Centre for Municipal Asset Management

SOUTH AFRICAN LOCAL GOVERNMENT ASSOCIATION
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Centre for Municipal Asset Management (CMAM) In Collaboration with South African Local Government Association (SALGA) Presents

2021

THE LOCAL GOVERNMENT ASSET MANAGEMENT GRAP CAPACITATION PROGRAMME

"Towards Elimination of Asset Management Audit Findings in Municipalities"

Impairment Testing & Calculations

Practical & LG Relevance

Impairment Testing & Calculations

- Recapping key terms
- Approach to impairment testing
- Determining impairment
- Recoverable amount/ service amount
  - Determining fair value less cost to sell
  - Determining value in use

Recapping key terms

IMPAIRMENT

- a loss in the future economic benefits or service potential of an asset, over and above the systematic recognition of the loss of the asset's future economic benefits or service potential through depreciation

FAIR VALUE LESS COSTS TO SELL

- the amount obtained from the sale of an asset or cash-generating unit in an arm's length transaction between a willing buyer and seller, less the costs of disposal.

VALUE IN USE

- is the present value of the non-cash-generating asset's remaining service potential.; OR

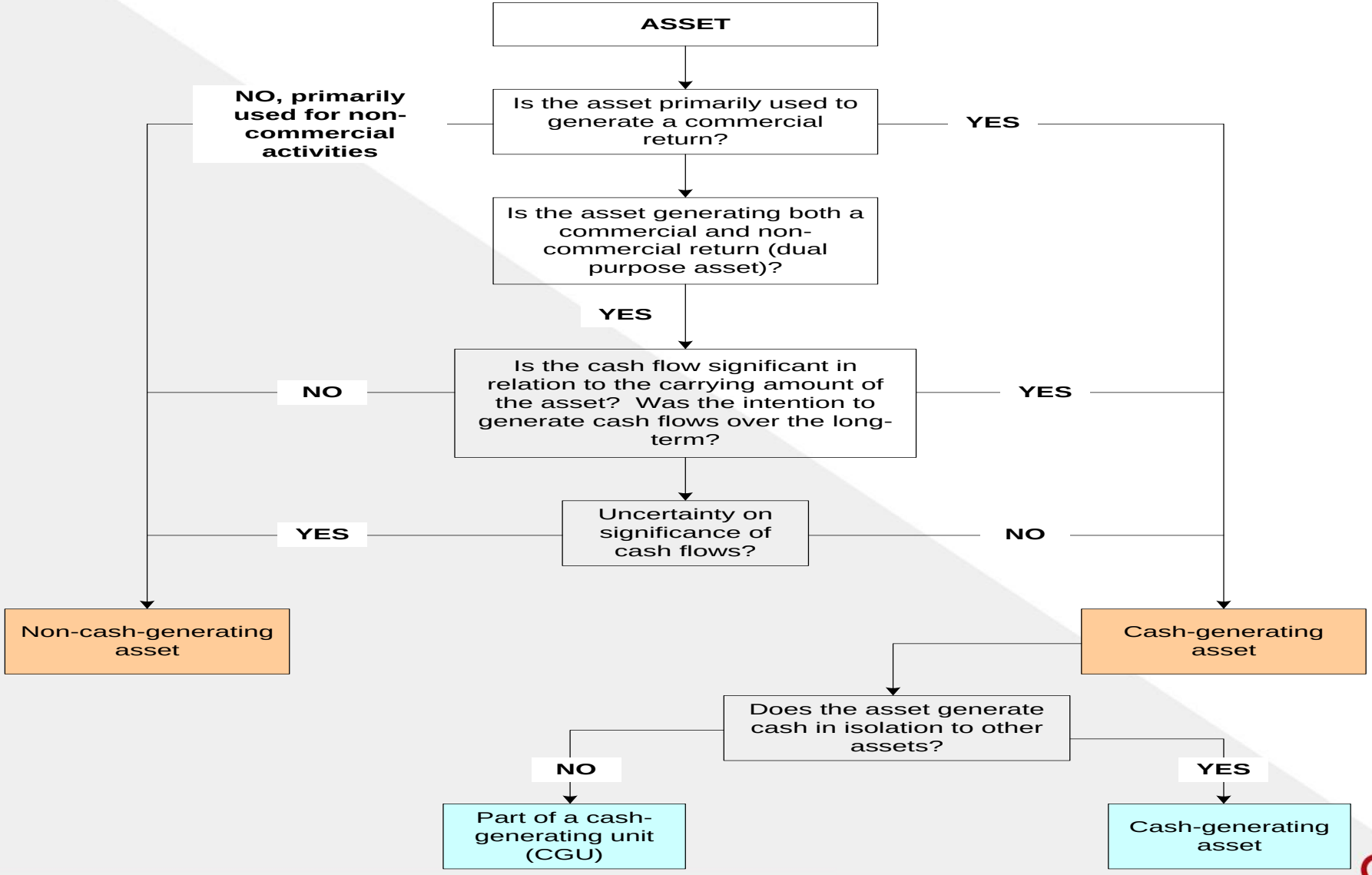
the present value of future cash flows expected to be derived from an asset or cash-generating unit.

