



The slide features a background with a light green and grey gradient. At the top center is the logo for THE INDEPENDENT INSTITUTE OF EDUCATION (TIE). To the left is the Varsity College logo, and to the right is the CORPRO SA logo (CORPORATE PROJECT CONSULTANTS SOUTH AFRICA). The title "Enterprise Risk Management" is centered in bold black text. Below it, "PRESENTED BY" is written in smaller black text, followed by the name "Thinus Nienaber" in bold black text. A small South African flag is located in the bottom right corner.

THE INDEPENDENT INSTITUTE OF EDUCATION

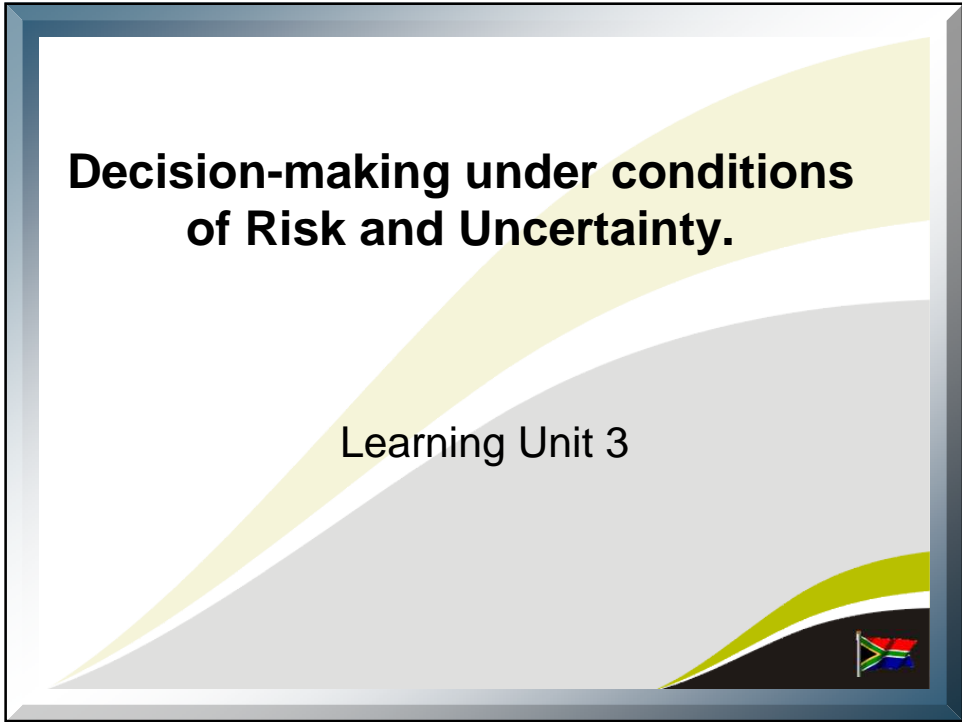
Varsity College

CORPRO SA
CORPORATE PROJECT CONSULTANTS SOUTH AFRICA

Enterprise Risk Management

PRESENTED BY

Thinus Nienaber



The slide features a background with a light green and grey gradient. The title "Decision-making under conditions of Risk and Uncertainty." is centered in bold black text. Below it, "Learning Unit 3" is written in black text. A small South African flag is located in the bottom right corner.

Decision-making under conditions of Risk and Uncertainty.

Learning Unit 3

Learning Outcomes.

- Apply expected monetary value (EMV) criterion;
- Examine Probability theory;
- Compare probability distributions;
- Adopt expected utility criterion;
- Distinguish between:
 - **Maximin** decision criterion;
 - **Minimax** regret decision criterion;
 - **Maximax** decision criterion.



Expected Monetary Value (EMV).

Decision where outcomes:

- Expressed in monetary terms
- Probabilities of outcomes are known.

Choose path with greatest EMV.

Calculate probabilities and outcomes – p56 – p57

Self insure at pure premium but loss would be 0% or 100%. Pool would be better?



Types of Probabilities.

Objective or priori probability

- Intuitively known,
- Basis of deductive reasoning – no observation of actual frequency,
- Occurrence due to chance alone.

Subjective probabilities

- Decision maker simply estimates,
- Estimate by contrast to known probability,
- Insufficient info available.

Relative frequencies leading to empirical probabilities.



5

Types of Probabilities.

Relative frequencies leading to empirical probabilities

- Observation, experimentation or measurement,
- Most common method,
- Relative frequency,
- Confidence on relative frequency – empirical (also statistical or inductive probabilities),
- 2 x Assumptions,
- Frequent vs infrequent events,
- LT (empirical probability) vs ST (Loss ratios),



6

Probability Distribution.

Binomial distribution.

- Deals with two states of outcome ie loss or no loss,
- Two parameters distribution description,
 - Total number of events (N),
 - Probability (p) that event will take place.

Example p 61 - 62



7

Probability Distribution.

Normal distribution.

- Two parameters distribution,
 - Expected value (mean),
 - Standard deviation,
 - Then any probability of any desired outcome calculated,
 - Bell-shaped,
 - Select lambda to give required degree of confidence.

Example p 63 - 64



8

Probability Distribution.

Poisson distribution.

- Single parameters distribution – ie the distribution's expected value,
- N is large,
- Assumed relationship between expected value and standard deviation should be reasonable.

Example p 65 - 66



9

Expected Utility Criterion.

Attempt to explain why people make decisions different to what EMV criterion suggests.

People do not value money in linear fashion – marginal utility diminishes.



10

Decision Criterion.

Maximin decision criterion.

Minimax decision criterion.

Maximax decision criterion.



11

Thank you.

