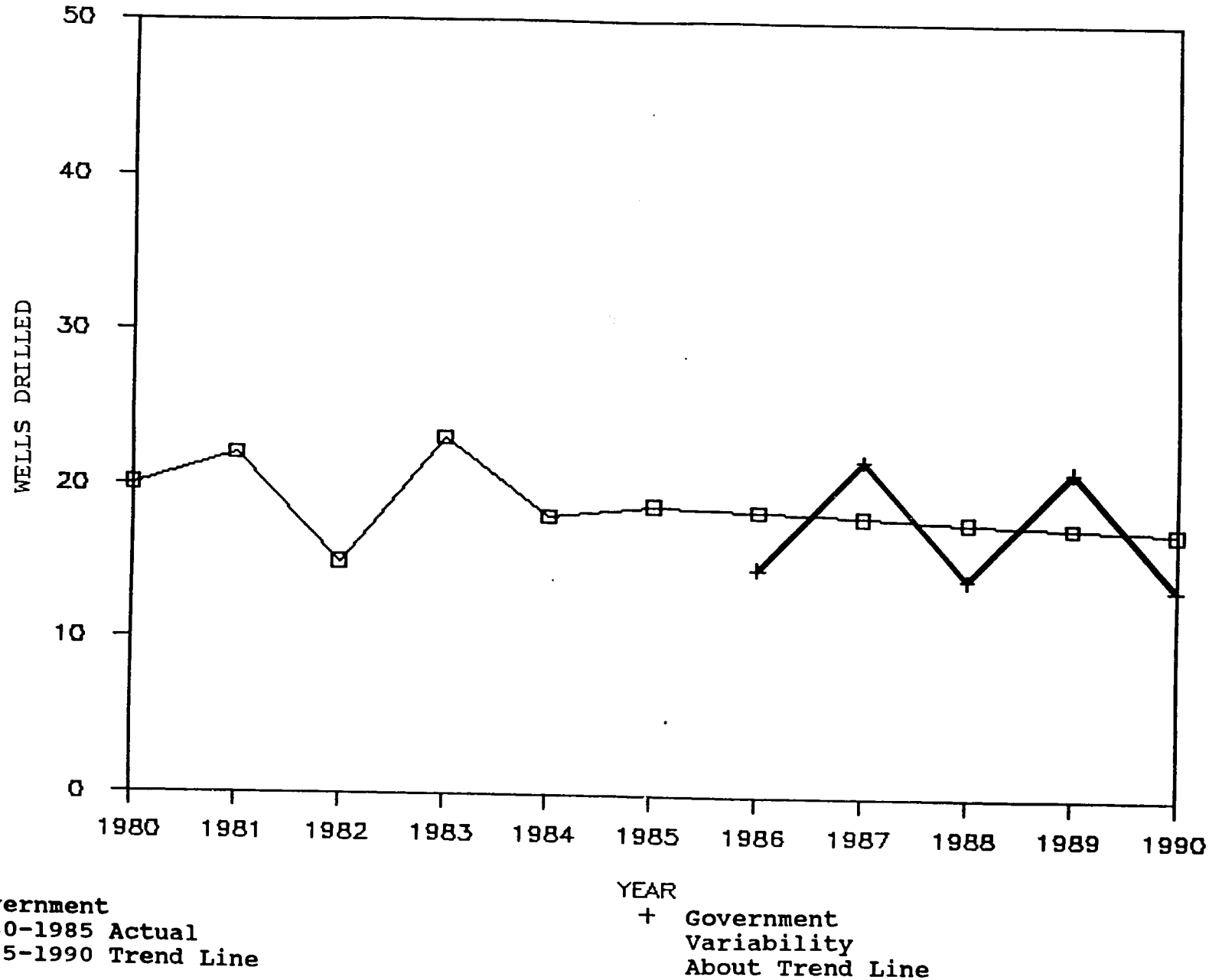
TRENDS AND VARIABILITY IN DRILLING - FOREIGN DRILLING



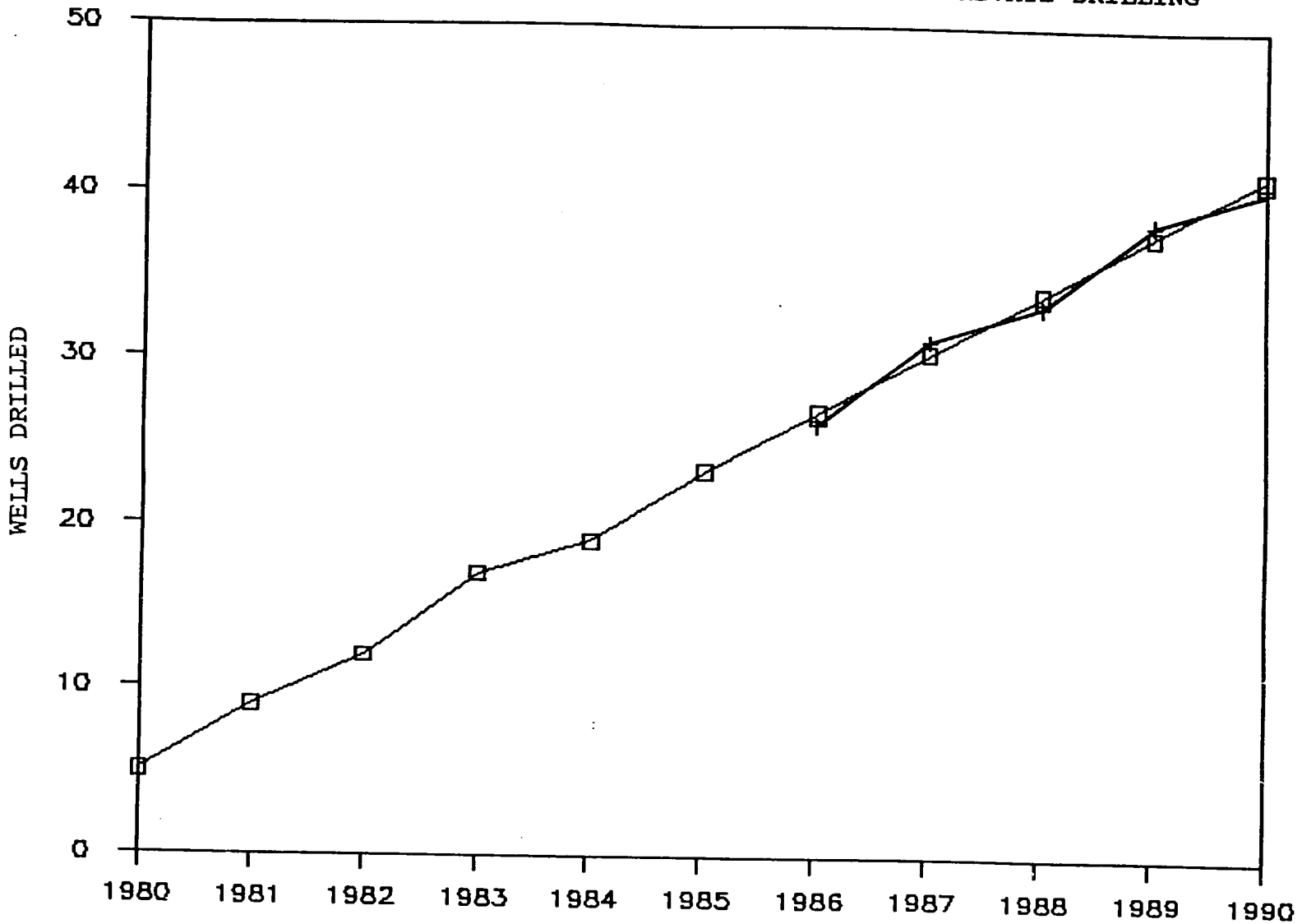
□ Foreign
1981-1985 Actual/Planned
1986-1990 Trend Line