CASH AND NON-CASH GENERATING ASSETS

Cash-generating assets are assets held with the primary objective of generating a commercial return.

Non-cash-generating assets are assets other than cash-generating assets.

Cash vs non-cash generating assets



Approach to impairment testing

STEP 1

- Assess whether there is an indication that an asset may be impaired. Note that if there is no such indication then no further action is required.

STEP 2

- If there is an indication of impairment, then measure the asset's recoverable amount or recoverable service amount.

STEP 3

- Reduce the asset's carrying value to its recoverable amount or recoverable service amount.

STEP 4

- If there is an indication that an impairment loss recognised in the prior periods may no longer exist or may have decreased, the recoverable amount or recoverable service amount must be determined.

STEP 1: Assess whether there is an indication that an asset may be impaired-CGA

External sources (cash-generating asset)	Internal sources (cash-generating asset)
decline in the asset's market value that is significantly greater than would be expected as a result of passage of time or normal use;	obsolescence or physical damage affecting the asset;
significant adverse changes in the technological market, economic or legal environment in which the entity operates or in its markets or expected in the near future;	significant adverse changes in the extent to which, or in the way that an asset is used or expected to be used, including plans to discontinue or reorganize the operation to which the asset belongs or to dispose of the asset;
increases in interest rates or market rates of return that may materially affect the discount rate used in calculating the asset's recoverable amount.	re-assessing the useful life of an asset as finite rather than indefinite;

STEP 1: Assess whether there is an indication that an asset may be impaired-NCGA

External sources (non-cash-generating asset)	Internal sources (non-cash-generating asset)
cessation, or near cessation, of the demand or need for services provided by the asset;	evidence is available of physical damage of an asset;
significant long-term changes with an adverse effect on the entity have taken place during the period or will take place in the near future, in the technological, legal or government policy environment in which the entity operates.	significant long-term changes with an adverse effect on the entity have taken place during the period, or are expected to take place in the near future, in the extent to which, or manner in which, an asset is used or is expected to be used. These changes include the asset becoming idle, plans to discontinue or restructure the operation to which an asset belongs, or plans to dispose of an asset before the previously expected date;

STEP 1: Assess whether there is an indication that an asset may be impaired

You are only required to make a formal estimate of recoverable amount/ service amount when there is an indication that an asset may be impaired!

If previous assessments show that an asset's recoverable amount/ service amount is significantly greater than its carrying amount, the entity need not re-estimate the asset's recoverable amount/ service amount if no events have occurred that would eliminate that difference.

