be used to rank the two designs on the basis of the present value of net benefits.

$$N = \sum_{t=0}^{T} i\,(b - c_m)\,(1+r)^{-t} - \sum_{t=0}^{n-1} c_c\,(1+r)^{-t}$$

where

N = the present value of net benefit in rupees,
n = the number of million-acre projects,
i = an index: $i = t$, for $0 \leq t \leq n$; and $i = n$, for $t > n$,
r = discount rate,
T = economic time horizon, years,
b = gross benefits from crops per million net cultivated acres per year minus the annual costs of fertilizer, plant protection, improved seed and other costs not associated with water supply, million of rupees.
c_m = operating and maintenance costs of the tubewell system per million net cultivated acres, millions of rupees per year, and
c_c = capital costs per million net cultivated acres, millions of rupees,

Assume, for example, that $T = 30$ years, $r = 0.04$ (4 percent), $b = 242 \times 10^6$ rupees per year, and set the other parameters in accordance with values indicated on Table 7.4,

Parameter	Design 1 (with mining)	Design 2 (with recharge recovery)
n	16	12
c_c	292×10^6	168×10^6
c_m	23.2×10^6	13.2×10^6

The value of N in the economic efficiency ranking function is 35.8×10^9 rupees for the design with mining, and 33.1×10^9 rupees for the design in which recharge-water only is pumped. The difference in economic efficiency in favor of mining would be larger if the costs of transition to the second level of development had been taken into account. In making this computation we do not imply that economic efficiency is an appropriate criterion for justification of our plan for West Pakistan, or even that the particular formulation used is the best method for measuring economic efficiency. The results do, however, show that from the restricted viewpoint of the economics of water management, mining is justifiable.