+ Foreign
Variability
About Trend Line

TRENDS AND VARIABILITY IN DRILLING - GOVERNMENT DRILLING



TRENDS AND VARIABILITY IN DRILLING - LOCAL PRIVATE DRILLING



□ Private
1980-1984 Actual
1985-1990 Trend Line

+ Private
Variability
About Trend Line

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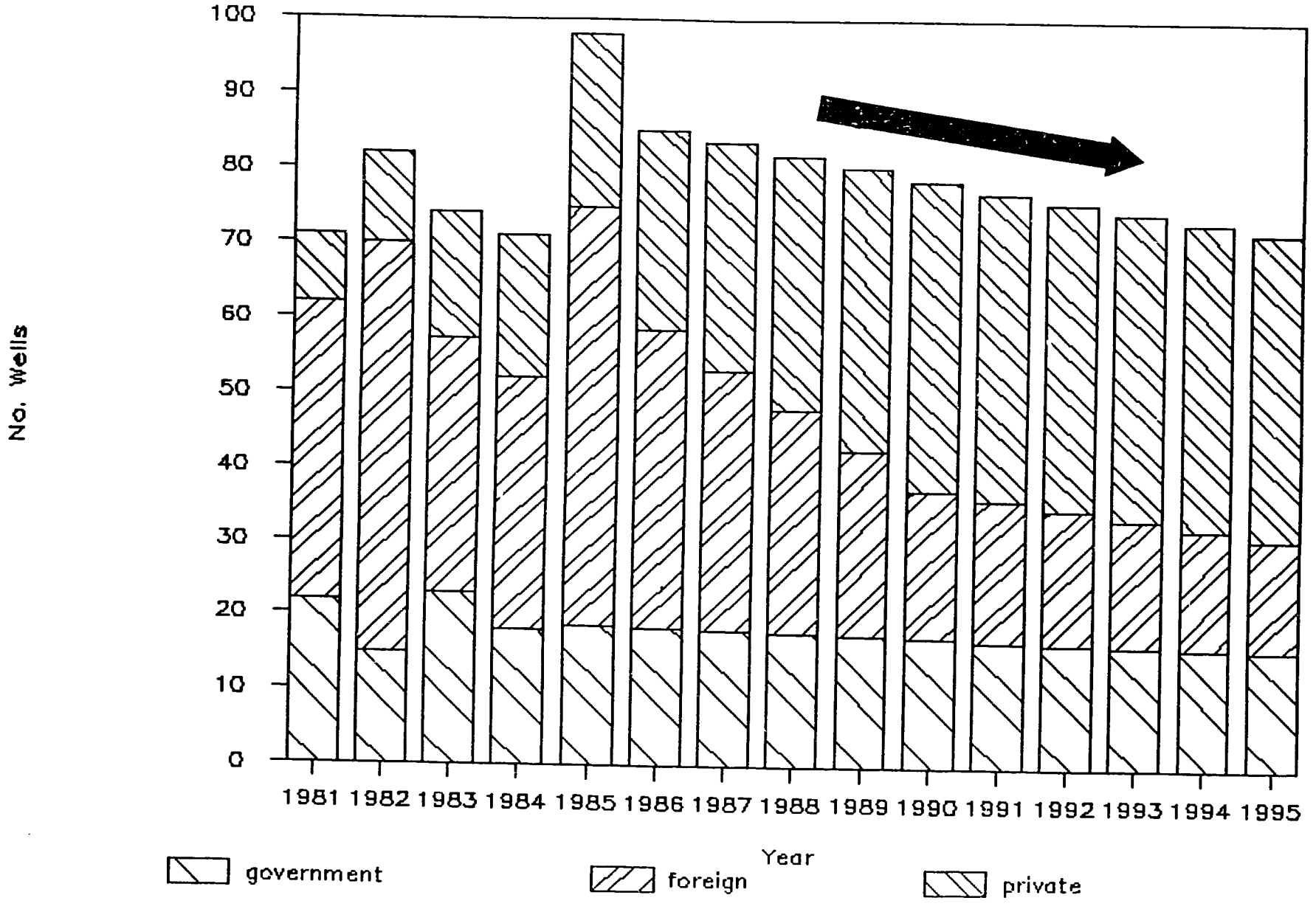
CONSTRAINTS TO EXPANSION OF WELL DRILLING IN SOMALIA