PROPERTY, PLANT AND EQUIPMENT

01 LAND

No.	Question	Answer
1	Have there been changes in the market conditions that may evidence a decline in the value of land? Consider whether any of the following are applicable:	
1.1	Has there been a increase in interest rates?	
1.2	Has there been a general economic slow down in the area?	
1.3	Has there been a slow down in the real-estate market that would make it difficult to sell or lease land?	
2	Has there been any environmental changes that would result in a decrease in the value of the land?	
2.1	Have any natural disasters (floods, etc.) occurred that would impede the entity's ability to utilise the land?	
2.2	Have any chemical spills occurred that contaminated the land?	
2.3	Have geological surveys indicated ground / rock formations that would limit the usability of the land?	
2.4	Have any biological waste spillages taken place, that have polluted the land and or surrounding water reserves?	

IMPINDICATORS

PROPERTY, PLANT AND EQUIPMENT

02 OFFICE BUILDINGS

No.	Question		Answer
1	Have there been changes in the market conditions that may evidence a decline in the value of buildings? Consider whether any of the following are applicable:		
1.1	Has there been a increase in interest rates?		
1.2	Has there been a general economic slow down in the area?		
1.3	Has there been a slow down the real-estate market, making it more difficult to sell or lease office buildings?		
2	Has the building been physically damaged to such an extent that the structural integrity of the building has been compromised?		
3	Have changes in building regulations made it necessary for structural improvements to the office building?		
4	Have any events occurred that have made the building uninhabitable, when taking the Occupational Health and Safety Act into consideration?		
5	Has there been an increase in the regularity with which maintenance is required / conducted on the building?		

IMPINDICATORS

2. PROPERTY, PLANT AND EQUIPMENT - INFRASTRUCTURE

3.1 ROADS AND PAVING

No.	Question	Answer
1	Has the need to re-surface or re-seal road or pavement surfaces in creased?	
2	Have roads been re-surfaced or re-sealed on a more frequent basis? (I.e. is there a higher occurrence of pot-holes?)	
3	Have any of the roads been replaced by detours?	
4	Have there been any damage to any of the road or pavement surfaces?	
4.1	Have road signs required increased maintenance?	
4.2	Have road signs and / or street names been increasingly vandalised?	
4.3	Have street lamps required a increased maintenance?	
5	Are any of the roads (or portions thereof) used extensively by heavy load bearing trucks?	

IMPNDICATORS

2. PROPERTY, PLANT AND EQUIPMENT - INFRASTRUCTURE

3.2 WATER DISTRIBUTION NETWORK

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IMPINDICATORS

No.	Question	Answer
1	Has there been an increase in the reticulation losses?	
2	Have any of the elements / portions of the water network been damaged?	
3	Has there been an increase in the frequency with which repairs of the water distribution network (pipes) has to be undertaken?	
4	Has there been a decrease in the water quality, that may be indicative of damage to the water distribution pipes?	
5	Have there been interruptions in the water supply to any of the areas serviced by the municipality and have the frequency of the interruptions increased?	
6	Have there been changes in technology that have rendered certain parts of the water distribution network obsolete?	
6.1	Have manufacturing of certain of the parts (spare parts, etc.) of the water distribution (water pumps, valves, etc.) ceased?	
6.2	Have changes in technology rendered new replacement parts incompatible with the existing equipment?	
6.3	Have changes in technology resulted in improved equipment that will improve the performance (efficiency, etc) of the water distribution network?	
7	Have any of the equipment been unable to continue working for the same periods of time that they were previously able to?	

