

**The text of this Exposure Draft has been approved by the Valuation Standards Board. It is published to enable members to comment on any significant flaws before it is formally published as a Valuation Information Paper.**

**Comments may be made to:**

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**No later than 1 March 2007.**

**The IVSC references are to the revised IVS GN 8 which is currently available as an exposure draft but expected to be finalised early in 2007.**

## **Valuation Information Paper**

**No 10**

**The Cost Approach for Financial Reporting**

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It is, however, relevant to professional competence to the extent that valuers should be up-to-date and should have informed themselves of valuation information papers within a reasonable time of their promulgation.

When an allegation of professional negligence is made against the valuer, or disciplinary action is taken, the valuer will need to confirm that valuation information papers have been considered.

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# Contents

1. Introduction	1
2. What is DRC?	2
3. When is DRC used?	3
4. Valuer Qualifications	4
5. Settling the terms of engagement	5
6. Assessing replacement cost	6
7. The site value of a Specialised property	7
8. Calculating the cost of the buildings and site improvements of a specialised property	8
Historic buildings	8.7
Sources of cost information	8.9
9. Assessing depreciation	9
Physical deterioration	9.4
Functional obsolescence	9.7
Economic obsolescence	9.12
Measuring obsolescence	9.14
Asset life	9.18
Straight line	9.23
Reducing balance	9.25
‘S’ curve	9.26
Other considerations	10
10. Final reconciliation	11
11. Reporting	12

Appendix A – Check List

## 1. **Introduction**

- 1.1. The purpose of this Valuation Information Paper is to provide supplementary information on the use of the depreciated replacement cost approach (DRC) described in IVS GN 8, *The Cost Approach to Financial Reporting – (DRC) (Revised 2007)*. The “Cost Approach” and depreciated replacement cost (DRC) are regarded as synonymous terms; both are in common use around the world to describe a method of valuation of all types of assets. It also highlights the reporting requirements in the RICS Appraisal and Valuation Standards that are particularly relevant when a DRC approach has been used.
- 1.2. This Paper has been written specifically with regard to practice in the United Kingdom. However, valuers operating in other states may find the principles discussed helpful and capable of adaptation to their local circumstances.
- 1.3. Section 4 of GN 8 identifies the relevant international accounting standards that permit the use of a DRC approach. In the UK, private sector entities may follow International Financial Reporting Standards (IFRS), or UK GAAP. Also in the UK, Central Government follows the Government Financial Reporting Manual (FReM) and Local Authorities follow the SORP prepared by CIPFA, both of which are based on UK GAAP. The basic valuation requirements under these various accounting standards are found in the Red Book at PS 3.6, UKPS 3.1 and UKPS 3.12 respectively. There is no difference in the application of DRC under any of these standards.
- 1.4. It is important to understand that the word ‘depreciation’ is used in different contexts in valuation and financial reporting. In a DRC valuation, ‘depreciation’, refers to the reduction or writing down of the cost of a modern equivalent asset to reflect the obsolescence and relative disabilities affecting the actual asset. In financial reporting, ‘depreciation’ accounting refers to a charge made against an entity’s income to reflect the consumption of an asset over a particular accounting period. These are distinct usages of the word and there is no direct correlation between the methods used to assess depreciation in each case. UKPS 1.8 and UK Appendix 1.4 apply where valuation apportionments are required for depreciation accounting.
- 1.5. The intention within this guidance is to provide guidelines that better ensure:
  - client involvement and understanding;
  - valuations are appropriate to the needs of both public and private sector clients.
  - transparency;
  - year-on-year consistency in asset valuation approach, including where there is a change of valuer.
- 1.6. Appendix A contains a list that will assist the valuer to check that all the matters to be considered within this guidance have been addressed.

## 2. **What is DRC?**

- 2.1. There are three principal valuation methods that are generally recognised internationally:
  - Sales comparison
  - Income capitalisation
  - Cost Approach or DRC

2.2. These methods may all be used to assess different bases of valuation, including Market Value. The focus of this paper is on the use of DRC to derive Market Value. When used to assess Market Value it is important to remember that the objective is to establish the price that would be paid between a willing buyer and willing seller acting at arm's length. This means that when considering comparative costs and depreciation adjustments, the valuer has regard to the evidence of the market in so far as is practicable; not only the circumstances of the current owner.

2.3. IVS GN 8.3.1. defines DRC as:

***The current cost of replacing an asset with a modern equivalent asset less deductions for physical deterioration and all relevant forms of obsolescence and optimisation.***

The DRC approach is based on the economic theory of substitution. Like the other valuation approaches listed above, it involves comparing the asset being valued with another. However, DRC is normally used in situations where there is no directly comparable alternative. The comparison therefore has to be made with a hypothetical substitute, described in IVS GN8 as the modern equivalent asset. The underlying theory is that the potential buyer in the exchange described in the Market Value definition would not pay any more to acquire the asset being valued than the cost of acquiring an equivalent new one. The technique involves assessing all the costs of providing a modern equivalent asset using pricing at the date of valuation.