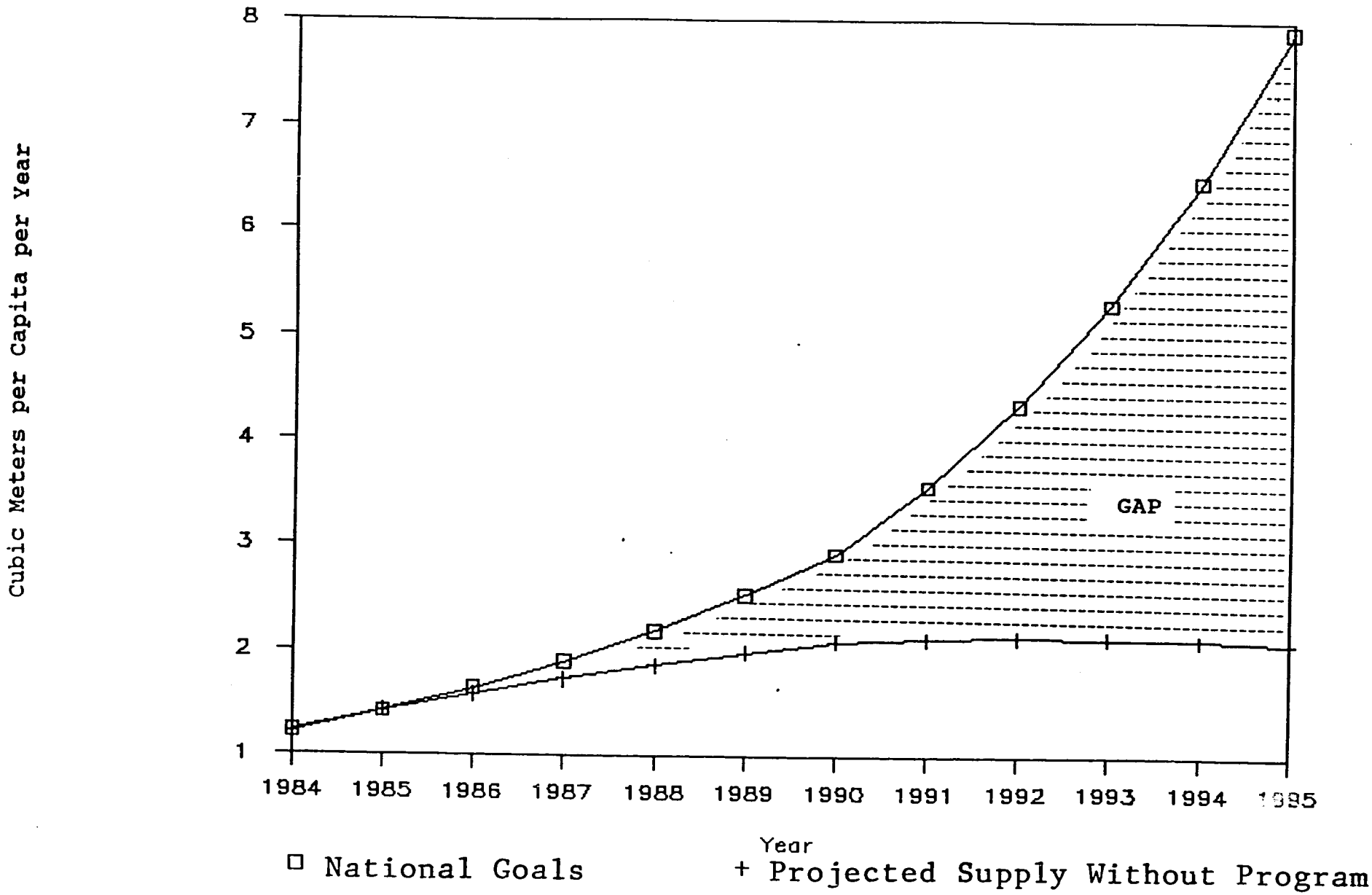
- Materials and Supplies
- Foreign Exchange
- Finance
- Administrative and Regulatory Constraints
- Water Price Ceiling

