The Management University of Africa

Sponsored by the Kenya Institute of Management

POST GRADUATE UNIVERSITY EXAMINATIONS

SCHOOL OF MANAGEMENT AND LEADERSHIP

DEGREE OF MASTER OF ARTS IN DEVELOPMENT STUDIES

MDP 516: PROJECT APPRAISAL AND ANALYSIS

DATE: 8TH APRIL 2026

DURATION: 3 HOURS

MAXIMUM MARKS: 60

INSTRUCTIONS:

1. Write your registration number on the answer booklet.
2. **DO NOT** write on this question paper.
3. This paper contains **FOUR (4)** questions.
4. Question **ONE is compulsory.**
5. Answer any other **TWO** questions.
6. Question **ONE** carries **30 MARKS** and the rest carry **15 MARKS** each.
7. **Write all your answers in the Examination answer booklet provided**

QUESTION ONE

Read the Case Study below carefully and answer the questions that follow:

CASE STUDY: SUNRISE AGRO-PROCESSING PLANT

In 2024, Sunrise Foods Ltd, a Kenyan agro-processing startup, proposed a $15 million maize milling and packaging plant in the eastern region of Kenya (Tharaka Nithi County). The plant aimed to reduce post-harvest losses, add value to local maize production, create employment for over 500 locals, and supply domestic and export markets in East Africa. Given the scale of the investment, Sunrise Foods commissioned a comprehensive project appraisal study to evaluate the technical, financial, social, and environmental viability of the project. The project appraisal objectives involved determine economic and financial feasibility., assess long-term returns on capital, evaluate social and environmental impact, and identify risks and propose mitigation measures.

The methods of which were used for project appraisal included Technical Appraisal (evaluated plant capacity (60 tons/day), equipment requirements, and technology suitability; and Verified land accessibility, power availability, and water supply); Financial Appraisal (which focused on funding structure, capital requirements, profitability, and payback period); Economic Appraisal (which estimated the contribution to regional development and agricultural value chains); Social Appraisal (which **c**onsidered job creation, community well-being, and inclusion of smallholder farmers); and Environmental Appraisal (which reviewed the potential environmental impact of factory emissions and waste).

The project manager also used Capital Investment Appraisal Techniques for project decision where NPV of $3.2 million (discount rate: 10%), indicating a profitable venture; IRR estimated at 17.8%, exceeding the

firm's required rate of 12%; Payback Period was estimated at 5.5 years; and Profitability Index (PI) of 1.21, confirming positive return per unit of investment. These indicators collectively demonstrated strong financial viability for investors. Social Cost-Benefit Analysis (SCBA) indicated social benefits such as local employment (500 jobs, farmer price stabilization, skill development, food security, and infrastructure development. The monetary benefits included $1.5M in annual income generation, reduced volatility for 2,000+ farmers, vocational training for 300 youth annually, improved maize availability and lower food loss and stimulated road and utility upgrades by local government. Social Costs involved displacement of 15 households (relocated with compensation) and increased local traffic and noise during construction. The Net Social Benefit realised was **s**ignificantly positive, with broader economic multipliers and community benefits.

The project manager also used valuation techniques for assessing tangible and intangible project elements like plant, machinery, land, maize products and by-products (bran, flour), employment, health access) and value displaced households and assets. These techniques informed fair compensation, budgeting, and long-term benefit estimation. A comprehensive risk register was developed and is reviewed biannually. Some of the risk was identified upon environmental impact assessment which was conducted by an independent environmental consultant in accordance with Kenyan's National Environmental Management Authority (NEMA) guidelines. A positive EIA certificate was issued, with quarterly compliance monitoring planned. Based on multi-dimensional appraisal, the Sunrise Agro-Processing Plant was recommended for full investment approval. The project began construction in early 2025 and is expected to be operational by 2026.

Required:

a) Analyze how the combination of financial and social appraisals contributed to the project's approval.

(6 Marks)

b) Evaluate the effectiveness of the risk management strategies in ensuring project sustainability**.**

(6 Marks)

c) Assess the adequacy of the environmental mitigation measures in meeting regulatory and sustainability goals**.**

(5 Marks)

d) Design an improved capital investment appraisal framework that includes both economic and non-monetary returns.

(5 Marks)

e) Propose a comprehensive stakeholder communication strategy for the implementation phase of the project. **(8 Marks)**

QUESTION TWO

a) Discuss the application of internal rate of return (IRR) to evaluate whether a company should invest in a new manufacturing facility, and explain the reasoning behind your decision.

(7 Marks)

b) Describe four applications of risk and uncertainty analysis to a construction project

(8 Marks)

QUESTION THREE

a) Apply a suitable project valuation technique to determine the economic value of a technology startup

(5 Marks)

b) Apply Environmental Impact Assessment (EIA) to a proposed industrial park project and illustrate how it can be used to ensure sustainable project development**.**

(10 Marks)

QUESTION FOUR

a) Analyze how understanding project constraints at each of the stages of the project life cycle contributes to successful project management. **(6 Marks)**

b) Apply the Social Cost-Benefit Analysis (SCBA) approach to assess a proposed rural electrification project, highlighting how this method supports decision-making beyond financial returns**.**

(9 Marks)