2.4. In order to assess the price that the buyer would bid for the actual asset, depreciation adjustments have to be made to the gross replacement cost to reflect the differences between it and the modern equivalent. These differences can reflect factors such as the comparative age or remaining economic life of the actual asset, the comparative running costs and the comparative efficiency and functionality.

2.5. This paper discusses factors that may need to be taken into account in assessing both the cost of a modern equivalent asset and the depreciation adjustments applied to the actual asset

### 3. **When is DRC used?**

3.1. DRC is only to be used where there is no active market for the asset being valued: that is where there is no useful or relevant evidence of recent sales transactions due to the specialised nature of the asset.

3.2. Although the DRC approach may be used for the valuation of different types of specialised asset, particular complications arise when applying a DRC approach to Specialised property, which is defined as:

***Real property that is rarely, if ever, sold in the market, except by way of a sale of the business or entity of which it is part, due to the uniqueness arising from its specialised nature and design, its configuration, size, location, or otherwise.***

3.3. This definition is broad and it can be seen that it can be applied to properties that may be of conventional construction but that become specialised by virtue of being of a size, or in a location, that means that there is no relevant or reliable evidence of sales involving similar property.

- 3.4. However, DRC is often referred to as a method of last resort and is only to be relied upon if it is impractical to produce a reliable valuation using other methods. IVS GN 8 states at 5.1 that:

***The classification of an asset as specialised should not automatically lead to the conclusion that a depreciated replacement cost valuation must be adopted. Even though an asset may be specialised, it may be possible in some cases to undertake a valuation of a specialised property using the sales comparison and/or the income capitalisation approach.***

- 3.5. For certain types of specialised asset that are associated with an identifiable and dedicated cash flow, the income (or “profits test”) approach may be more appropriate. The use of DRC may not be preferred but may be used as a cross check to establish whether the return on capital is realistic.
- 3.6. The market for assets will change over time. Assets that might previously have been classified as having no market may now be ones for which an active market has emerged. For example, within the healthcare and leisure sectors evidence of market transactions is growing. Therefore, before adopting a DRC approach, the valuer will need to be satisfied that there are no transactions involving similar buildings in similar use that could provide sufficient evidence to use a sales comparison approach.
- 3.7. The value of a specialised property (or of a specialised plant and equipment asset) is intrinsically linked to its use. If there is no demand in the market for the use for which the property is designed then the specialised features will either be of no value or have a detrimental effect on value as they represent an encumbrance. It is therefore important to establish the entity’s intentions when valuing for inclusion in a financial statement. If the specialised property is not to be retained for the delivery of a product or service because there is no longer demand for it, it follows that the use of DRC is inappropriate. No hypothetical buyer would consider procuring a modern equivalent asset if this would immediately be redundant. Such surplus property is valued having regard to its potential for alternative use, with due allowance for any costs associated in achieving that alternative use.
- 3.8. There will be some buildings that have a conventional basic design that is superficially similar to other buildings that are regularly bought and sold in the market, but on closer inspection have specialised features or extensive adaptations designed to meet the requirements of the actual occupier. Typical examples, which may be purpose built or adapted, include an office building with enhanced security features such as thickened walls, toughened glazing and extra stand off land or an industrial building with structural alterations to accommodate a particular production process.
- 3.9. Where the entity has significantly adapted an existing building to its requirements it may elect to treat the cost of specialised adaptations as a separate item in its financial statements in which case the valuer would need to value the interest in the building on the special assumption that the adaptations did not exist. If detrimental to value it may also be appropriate to state that no account is taken of the costs associated with their removal and reinstatement.

- 3.10. If the entity does not treat the costs of specialised adaptations separately they will fall to be valued as part of the property interest. The valuer will then have to decide whether the adaptations are sufficiently extensive to mean that the building meets the definition of a specialised property, and then whether there is no other reliable method of assessing the Market Value, plus adaptation, before using a DRC approach. This decision will reflect the market in the locality. In one location there may be sales evidence of other similarly adapted buildings that mean that the DRC approach is inappropriate: the same building in another location may properly be valued using a DRC approach because there is no remotely comparable property in that location that is bought and sold.
- 3.11. DRC is not an approach that is suitable for use in valuations for loan security because of the specialised nature of assets that are normally valued using DRC, and because it assumes that there is a continuing demand for the use of the asset. Exceptionally, in rare cases, it may be used to support a valuation for loan security arrived at using a different approach.

#### 4. **Valuer Qualifications**

- 4.1. It is fundamental that DRC is recognised as a valuation to which the Red Book applies, not a cost estimation exercise. It is a requirement of the Red Book that each valuation to which the standards apply must be prepared by or under the supervision of an appropriately qualified member.
- 4.2. The valuer's task includes consideration of the key elements of a market transaction involving the specialised asset. The specialised knowledge required in order to properly undertake a DRC valuation includes:
- an understanding of the asset, its function, and its environment;
  - knowledge of the specification that would be required for an equivalent asset in the current market, and the cost of acquiring or procuring that asset;
  - sufficient knowledge of the asset and its market place to determine the remaining physical and economic lives of the asset;
  - sufficient knowledge of the sector in question to assess functional, technical or economic obsolescence.
- 4.3. Although a single valuer may not have all the knowledge or skills required, the Red Book accepts that these can be met in aggregate by more than one valuer. It is a requirement of PS 1.2 that if the valuer proposes to employ another firm to provide it with valuation advice, as opposed to providing information to assist the valuer in preparing his own valuation, the clients approval must be obtained.