PROJECTIONS OF DRILLING SUPPLY - WELLS BY SOURCE, NO PROGRAM

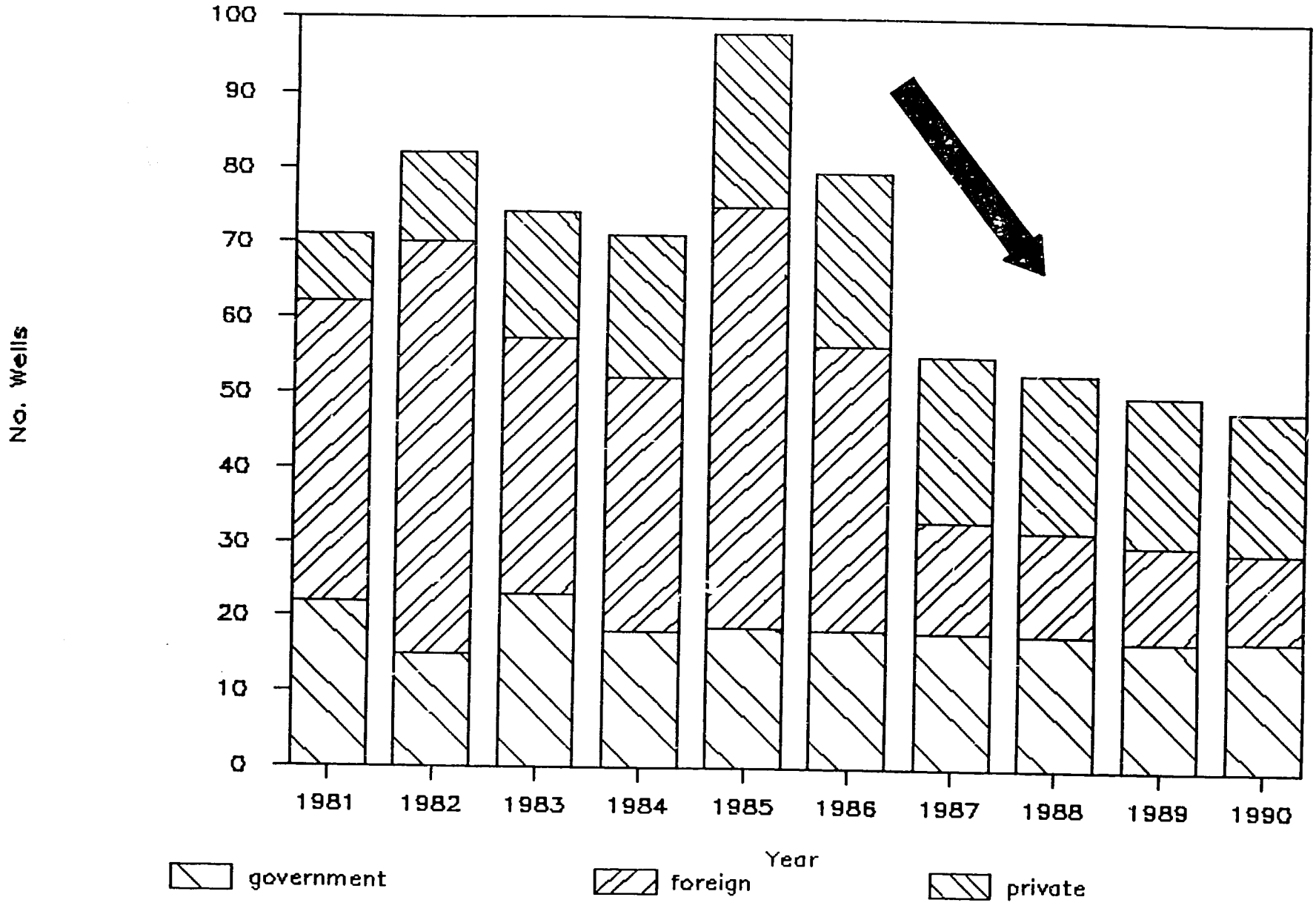


PROJECTIONS OF HUMAN WATER CONSUMPTION FROM DRILLED WELLS

National Goals vs Projected Supply Without Program

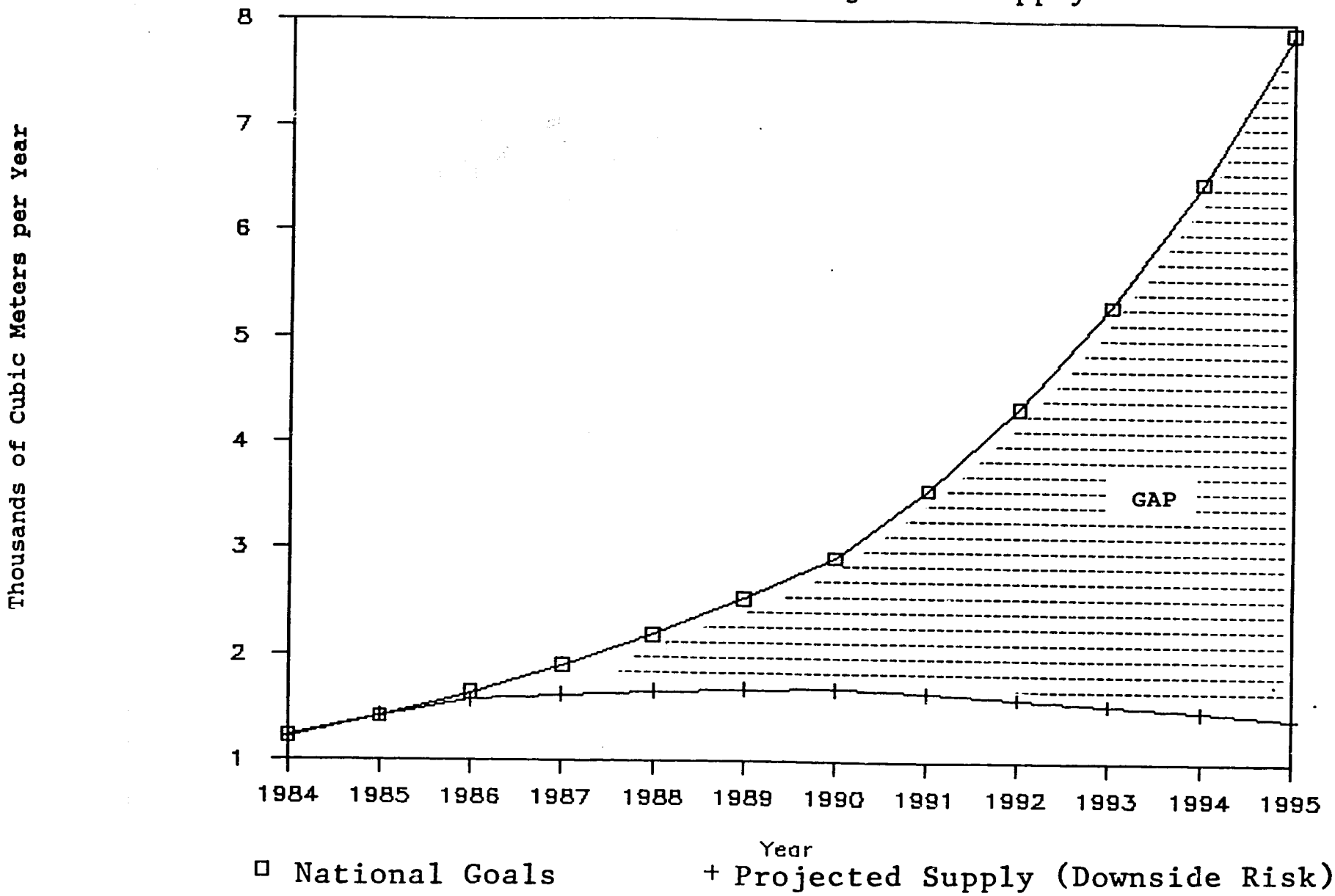


PROJECTIONS OF DRILLING SUPPLY -
WELLS DRILLED BY SOURCE, DOWNSIDE RISK

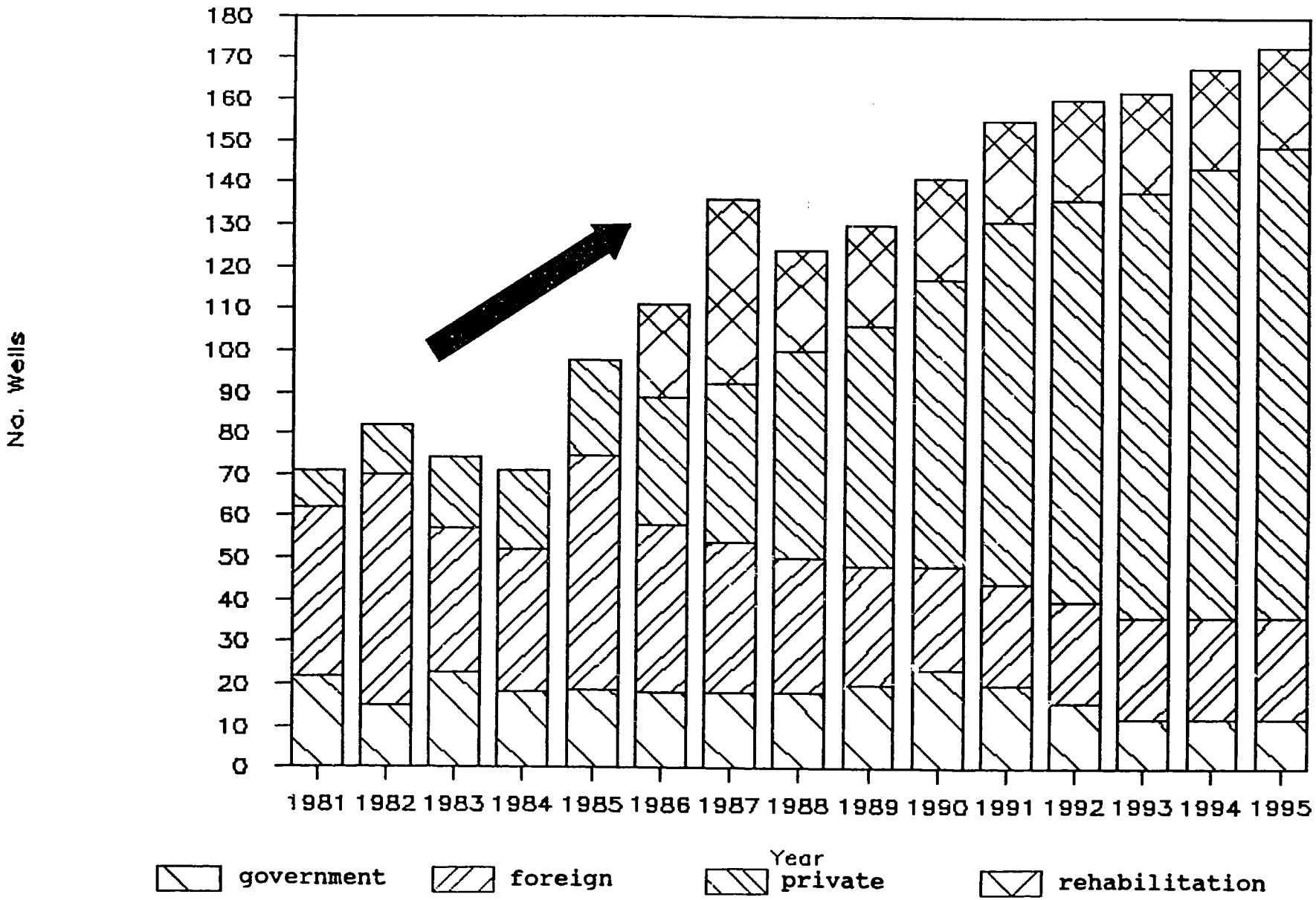