2. PROPERTY, PLANT AND EQUIPMENT - - INFRASTRUCTURE

03.3 ELECTRICITY DISTRIBUTION NETWORK

No.	Question	Answer
1	Has there been an increase in the distribution losses?	
2	Have any of the elements / portions of the electricity network been damaged? Has the damage impeded the performance thereof?	
3	Has there been an increase in the frequency with which repairs of the electricity distribution network has to be undertaken?	
3.1	Increase in the frequency with which the substations and mini-substations had to be repaired?	
3.2	Increase in the frequency with which the electricity cables needed replacing?	
3.3	Have there been an increase in the extent to which wooden electricity poles needed to be replaced due to rotting?	
4	Has there been an increase in the regularity with which power failures occur in any of the areas serviced by the municipality?	
5	Have there been changes in technology that have rendered certain parts of the electricity distribution network obsolete?	
5.1	Have manufacturing of certain of the parts (spare parts, etc.) of the substations / mini-substations ceased?	
5.2	Have changes in technology rendered new replacement parts incompatible with the existing equipment?	
5.3	Have changes in technology resulted in improved equipment that will improve the performance of the electricity distribution network?	
6	Have any of the equipment been unable to continue working for the same periods of time that they were previously unable to?	
7	Have any parts or sections of the electricity distribution network been taken out of use?	

2. PROPERTY, PLANT AND EQUIPMENT - INFRASTRUCTURE

03.4 SEWERAGE

No.	Question	Answer
1	Has there been an increase in the reticulation losses?	
2	Have any of the elements / portions of the sewer network been damaged?	
3	Has there been an increase in the frequency with which repairs of the sewer network (pipes) has to be undertaken?	
5	Have there been changes in technology that have rendered certain parts of the sewer network obsolete?	
5	Have manufacturing of certain of the parts (spare parts, etc.) of the sewer network (water pumps, valves, etc.) ceased?	
5	Have changes in technology rendered new replacement parts incompatible with the existing equipment?	
5	Have changes in technology resulted in improved equipment that will improve the performance (efficiency, etc) of the sewerage network?	
6	Has any of the sewerage contaminated any of the municipality's water supplies?	
7	Have any of the equipment been unable to continue working for the same periods of time that they were previously unable to?	
8	Have any of the parts and or sections of the sewerage network been taken out of use?	

IMPINDICATORS

2. PROPERTY, PLANT AND EQUIPMENT - INFRASTRUCTURE

03.5 PEDESTRIAN MALLS

No.	Question	Answer
1	Has there been a slow down the real-estate market, making it more difficult to sell or lease these spaces?	
2	Has the building been physically damaged to such an extent that the structural integrity of the building has been compromised?	
3	Have changes in building regulations made it necessary for structural improvements to the building?	
4	Have any events occurred that have made the building uninhabitable, when taking the Occupational Health and Safety Act into consideration?	
5	Has there been an increase in the regularity with which maintenance is required / conducted on the building?	