#### 5. **Settling the Terms of Engagement**

- 5.1. The discussion of the terms of engagement provides an essential link between the valuer and the client that will help to establish whether the use of a DRC approach is appropriate.
- 5.2. PS 2.1 (a) to (q) of the Red Book stipulates certain matters that must be addressed by the Terms of Engagement. The following particular points may need to be addressed when it is likely that a DRC approach will be used:

**(c) subject of the valuation; and**

**(d) interest to be valued**

If the asset is specialised it may be necessary to define what is to be included in the valuation. The identification of assets that are classified as part of the property interest and those that are classified as plant & equipment is often unclear in a specialised property. Many specialised assets comprise separately identifiable components and the valuer will need to discuss with the client whether it is appropriate to value these as separate items or to what degree it would be appropriate to regard them as aggregated into a single asset and valued accordingly. The entity's accounting policies may influence this decision.

**(e) the type of property and how it is used or classified by the client.**

The valuer will need to establish how the entity uses the asset and confirm that there is an intention to continue that use. For specialised property it may be necessary to establish the extent of the land occupied by the specialised improvements and distinguish this from land that is properly classified as either surplus or in conventional use.

**(k) the extent of the member's investigations; and**

**(l) the nature and source of information to be relied upon by the member.**

With specialised assets the valuer may have to place greater reliance on information provided by the client, or its other advisors, than is the case with more conventional assets. This information can include information of the cost, design features and performance of the asset. Since the asset is specialised it follows that detailed knowledge of these matters may be outside the knowledge and expertise that could normally be expected of a valuer in that sector. It may be important to discuss and agree the extent to which the valuer may rely on such information provided by the client or, if further specialist input is to be obtained by the valuer, the source and cost of that further advice.

Where the valuer has not provided an earlier valuation it is recommended that the client be asked to provide a copy of any previous Report. The information in that Report will enable the valuer to establish the approach taken and assist the client in reconciling any significant valuation differences that may arise.

5.3. It is essential that the valuer maintains accurate and comprehensive records of discussions with the client and the reasons for the conclusions reached.

**6. Assessing replacement cost**

6.1. The general principle is that the costs reflect those of a modern equivalent asset. Although the actual or estimated cost of reproducing the actual asset may be relevant in this assessment, there will be many cases, especially with old or obsolete assets, where this information is irrelevant.

6.2. The principle can be illustrated by considering the value of an item of machinery that is a few years old. If technological advances mean that the same output can now be achieved with a smaller and more efficient machine, the actual machine would not be replaced. The modern equivalent is defined by its comparative performance and output, not its physical characteristics.

6.3. In assessing the cost of the replacement asset due account has to be taken of all the costs that would be incurred by a potential buyer on the date of valuation. These could include

the costs of delivery, transportation, installation, commissioning and any unrecoverable duties or taxes. Quite often a specialised asset will have to be especially commissioned, so design and other fees may also be incurred.

- 6.4. When considering specialised property, the current gross replacement cost of the asset is assessed. This comprises the cost of replacing the land plus the cost of replacing the improvements to the land. For the latter, the approach is to assess the cost of their replacement with a modern equivalent and then make depreciation adjustments to reflect the differences between it and the actual asset when compared with a modern equivalent.

Costs that may be expected to be incurred in replacing the asset include:

- setting up costs, where appropriate, such as planning fees and site preparation works;
- professional fees related to the project;
- A contingency allowance, if appropriate;
- finance costs, taking into account the likely pattern of payment;

Once the gross replacement cost has been derived, the depreciation factors are applied as a further and separate calculation.

- 6.5. The asset being valued may take a considerable period, often years, to replace. In assessing the replacement cost of the modern equivalent asset, based upon current prices the prospect for cost fluctuation and related issues that may occur over such a prolonged period may be taken into account. This paper cannot prescribe the techniques used to reflect such issues but it is expected that they will be addressed.

## 7. **The Site value of a Specialised property:**

- 7.1. The ultimate objective of the DRC approach is to produce a valuation of the actual property in its actual location. The initial stage of estimating the gross replacement cost has to reflect the cost of a site suitable for a modern equivalent facility. Often this will be a site of a similar size and in a similar location to the actual site. However, if the actual site is clearly one that a prudent buyer would no longer consider appropriate because it would be commercially wasteful or an inappropriate use of resources, the modern equivalent site is assumed to have the appropriate characteristics. The fundamental principle is that the hypothetical buyer for a modern equivalent asset would purchase the least expensive site that would be suitable for its proposed operations. It would not compete with more valuable alternative uses, nor would it buy a site that was larger than required to accommodate a modern equivalent development.

- 7.2. The property being valued may be located in a situation that would now be considered unnecessarily expensive. This may be due to changes in the way in which the service provided is delivered or to changes in the market for the product it produces. An example could be a hospital that was originally constructed in the centre of a city that might now be better situated in the suburbs because of changes in the transport infrastructure or the migration of the population served. Another example could be where a specialised industrial facility was originally located close to a source of raw materials that are now imported, thus rendering the original location irrelevant.