PROJECTIONS OF HUMAN WATER CONSUMPTION FROM DRILLED WELLS
(DOWNSIDE RISK)

National Goals vs Projected Supply



PROJECTIONS OF DRILLING SUPPLY -
WELLS DRILLED BY SOURCE, WITH PROGRAM



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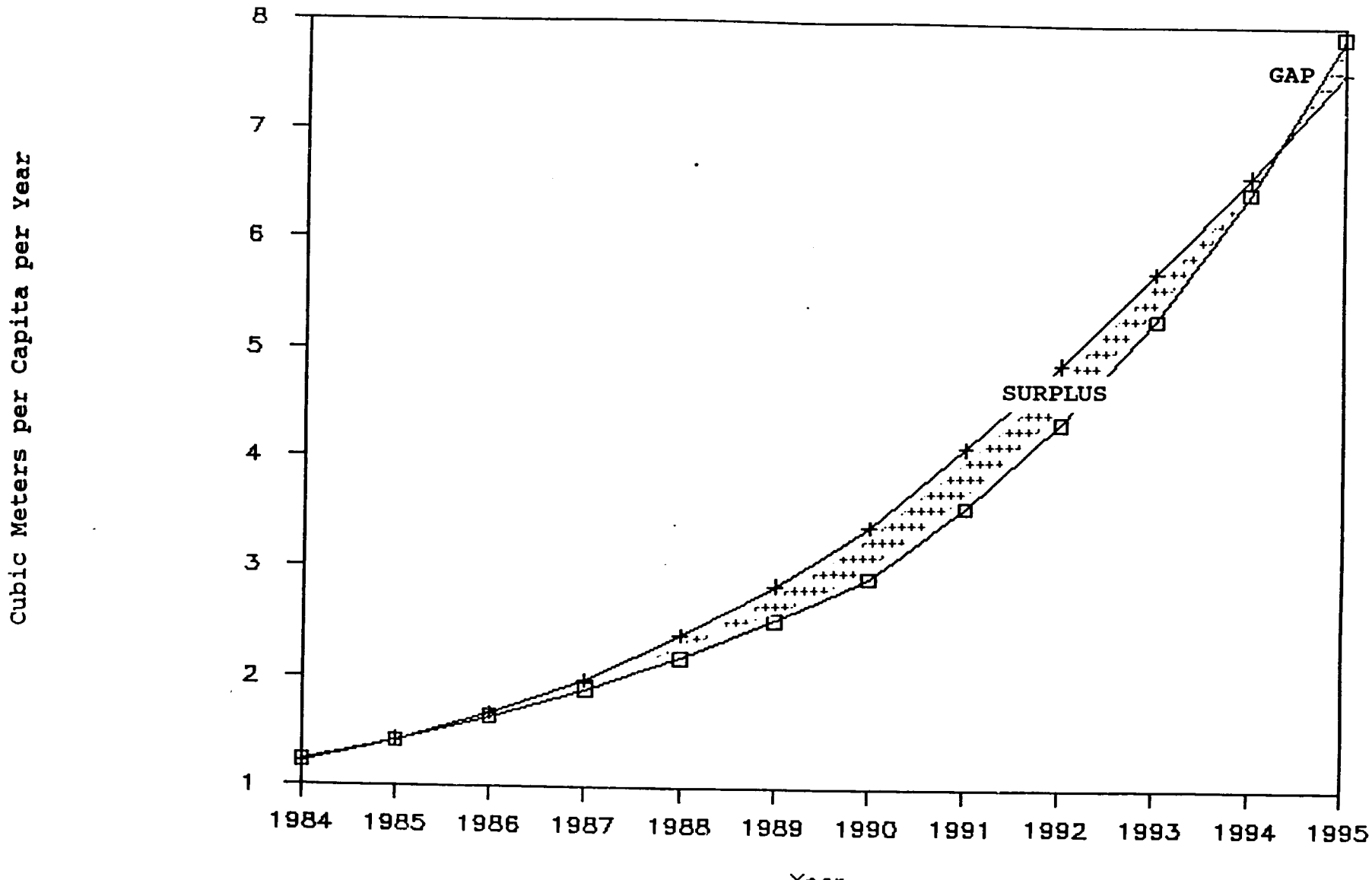
PROJECTED PER CAPITA WATER CONSUMPTION FROM DRILLED WELLS WITH PROGRAM