IMPINDICATORS

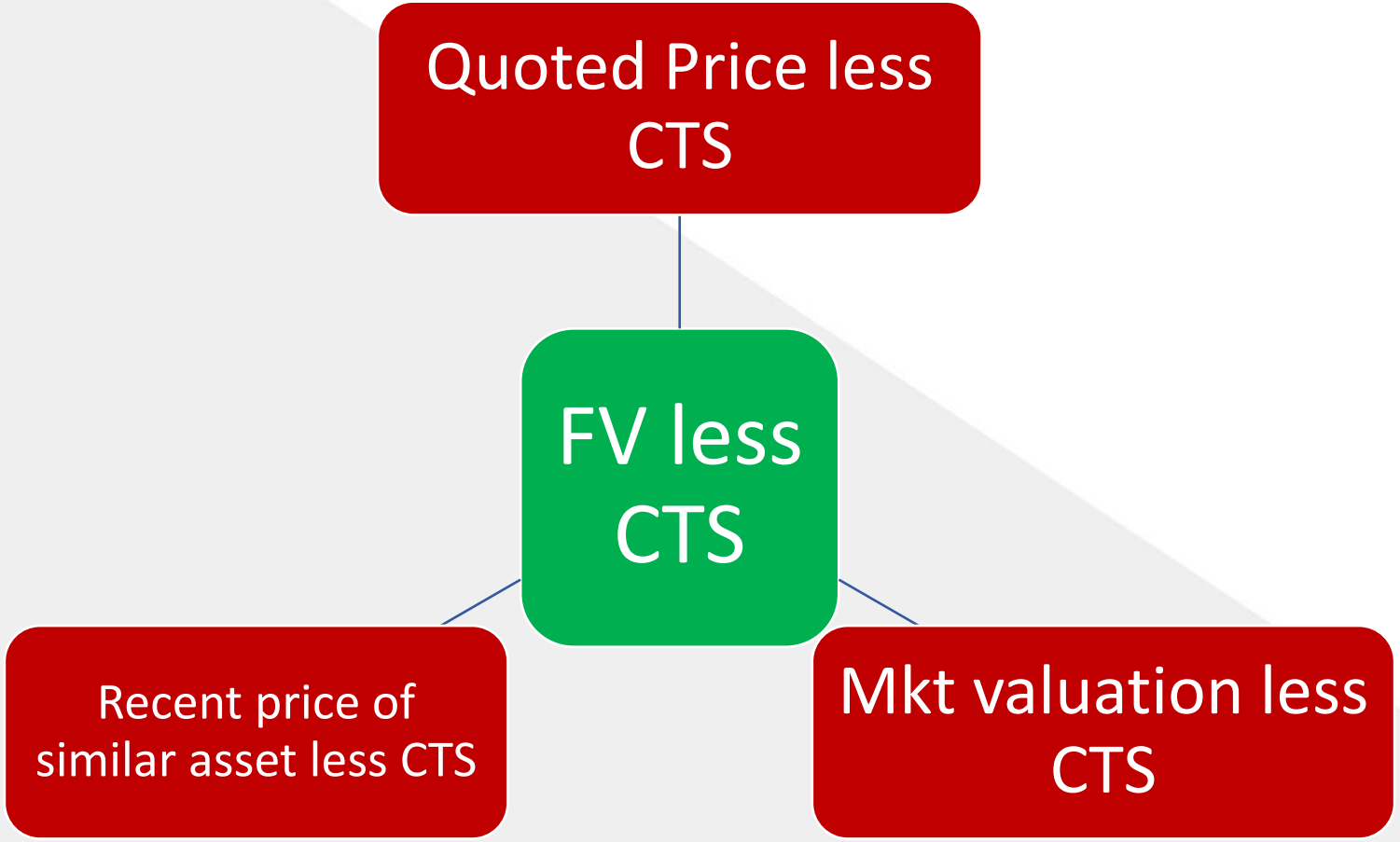
STEP 2: Measure the asset's recoverable amount or recoverable service amount.

Recoverable amount
OR
Recoverable service amount

= HIGHER of

- Fair value less cost to sell
- Value in use

STEP 2: Fair value less cost to sell.



STEP 2: Value in use - CGA.

$$PV(FCI - FCO + NDP)$$

- Where PV = Present Value, FCI = Future Cash Inflows, FCO = Future Cash Outflows and NDP = Net Disposal Proceeds (receipts less auction fees, etc)

- At the beginning of 20X0, the department of minerals and energy, puts into service a power plant that it constructed for R250 million.
- At the beginning of 20X4, power plants constructed by competitors are put into service resulting in a reduction in the revenues produced by the power plant of the department. Reductions in revenue result because the volume of electricity generated has decreased from expectations and also because the prices for electricity and stand-by capacity have decreased from expectations.
- The reduction in revenue is evidence that the economic performance of the asset is worse than expected. Consequently, the department is required to determine the asset's recoverable amount.
- The department uses straight-line depreciation over a 20-year life for the power plant and anticipates no residual value.
- It is not possible to determine the fair value less costs to sell of the power plant. Therefore recoverability can only be determined through the calculation of value in use. To determine the value in use for the power plant (see Schedule 1), the department:

a) prepares cash flow forecasts derived from the most recent financial budgets/forecasts for the next five years (years 20X5-20X9) approved by management;

b) estimates subsequent cash flows (years 20Y0-20Y9) based on declining growth rates ranging from -6 percent per annum to -3 percent per annum; and

c) selects a 6 percent discount rate, which represents a rate that reflects current market assessments of the time value of money and the risks specific to the department's power plant.