- 7.3. Other factors need to be considered in addition to establishing the location of the modern equivalent site. The modern equivalent asset may not require a site as extensive as the actual site. In this respect land is no different to any other asset. If two hectares are now sufficient to provide the same service, the modern equivalent site will be two hectares, even if the actual site is four.
- 7.4. There may also be geographical limitations on where the modern equivalent site might be located, imposed by physical or practical considerations. For example, a specialist industrial operation may require a site located next, or close to, a dock if material has to be imported by sea. A local authority may have an obligation to provide a service within a particular geographical locality, even though cheaper sites may be available elsewhere.
- 7.5. Sites of specialised property often include areas of vacant land. This may be held for possible future expansion, as a safety or security cordon or simply be surplus. The valuer will need to enquire as to the purpose of any vacant land at the actual property in order to assess whether this would be a necessary feature of the notional replacement site. If not then it is not reflected in the DRC calculation, although its value will need to be separately considered. Surplus land will normally be reported as a separate asset as it needs to be identified and treated separately in financial statements.
- 7.6. Once the extent and location of the site that would be necessary to create the modern equivalent asset has been identified the next step is to estimate what it would cost to acquire that site in the market at the date of valuation. Because many specialised properties will be “sui generis” uses under planning legislation, there can be practical difficulties in determining from what planning use it is appropriate to draw the sales comparison. In the case of a specialised industrial property it would usually be appropriate to assume that land with an industrial planning consent (or where such permission could be anticipated) would provide the best comparable evidence; likewise for the site of a specialised administration building in a town centre, sites for office use would provide the most appropriate comparables.
- 7.7. The actual use of the property may be so specialised that it may be impossible to categorize it in general market terms. In such cases the valuer has to determine with what other uses a buyer of an alternative site for the specialised use would have to compete in the market. This may be a range of uses that prevail in the locality of the actual site, but for the reasons discussed earlier, this may not be appropriate if the modern equivalent site would be located elsewhere and in that case it is the range of uses in that locality that would be considered.
- 7.8. In the public sector, particular issues can arise with specialised property that provides a service to a defined local community such as schools, libraries and health centres. One characteristic of such property is that the service requirement may be attached to a tightly defined geographical area, which limits the availability of alternative sites.
- 7.9. The valuer will need to decide and agree with the entity the possible locations for the defined service requirement today. This might mean competing against other users, but where it is considered that land could be made available by using statutory powers this might indicate the appropriate approach to the valuation. The overriding objective is for the valuer to establish the lowest amount that a prudent purchaser would pay to acquire a site for an equivalent development in a relevant location at the date of valuation.

7.10. A particular problem that arises with schools, within either the public or private sector, is where these have playing fields within the curtilage. This land will be considered separately from the land upon which the buildings are constructed as no prudent purchaser would buy land with consent for residential or commercial development for use as a playing field. The potential on the existing site is not relevant in the DRC calculation as the buyer of the equivalent asset would acquire land for which a playing field use would be the only permitted form of development. There are many examples of schools, universities and private businesses that have their main facilities within a town, but with the associated playing fields in an out of town location outside the permitted development boundary.

7.11. In some circumstances the actual site may be leasehold. The consideration of the land value will therefore reflect the terms of the existing lease.

7.12. Incidental costs, such as fees and carrying costs are restricted to those costs associated with the normal acquisition and development of land.

## 8. **Calculating the cost of the buildings and site improvements of a specialised property.**

8.1. When valuing specialised property it is often difficult to distinguish between what may be classified as a building or structure and what may be classified as plant. In the specialised industrial sector, many structures effectively just provide support and weather protection for process plant; if the plant were removed then the “building” would not exist. In such cases there needs to be discussion with the entity as to whether a distinction needs to be made between buildings and plant, and if so, what items fall under each heading.

8.2. It is because of the diverse nature of the buildings, structures and plant that may form part of a specialised property that IVS GN8 uses the word “improvements” to refer to all additions to the land. These are defined as:

***“Buildings, structures, or some modifications to land, of a permanent nature, involving expenditures of labour and capital, and intended to enhance the value or utility of the property. Improvements may have differing patterns of use and economic lives.”***

8.3. This definition will include all site works associated with the development, including services, fencing, paving and any other items of a permanent nature that support the specialised use. Although the following discussion refers specifically to buildings, the same principles will apply to all improvements.

8.4. In order to assess the cost of a modern equivalent building the valuer needs first to establish the size and specification that the hypothetical buyer ideally requires at the date of valuation in order to provide the same level of productive output or an equivalent service. If the actual building is old, it will usually be the case that a new building could be smaller but still provide the same level of service. For example a modern building will often be able to offer more efficient space, as it can provide open plan or clear span areas that have a greater capacity than an older building with fragmented accommodation and a poor net to gross floor area.

8.5. Having established the size of the notional building to be costed, the valuer will need to determine an appropriate specification for the building. It cannot be assumed that this would be the same as the actual building, especially if this is not new. The design and construction of a modern equivalent may differ from the existing because features of the existing building are now unsuited or just irrelevant to the needs of the entity. In other

cases the existing materials may still be suitable but are simply unavailable, or only available at a cost that would be uneconomic. Care has to be taken to consider the service that is being provided within the building and to price for a specification that would be compatible with the service potential of the subject building.