National Goals vs Projected Supply with Drilling and Rehabilitation Program

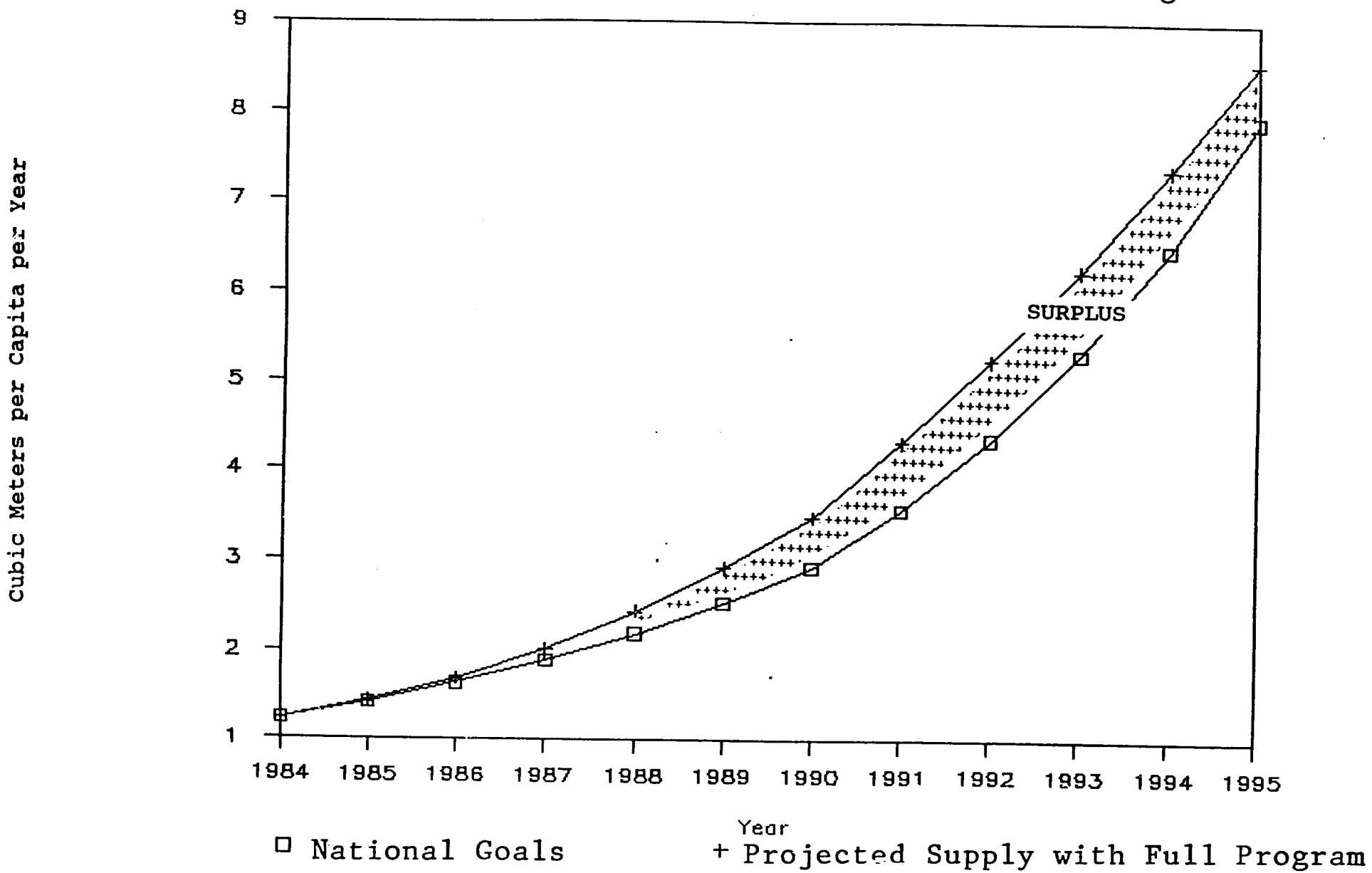


□ National Goals

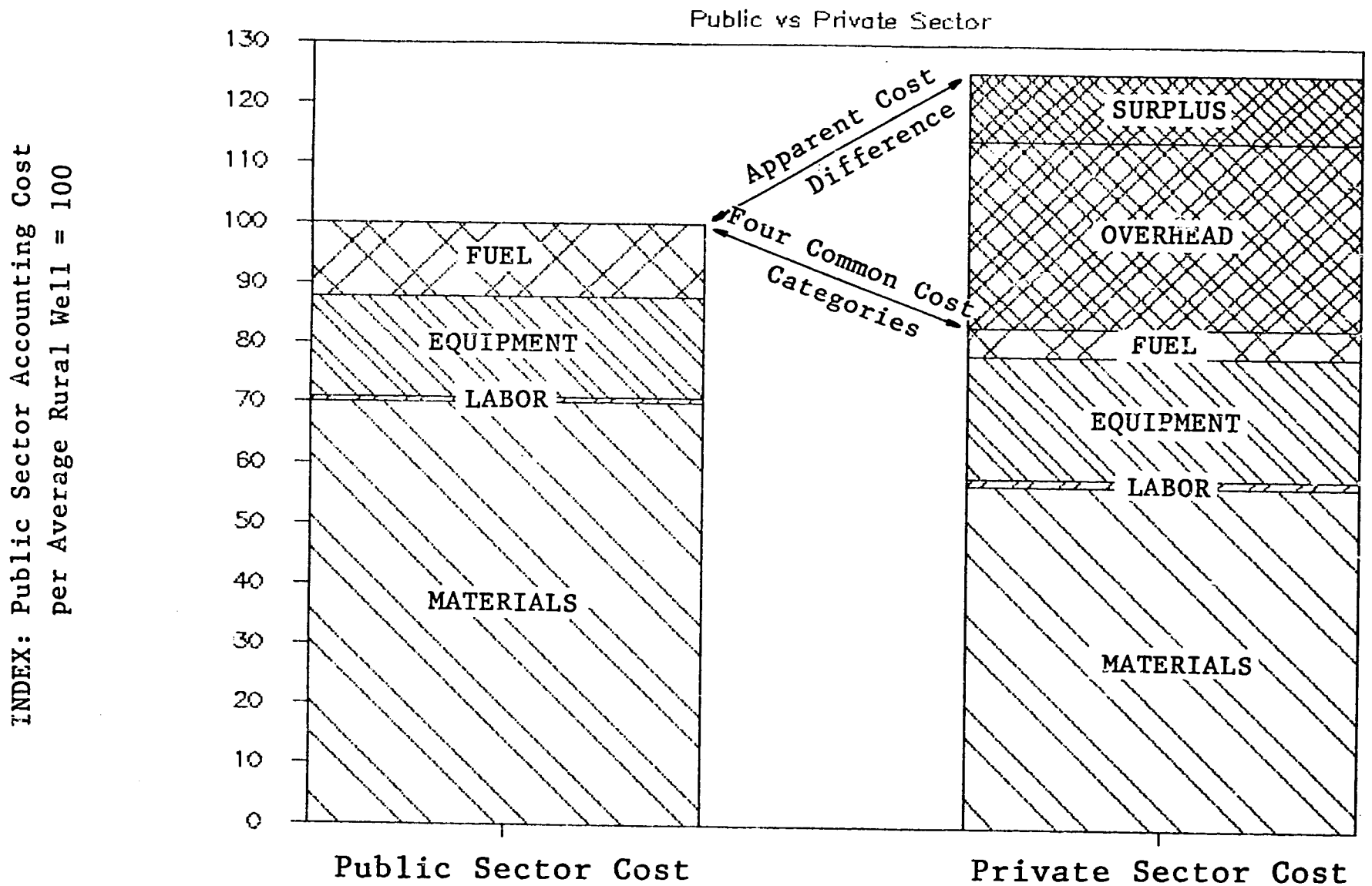
+ Projected Supply with Drilling & Rehabilitation Program