Schedule 1 – Calculation of the value in use of the department's power plant at the end of 20X4

Year	Long-term growth rates	Future cash flows	Present value factor at 6% discount rate	Discounted future cash flows (RMillion)
20X5		16.8	0.9434	15.8
20X6		14.4	0.8900	12.8
20X7		14.2	0.8396	11.9
20X8		14.1	0.7921	11.2
20X9		13.9	0.7473	10.4
20X10	-6%	13.1	0.7050	9.2
20X11	-6%	12.3	0.6651	8.2
20X12	-6%	11.6	0.6274	7.3
20X13	-5%	11	0.5919	6.5
20X14	-5%	10.5	0.5584	5.9
20X15	-5%	10	0.5268	5.3
20X16	-4%	9.6	0.4970	4.8
20X17	-4%	9.2	0.4688	4.3
20X18	-3%	8.9	0.4423	3.9
20X19	-3%	8.6	0.4173	3.6
Value in use				**121.1**

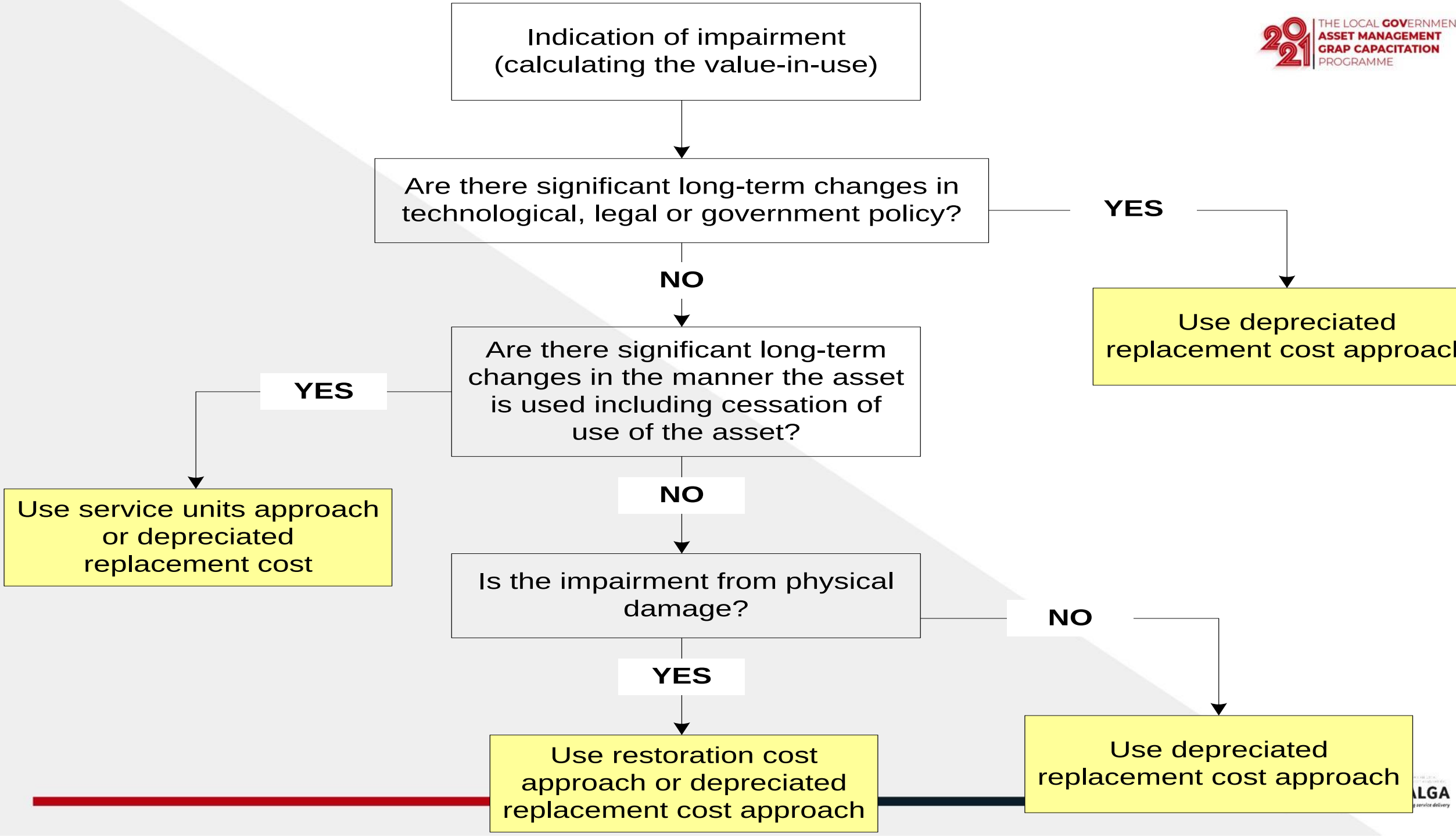
Schedule 2 – Calculation of impairment

Beginning of 20X5	Total R (R'000)
Historical cost	250.0
Accumulated depreciation (20X4)	(50.0)
Carrying amount	200.0
Recoverable amount	121.1
Impairment loss	(78.9)

STEP 2: Value in use - NCGA.

Value in use of a Non Cash Generating Asset = the present value of the asset's remaining service potential.

The present value of the remaining service potential of the asset is determined using any one of the following approaches: **Depreciated replacement cost approach, Restoration cost approach , Service units approach**


Indication of impairment (calculating the value-in-use)
Are there significant long-term changes in technological, legal or government policy?
YES
Use depreciated replacement cost approach
NO
Are there significant long-term changes in the manner the asset is used including cessation of use of the asset?
YES
Use service units approach or depreciated replacement cost
NO
Is the impairment from physical damage?
NO