- 8.6. For example, the specification that would be appropriate for a high security government department (for example, a defence weapons establishment) will be different from that appropriate for a specialized, but not security-sensitive use. Similarly the specification required for a general care private sector hospital will be different from that which is appropriate for a specialized high dependency unit within public sector provision.

### **Historic Buildings**

- 8.7. Historic buildings, or listed buildings, can present particular valuation difficulties. The principle that the cost is based on a modern equivalent asset still applies but there may be situations where the only way that a replacement asset could provide equivalent service potential would be if it reproduced the actual building. Reproduction will be very rare. In most cases the fact that the entity currently occupies a historic building is incidental to the service provided and would be totally irrelevant when specifying a modern equivalent. Only where the historic nature of the building itself creates an intrinsic part of the benefit or service potential of the asset would it be correct to reflect the cost of reproducing the actual asset in the cost of the modern equivalent. An example could be an art gallery housed in a building that in itself is as important as the exhibits it contains in attracting visitors. Another example provided in IPSAS 17<sup>1</sup> is of a parliament building that may be reproduced rather than replaced with an alternative because of its significance to the community. In cases where it would not be possible to reproduce the actual building, it may be appropriate to assess the cost of constructing a building with a similarly distinctive design and high specification.
- 8.8. Some historic, or heritage assets, may be incapable of replacement because it would be impossible for a modern reproduction to recreate the historic significance of the asset. The decision whether or not a historic asset is to be capitalised is a matter for the entity, although the valuer may be asked to comment upon the practicability or otherwise of valuing the asset.

### **Sources of cost information**

- 8.9. Having determined the nature, size and specification of the modern equivalent building and all other necessary improvements the cost of providing it may be assessed by reference to published building cost data, for example as published by the RICS Building Cost Information Service (BCIS). However, published construction price data may be of limited assistance where the replacement building or structure is highly specialised. Here the valuer may have to rely on actual costs involved in the creation of the current asset, or discuss with the entity the need to commission specialist cost advice.
- 8.10. If the valuer has access to the actual costs incurred in constructing the asset, those costs may need adjustment to reflect differences between these costs and those that would be incurred in constructing the modern equivalent.
- 8.11. The most obvious of these differences is the date on which the price is fixed. The cost of the modern equivalent will reflect the cost that would be incurred if the works were commissioned on the date of valuation. Various cost indices are published for construction

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<sup>1</sup> International Public Sector Accounting Standard 17 “Property Plant and Equipment -para 47 published by IFAC

and engineering work that show typical historic price fluctuations and that can be used to adjust historic cost data to the valuation date.

8.12. Other factors that may result in the cost of creating the actual asset differing from that of a notional replacement include:

- Site preparation: work may have been undertaken to prepare the actual site for development that would not be necessary for the assumed equivalent site. For example, costs actually incurred in levelling a site or providing services to the site boundary may already be reflected in the cost of acquiring of an equivalent site in the market if the available evidence was for level, serviced land.
- Phasing of work: a large site may have been developed in phases, whereas the cost of the modern equivalent reflects the cost that would be incurred in replacing the whole asset at the date of valuation let as a single contract. This could create economies of scale and reduce contract overheads, for example on preliminaries work.
- Optimal working conditions. If the cost of the equivalent site is based on a site that is assumed to be free of any difficulties or constraints on development then any additional costs incurred because of abnormal conditions on the actual site are ignored.
- Additional costs arising from extending an existing property.
- Contract Variations: Any additional costs incurred in constructing the actual building caused by design or specification changes during the progress of the contract are ignored.
- Planning Changes: When the actual asset was constructed it may have had deemed planning consent. As the planning legislation has changed, the cost of obtaining consent for a modern equivalent may need to be taken into account.

8.13. Incidental costs, such as fees and carrying costs are to be restricted to those costs associated with the assumed procurement of the building. Allowance for VAT is made only where this is an irrecoverable cost. Although it would not normally be appropriate to make an addition to the cost to reflect developer's profit (because the purchaser is deemed to be procuring the building for owner occupation), it may be appropriate to add for management time if this were a significant cost that would be incurred in constructing a modern equivalent.

8.14. The entity may require the valuer to provide an estimate of the cost of components within the actual building for depreciation accounting, see para 1.4, as part of the valuation instruction. These costs are not to be confused with the cost of creating an equivalent component in the modern equivalent building but are intended to reflect a realistic allocation of the end value attributed to the building, in exactly the same way as if the asset had been valued using a sales comparison or income approach.

