EXAMPLE

To handle the uncertainty of appropriate internal rates of retulrn and likely time horizon for benefit realization, two possible annual benefit levels are given to illustrate the most likely range. The following assumptions are used in alternatives I and II.

Alternative I

1. The project has a useful life of 20 years.
2. The opportunity cost of capital is 12%.
3. The majority of costs are incurred during the first five years.
4. The benefits begin in year 2 at 1/3 of eventual annual benefit level, increase to 1/2 in year 3, increase to 2/3 in year 4, and reach full level by year 5 and constant through year 20.

Alternative II

1. The project has a useful life of 15 years.
2. The opportunity cost of capital is15%.
3. The majority of costs are incurred during the first five years.
4. The benefits begin in year 3 at 1/3 of the eventual annual benefit level, increase to 1/2 in year 4, to 3/4 in year 5, and reach full level by year 6 and remain constant through year 15.

No inflation factor is used in estimating costs, and hence the benefits must be interpreted as constant dollars as well. The results of the cost benefit analyses are given in Tables VII and VIII.

Total public sector investment in agriculture was estimated at $12.5 million in 1978. With increased emphasis on agricultural investments in numerous development organizations, IBRD expects this level of investment to increase over time. The annual benefits needed to realize the internal rates of returns to investment in alternatives I and II represent 7 dand 10 percent of thiss annual public sector investment, respectively. Increased net income of farmers as a result of improved extension delivery of known technology onlymight reasonable be expected to account for one-half of the annual benefit levels derived from alternatives I and II. In this case, the project would have to increase the effectiveness of public agricultural investments by 4 to 5 percent of the 1978 level. Since these investlments particularly from donor agencies seem likely to increase in constant dollars through time, one-half of this extension project benefits would represent less than 4 percent of these investments.

A small increase of less than 4 percent in efficiency of these programs through a more effective extension service seems attainable. First,the extension program will focus on the delivery of research from CARDI, WINBAN, CARDATS, UWI, and the