Use depreciated replacement cost approach
YES
Use restoration cost approach or depreciated replacement cost approach

STEP 2: Depreciated Replacement Cost

- In 1999, the Municipality purchased a new mainframe computer at a cost of R 10 million. The entity estimated that the useful life of the computer would be seven years and that on average 90 percent of central processing unit (CPU) capacity would be used by the various departments. A buffer of excess CPU time of 10 percent was expected and needed to accommodate scheduling jobs to meet peak period deadlines. Within a few months after acquisition, CPU usage reached 90 percent, but declined to 20 percent in 2003 because many applications of the departments were converted to run on desktop computers or servers. A computer is available on the market at a price of R 500,000 that can provide the remaining service potential of the mainframe computer using the remaining applications.

STEP 2: Depreciated Replacement Cost

Evaluation of Impairment

- The indication of impairment is the significant long-term change in the technological environment resulting in conversion of applications from the mainframe to other platforms and therefore decreased usage of the mainframe computer.
- An impairment loss is determined using the depreciated replacement cost approach as follows:

STEP 2: Depreciated Replacement Cost

a	Acquisition cost, 1999	10,000,000
	Accumulated depreciation, 2003 (a × 4 ÷ 7)	5,714,286
b	Carrying amount, 2003	4,285,714
c	Replacement cost	500,000
	Accumulated depreciation (c × 4 ÷ 7)	285,714
d	Recoverable Service Amount	214,286
	Impairment loss (b – d)	4,071,428