## 9. **Assessing Depreciation**

- 9.1. Having established the replacement cost of a modern equivalent asset, it is then necessary to adjust or “depreciate” this to reflect differences between this modern equivalent and the actual asset being valued. By way of a reminder, the underlying principle is that the hypothetical buyer has the option of procuring either the modern equivalent or the actual asset. If the modern equivalent provides the ideal facility for the buyer, the price paid for the actual asset is expected to reflect all the disadvantages that it suffers in comparison.
- 9.2. Applying depreciation is primarily a process of replicating how the market would view the asset. IVSC GN8 states that:

*Depreciation rates and estimates of the future economic life of an asset are influenced by market trends. Valuers should identify these trends and be capable of using them to support the depreciation rates applied. The application of depreciated replacement cost should replicate the deductive process of a potential buyer with a limited market for reference.*

- 9.3. GN 8 identifies three principal types of depreciation allowance or “obsolescence”:

- **Physical deterioration**
- **Functional obsolescence**
- **Economic obsolescence**

### **Physical deterioration**

- 9.4. This is the result of wear and tear over the years, which may be combined with a lack of maintenance. The valuer compares the decline in value of an asset of a similar age for which there is a market with the value of new assets in that market.
- 9.5. The asset is valued in its existing condition fully taking into account any physical deterioration arising from a lack of maintenance or other causes, and the recognition that the rate of depreciation can be accelerated due to lack of adequate maintenance. Thus, depreciation caused by inadequate maintenance is to be reflected in the allowance made, just as a deduction for disrepair would be made from a valuation based on sales comparison. Physical deterioration is frequently measured by reference to the anticipated physical life of the asset. Paragraphs 9.18 to 9.30 discuss the estimation of asset life and mathematical techniques for assessing the pattern of depreciation over this life.
- 9.6. The physical deterioration of the asset is to be viewed not in absolute terms, but within context. In some markets and for some types of asset, a degree of physical deterioration will not adversely affect the value; in other cases it will. It would be inappropriate to determine the effect of physical deterioration on value depreciation only in purely mechanistic terms

### **Functional obsolescence.**

- 9.7. Functional obsolescence arises where the design or specification of the asset no longer fulfils the function for which it was originally designed. An example would be a building that was designed with specific features to accommodate a process that is no longer carried out. In some cases functional obsolescence is absolute, i.e. the asset is no longer fit for purpose. In other cases the asset will still be capable of use but at a lower level of

efficiency than the modern equivalent, or may be capable of modification to bring it up to a current specification. The depreciation adjustment will reflect either the cost of upgrading, or if this is not possible, the financial consequences of the reduced efficiency compared with the modern equivalent.

- 9.8. Functional obsolescence may also arise because of advances in technology. A machine may be capable of replacement with a smaller cheaper equivalent that provides a similar output: a modern building may be more efficient because of superior insulation and modern services.
- 9.9. The modern equivalent asset may be cheaper to recreate than the current asset and therefore the replacement cost already reflects the cost of an “optimised” asset, thus making further adjustment under this heading unnecessary. An example would be where the modern equivalent reflects a smaller building because there is no need for it to reflect historic or redundant features that exist in the actual building. Further depreciation to reflect these features would therefore be double counting.
- 9.10. There will be situations where the asset being valued is too small, as technological advances now make it possible to achieve economies of scale. An example would be an aircraft terminal designed to cater for a maximum number of passengers per plane which is now too small to handle much larger modern planes.
- 9.11. Another cause of functional obsolescence is legislative change. In the industrial sector an existing plant may be incapable of meeting current environmental regulations or in some cases the product it was built to produce is now illegal. In the service sector, the need for occupiers to comply with current regulations on health and safety or disabled access may also give rise to differing degrees of functional obsolescence.

### **Economic obsolescence**

- 9.12. This arises from the impact of changing economic conditions on the demand for goods or services produced by the asset. However, care has to be taken to distinguish these factors, which are due to external factors, from factors that are specific to the entity. Any writing down of a valuation derived solely from the depreciated replacement cost approach to reflect the profitability of the business is a matter for the occupier (see PS 5.4 and PS 5.5 and the discussion under “Reporting” in paragraph 9 below.)
- 9.13. A common example of economic obsolescence is where there is over capacity in a particular market that would reduce the demand and therefore value for the actual asset, regardless of how modern or efficient it may be. In the industrial sector, falling commodity prices have seen periods when excess market capacity has made the production of commodities such as oil or steel uneconomic, and this would have a significant impact on the demand and therefore on the value of specialised facilities used to produce these products. In these particular examples the cyclical nature of the markets might mean that a purchaser might be found willing to buy and hold the facility in anticipation of a return to profitability, but the price would need to reflect the risks involved.

### **Measuring Obsolescence**

- 9.14. The three principal categories of obsolescence identified in IVS GN8 are not the only reasons why it may be necessary to adjust the cost of the modern equivalent asset in order to establish the value of the actual asset. Depreciation rates may be all encompassing or analysed separately. The three main headings simply illustrate common reasons for the

actual asset being worth less than the modern equivalent. Frequently it will be not be possible to identify a separate adjustment under each category; in other cases the distinction between the categories may be blurred. It is important to ensure that separate consideration of depreciation under each heading does not result in double counting.

- 9.15. There will be cases where obsolescence is total. Examples under the three headings include:

**Physical Obsolescence:** If the cost of repairing, reconditioning or refurbishing the actual asset to render it useable exceeded the cost of a modern equivalent, the asset would have no value.

**Functional Obsolescence:** The introduction of new technology may render obsolete a relatively new asset with an otherwise long anticipated life, with the result that there would be no demand for it other than for any value for salvage or an alternative use.