PROJECTED PER CAPITA WATER CONSUMPTION FROM DRILLED WELLS

National Goals & Projected Supply with Full Program

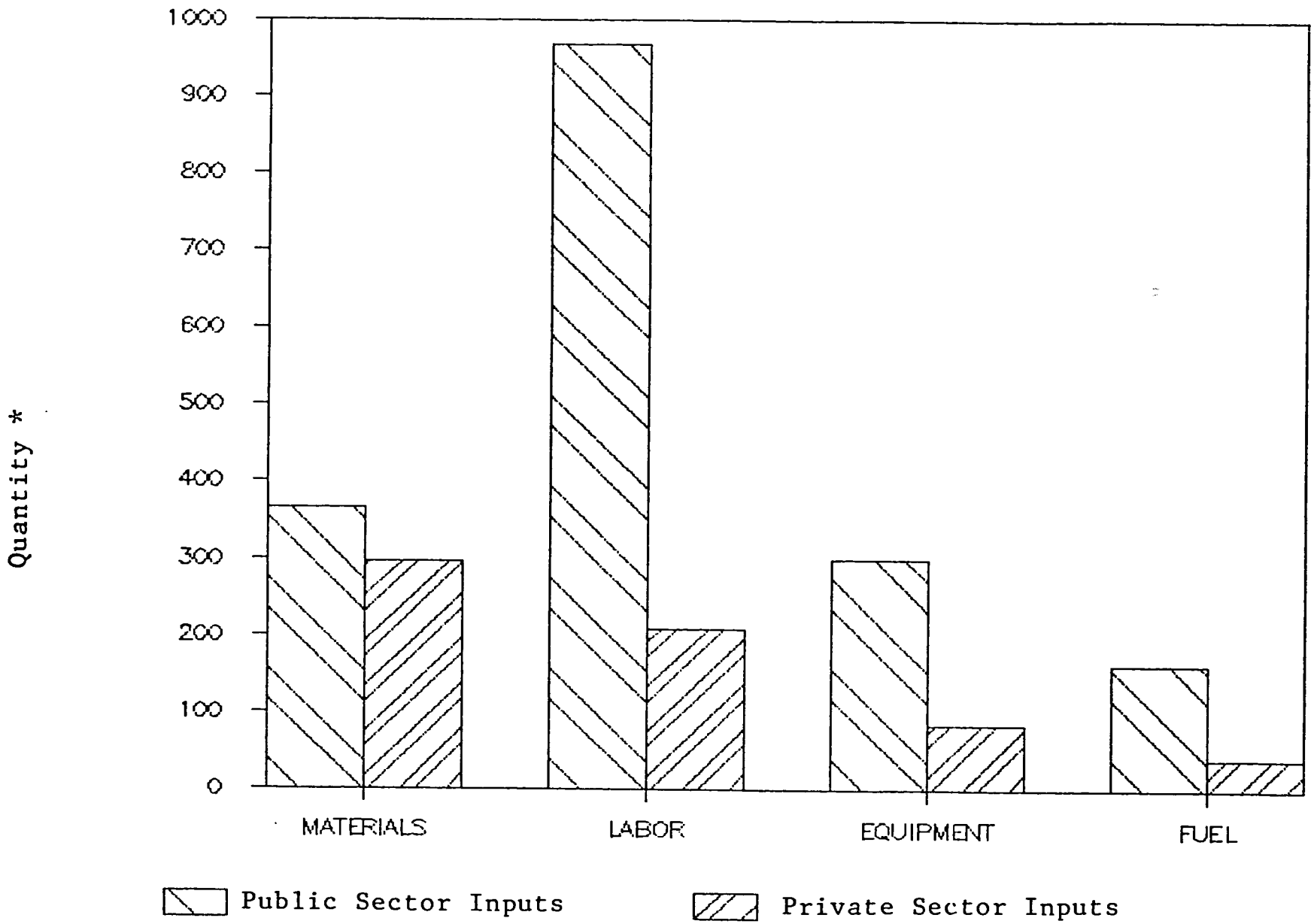


WELL DRILLING COSTS EMPLOYING DIFFERING PUBLIC & PRIVATE SECTOR ACCOUNTING CONVENTIONS FOR COMPARABLE RURAL WELLS



19

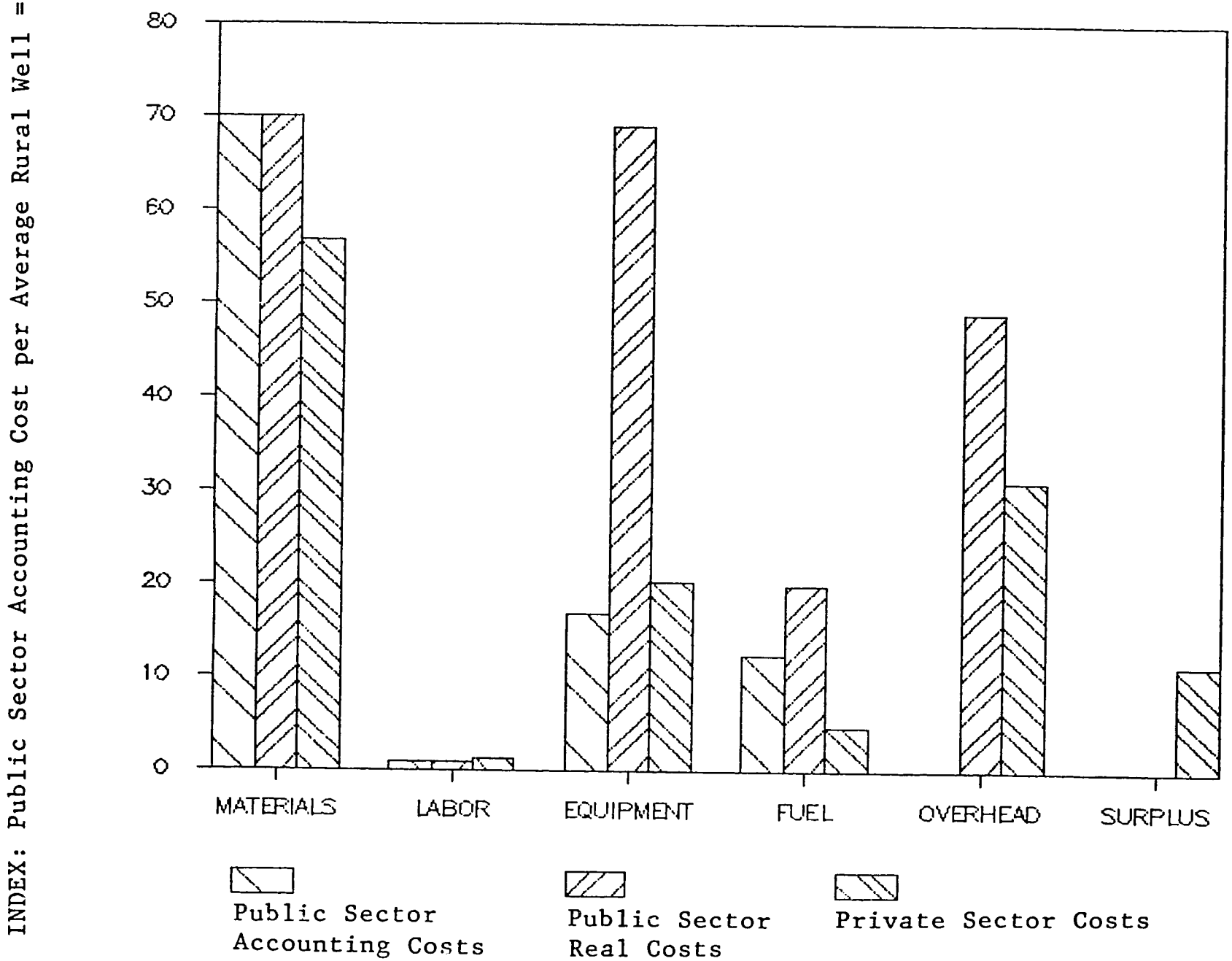
PUBLIC vs PRIVATE INPUTS INTO COMPARABLE DRILLED WELLS