STEP 2: Restoration Cost

- In 1984, the Municipality built an office building at a cost of R 50 million. The building was expected to provide service for 40 years. In 2003, after 19 years of use, fire caused severe structural problems. Due to safety reasons, the office building is closed and structural repairs costing R 35.5 million are to be made to restore the office building to an occupiable condition. The replacement cost of a new office building is R 100 million.
- **Evaluation of Impairment**
- Impairment is indicated because the office building has sustained physical damage due to the fire. Impairment loss using a restoration cost approach would be determined as follows:

STEP 2: Restoration Cost

a	Acquisition cost, 1984	50,000,000
	Accumulated depreciation, 2003 (a × 19 ÷ 40)	23,750,000
b	Carrying amount, 2003	26,250,000
c	Replacement cost (of a new building)	100,000,000
d	Accumulated depreciation (c × 19 ÷ 40)	47,500,000
	Depreciated replacement cost (undamaged)	52,500,000
	Less: restoration cost	35,500,000
e	Recoverable Service Amount	17,000,000
	Impairment loss (b– e)	9,250,000

STEP 2: Service units approach

- In 1988, the Municipality constructed a 20 story office building for use by the Council at a cost of R 80 million. The building was expected to have a useful life of 40 years. In 2003, National Safety Regulations required that the top 4 stories of high rise buildings should be left unoccupied for the foreseeable future. The building has a fair value less costs to sell of R 45 million in 2003 after regulations came into force. The current replacement cost of a similar 20 story building is R 85 million.
- **Evaluation of Impairment**
- Impairment is indicated because the extent of use of the office building has changed from 20 floors to 16 floors as the result of new National Safety Regulations. The reduction in the extent of use is significant and the occupation of the building is expected to remain at the reduced level (16 floors) for the foreseeable future. Impairment loss using the service units approach would be determined as follows:

STEP 2: Service units approach

a	Acquisition cost, 1988	80,000,000
	Accumulated depreciation, 2003 (a × 15 ÷ 40)	30,000,000
b	Carrying amount, 2003	50,000,000
c	Replacement cost (20 story building)	85,000,000
	Accumulated depreciation (c × 15 ÷ 40)	31,875,000
d	Depreciated replacement cost before adjustment for remaining service units	53,125,000
e	Value in Use of the building after the regulation came into force (d × 16 ÷ 20)	42,500,000
f	Fair value less costs to sell of the building after regulation came into force	45,000,000
g	Recoverable service amount (higher of e and f)	45,000,000
	Impairment loss (b - g)	5,000,000

STEP 3: Recognise impairment

- By reducing the carrying amount of an asset to its recoverable amount
- CA – IMP loss

STEPS 2 & 3 - Summary

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Calculation

As per the asset register

This can be determined by obtaining quotations for the replacement of the assets or from valuers

[Steps 2 & 3]

									Value in use				
Asset name	Asset class	Carrying amount	Total useful life of the asset	Remaining useful life of the asset	Can the FV of the asset be determined?	Fair value / Gross replacement cost	Fair value less cost to sell is based on?	Net replacement cost / net FV	Estimated cash flows per year	Discount rate	Value in use	Recoverable amount	Impairment loss
	Roads and pavin	900	4	3	Y	800	Replacement cost	600	-	15%	-	600	300
						Calculate value in use	N/A	N/A			-	N/A	No impairment necessary
		100,000	20	18	Y	9,000	Market valuation, less cost to sell	9,000	800,000	15%	4,902,373	4,902,373	No impairment necessary
						Calculate value in use	N/A	N/A			-	N/A	No impairment necessary
						Calculate							No impairment

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STEP 4: Reversal of impairment

- Determine recoverable amount/ service amount as in Step 2.
- The excess of the recoverable amount over the carrying amount represents the impairment to be reversed.
- The reversal is limited to the impairment loss recognized previously.
- In the case of a Cash Generating Unit, the reversal is limited to the impairment loss recognized only on assets making up the CGU and excludes goodwill. (reversal of impairment does not apply to Goodwill).

Impairment: Methods and approaches