**Economic Obsolescence:** If demand for the product or service provided by the asset has collapsed and is not expected to recover, there would be no demand for the asset other than for any value for salvage or an alternative use.

- 9.16. Total obsolescence is often clear from the outset of the instruction and the asset in question accordingly classified as surplus or redundant by the entity. However, if the valuer concludes that an asset is completely obsolete during the course of the valuation exercise it is recommended that this matter is discussed with the entity before proceeding, as reclassification as surplus will indicate that a different valuation approach is required.
- 9.17. It follows that the DRC approach is normally used where obsolescence is only partial. Although the actual asset may not be in the same condition, as efficient or as technically advanced as a modern equivalent it still has a useful remaining life and will therefore have a value for that use. Assessing the remaining life of the asset is therefore an important aspect of the DRC approach.

### **Asset life**

- 9.18. The depreciation that will affect an asset when compared with its modern equivalent will depend on its anticipated remaining life. An asset that is expected to have a remaining life of twenty years will be worth a higher percentage of a new replacement than one with an expected life of five years. The remaining life can depend on either physical or economic factors, or a combination of both. The physical life is how long the asset, ignoring any potential for refurbishment or reconstruction, could be used for any purpose. The economic life is how long a succession of owners could use the asset for its designed purpose. The remaining life for valuation purposes will be the lower of the physical life and economic life where these do not coincide.
- 9.19. The life of the asset, and the pattern of depreciation over that life, determined by the valuer as part of a DRC valuation is not necessarily based on the same criteria as the estimate of the “useful life” or “future useful economic life” or, in the public sector ‘service delivery lifespan’, and attendant depreciation that has to be determined by the entity for depreciation accounting, see paragraph 1.4 of this paper. These two tasks are not to be confused.

- 9.20. In assessing the remaining life, it may be assumed that routine servicing and repairs are undertaken, but the possibility of materially extending the life of the asset by significant refurbishment or the replacement of components is disregarded.
- 9.21. For some classes of asset a regular pattern of depreciation can be determined over the whole life of the asset, although the value will reflect the remaining life available at the date of valuation,. Where this is the case, the percentage of the current replacement cost remaining at the valuation date may be estimated using a “straight line”, “reducing balance” or an “S-curve” approach, which are described below.
- 9.22. It will be helpful to discuss with the client how the entity deals with depreciation in its financial statements and how the valuer’s approach may differ.

### **Straight Line**

- 9.23. The straight-line basis tends to be the most commonly adopted method for calculating depreciation because of its simplicity and relative ease of application. Straight-line depreciation assumes the same amount is allocated for depreciation for each year of the estimated life.
- 9.24. The weakness of this method is the very simplistic assumption of the uniform erosion of the value of the asset over its total life compared with the equivalent replacement asset. The assumption is clearly correct at two points in the life, the beginning and the end. It would be entirely fortuitous if it were correct at any intermediate point, which is when a valuation is most likely. However this effect may be mitigated by frequent valuations.

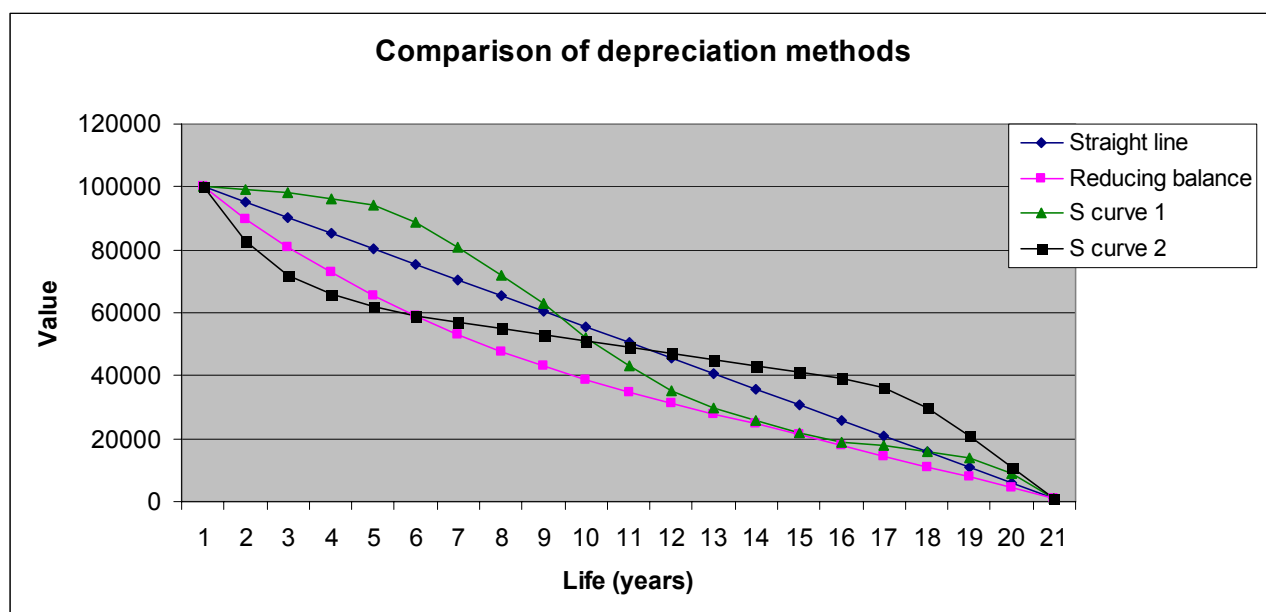
### **Reducing Balance**

- 9.25. The reducing balance method of depreciation assumes a constant percentage rate of depreciation from the reducing base. The reduction of the balance at the end of each period by a fixed proportion of itself creates a sagging depreciating value curve over the life of the asset. This method effectively “compounds” the total depreciation. This may match reasonable expectations of declining value over time better than the straight-line method.

