Cost-Benefit Analysis Case Study

Instructions:

1. Read the accompanying case study profile.

2. Use the techniques and concepts on present valuation and net present value to undertake a financial analysis of the project.

3. Base your analysis on a 6-year time period (years 0 through 5).

4. Your instructor will give you a discount rate to apply.

5. Make sure that you have included in your evaluation tableau all of the costs for each object code for each year of the project. Then transfer your estimates of capital, operating, and production costs in a separate evaluation tableau to derive the net present value.

6. Do your analysis first on an individual basis, after which you will be given time by the instructor to compare your results with other members of your designated group, and to prepare a synthesis of findings.

7. Transfer your results on to a flip chart sheet and be prepared to select are representative of your group who will make a presentation to other members of the class.

The Am Djena Livestock Project

Am Djena is a village in the central southwest part of the Republic of Tchebou Djin. At one time agricultural activity in this region was largely devoted to wheat and corn. Since then, deteriorating soil conditions, declining yields and a persistent drought during the last decade have forced the local population to re-evaluate their economic priorities.

In the past, livestock used to play an important role in village life. Following a recent study by a development economist, the annual value of livestock production in the village of Am Djena and the neighboring land amounted to approximately CFA 20,000,000 per year. At current exchange rates, one U.S. dollar is worth CFA 250. A major finding in this economic study was that if villagers continued to use traditional production methods, there would be little hope of improving livestock production and income.

Am Djena villagers already have much experience in livestock cultivation, and noted that it was becoming increasingly important to them as a means of providing increases in income in the face of declining and erratic rainfall patterns. Not long ago, village leaders called in technical extension services from the Ministry of Agriculture to help them improve their livestock cultivation techniques, an appeal that seemed to have fallen largely on deaf ears at the department for the most part, largely for reasons of bureaucratic inertia and the continuing fiscal crisis.

Finally, after much deliberation and negotiation, the Ministry of Agriculture created a working group to undertake an experimental livestock project. A group of donor agencies reviewed the project and decided to provide an unrestricted grant of several million francs to assist in this project.

Thanks to the project, farmers interested in improving their livestock production and marketing now had an important opportunity. Given the level of interest expressed by the inhabitants of Am Djena, the Ministry of Agriculture decided to make it the focal point of the livestock demonstration project.

An initial survey undertaken of local conditions indicated that were the project to be completed, it would result in an additional level of livestock production valued at CFA 7 500 000 CFA during the first year and 21 000 000 CFA during the remaining five years of the project.

Given your expertise in public management, a member of the study commission has asked you to undertake the financial analysis of the Am Djena livestock project. Your task is to derive the Net Present Value of the livestock project based on the following technical data which have been gathered by the project management team and on the discount rate which will be supplied to you for this evaluation:

Basic Data on the Am Djena Livestock Project

The project will encompass several activities:

a. an **extension outreach program** which:
   i. will organize local producers
   ii. will educate local participants as the range and scope of the project
b. a **cadastral survey** of local grazing lands
c. a **vaccination program**
d. the introduction of a **modern marketing system** for local producers.

The extension outreach program will be undertaken during the first 3 years of the project. It will require the hiring of 5 extension workers during this period. They will be responsible for increasing awareness among local farmers of the nature and scope of the project. In terms of local transport, each worker will have a new motorcycle and 250 litres of gasoline per year in order to reach all of the local villagers in the region. This part of the program will end after 3 years.

The cadastral survey will entail the construction of livestock fences on the lands ceded to the project by participating local villagers. The survey team has estimated that it will be necessary to construct 10 kilometers of enclosure fences for the project to succeed. To do so, the project will call for the hiring of 5 workers who will complete the construction project. This phase of the project will be completed at the end of 1 year.

The vaccination program will be undertaken on all livestock during each year of the project. A livestock survey revealed that there were approximately 4,000 cattle in the region. Five vaccinators from Am Djena will be hired to undertake this activity and will be paid throughout the year. Each vaccinator will receive syringes and other essential equipment. The campaign will require purchase of 5 motorcycles for their transportation and the provision of 750 litres of gasoline per vaccinator per year to undertake this activity.

The marketing structure will involve 5 years of the project. First there will be a livestock marketing warehouse in order to facilitate market sales. In addition, a used truck is expected to be purchased to transport cattle to the major market in Amgue Khallis Waye. It is expected that the local villagers

will constitute themselves into a marketing cooperative for this project and that they will take responsibility for organizing the marketing activities. For the time being, 1,500 litres of gasoline and CFA 300,000 per year have been set aside for maintenance. These expenditures will terminate at the end of five years.

Management of the project will be undertaken by a director. A secretary-administrative assistant and a chief accountant will assist the manager in implementing the project. In addition, the project will require hiring of a truck mechanic who will also work as driver of the truck for the project. The manager will report directly to the development officer in the Ministry of Agriculture.

Equipment, Supplies and Personnel Costs of the Project:

(All data are given in CFA currency)

Personnel	Quantity	Monthly Salary	Period of Service
Secretary/Admin.Asst.	1	95,000	Project Lifetime
Workers	5	35,000	1 year
Extension Workers	5	70,000	3 years
Vaccinators	5	25,000	Project Lifetime
Mechanic/Driver	1	75,000	Project Lifetime
Manager	1	250,000	Project Lifetime
Accountant	1	125,000	Project Lifetime

Equipment and Supplies	Activity:	Unit Price	Expected Life
Motorcycle	V,A	150,000	3 years
Fencing Enclosure	P	50,000/km	
Vaccines	V	1,000/per head	
Syringes and Supplies	V	10,000/vaccinator	5 years
Gasoline	A,V,C	325/litre	
Truck	C	1,000,000	6 years
Marketing Building	C	150,000	

V = Vaccination Program
A = Extension Outreach Program
P = Cadastral Survey
C = Marketing Program

Am Djena Project Annual Budget Worksheet

			Project Operating Year:	
	Units	**Unit Price**	**Payment Frequency**	**Total Annual**
Operating Costs:				
Labor				
Manager				
Accountant				
Workers				
Administration				
Vaccinators				
Mechanic				
Gasoline for:				
Outreach				
Vaccination				
Marketing				
Vehicle				
Maintenance				
Operating Cost Sub-Total				
Capital Outlays				
Motorcycles (outreach)				
Fencing				
Syringes, etc.				
Shed				
Truck				
Capital Outlays Sub-Total				
Production Costs:				
Vaccines				
Production Costs Sub-Total				
Project Grand Total Annual Cost				