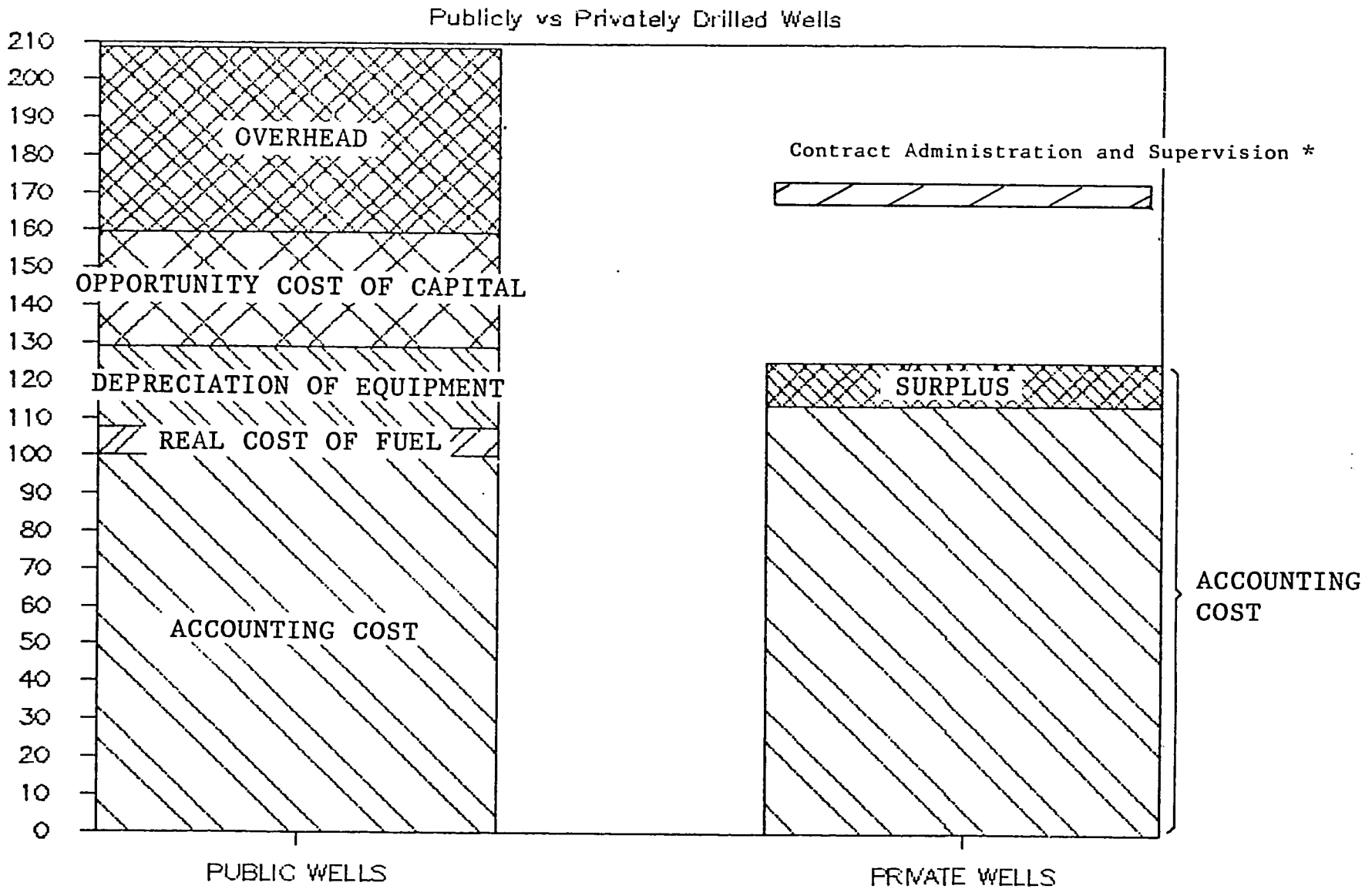
Person days of labor, equipment days, hundreds of liters of fuel, hundreds of dollars of materials per average rural well

COMPARATIVE WELL COSTS

Public Sector Accounting Costs, Public Sector Real Costs,
Private Sector Costs for Comparable Wells



ADJUSTMENTS TO ACCOUNTING COSTS FOR COMPARABLE WELLS



* Performed by Public Sector