### **“S” Curve**

- 9.26. The S-curve is appropriate and recommended where sufficient data is available to be confident that the curve represents the likely reality. In some cases it presents the most realistic representation of an asset’s depreciation by assuming that in the early years depreciation is at a low rate accelerates in the middle years and reduces again in the final years. However, some assets, such as plant, may have a different depreciation pattern (high at first rather than low)
- 9.27. Although it is normally accepted that the S-curve realistically represents the pattern of depreciation over the life of most assets, the percentage for any given year will depend on decisions made as to the rates of depreciation at different times and when these change. In the absence of empirical evidence in support of these inputs, the exact pattern of the curve may be dependent on subjective inputs, and be no more relevant than the other methods discussed.
- 9.28. This chart compares the patterns of each of the methods where it is assumed an asset has an original cost of 100000 which reduces to a value of 1000 over 20 years. Two types of S-curve are shown to illustrate the possible range of differences between them as it is

recognised that the pattern of depreciation will differ as between, for example buildings and plant and equipment.



9.29 The three methods outlined above are all in common use. Of these, the straight-line approach has the advantage of simplicity. However, it does not represent the way in which asset values are normally reflected in the market place. The reducing balance method may also be open to similar criticism. The S-curve attempts a surrogate for market behaviour and is appropriate where there is empirical evidence on which to base it.

9.30. Depreciation and obsolescence are also discussed in Valuation Information Paper No1; Valuation of Owner-Occupied Property for Financial Statements. In making adjustments for depreciation and obsolescence the valuer needs to rely on professional knowledge, judgement and market experience and take due account of the nature of the asset and the type of use to which it is put.

## 10. Other considerations

10.1. It is not normally appropriate to make any deduction for depreciation from the cost of acquiring a modern equivalent site in the market because freehold land rarely depreciates. When valuing specialised property the normal practice is to separately assess the cost of the improvements, assess the appropriate depreciation and then add this to the cost of replacing the land in order to arrive at the final valuation.

10.2. Where a specialised property has many buildings or structures, some may have a longer anticipated life than others. Although it may be appropriate to adopt different rates of depreciation for different structures in building up the valuation, care has to be taken not to lose sight of the objective of the exercise, which is to establish the value of the whole of the defined specialised property. It would therefore be inappropriate to assign a substantially longer life to an individual building or component than the anticipated life of the whole of the defined property.

10.3. If individual buildings are identified as having potential for an alternative use beyond the anticipated life of the overall specialised property, this may be separately reported, based on a different valuation method, but not reflected in the DRC calculations. The objective

of the DRC approach is to establish how valuable the specialised property is in comparison with a modern equivalent. The modern equivalent cannot be assumed to have exactly the same buildings with the same alternative potential; it is purely the utility of the asset for the current use that is being assessed as part of the DRC calculation.

- 10.4. There will be situations where the valuer can readily identify that the site of a specialised property would be redeveloped for an alternative more valuable use if the current use were to be discontinued. In assessing the cost of the equivalent replacement site as part of the DRC calculation this potential has to be disregarded, for the simple reason that the hypothetical buyer would not buy a site to construct the specialised facilities if it had to compete with more valuable uses. In most cases, the potential of the actual site will have been identified using a sales comparison, not a DRC approach. However, the fact that this potential is irrelevant to the DRC process does not mean that it is irrelevant to the entity. In these circumstances GN 8 requires the valuer to report the value based on the alternative use. Further discussion on this can be found in paragraph 9.

## 11. **Final reconciliation**

- 11.1. A DRC calculation usually involves the consideration of many separate elements and an essential final step is for the valuer to ensure that the resulting mathematical conclusion is consistent with the underlying valuation objective, i.e. to establish the price that would be paid in an exchange between a willing seller and willing buyer in an arms length transaction.
- 11.2. The valuer needs to “stand back and look” at the overall conclusion, and take particular care to check that the process of adjusting for depreciation has not resulted in any factor being either double counted or ignored. An attribute of the actual asset may be identified that might affect the bid from a buyer that has not been reflected in the process of depreciating by comparison with the hypothetical modern equivalent. In the case of a specialised property this could include an adjustment for any hope value in the land, which could lead to a buyer of the specialised facility for its continued use to bid more for this property than it would for a modern equivalent with no such potential.

## 12. **Reporting**

- 12.1. The Report must comply with the Red Book, Chapter 5, ‘Valuation Reports and Published references to them’. The matters that have to be covered in all valuation reports are listed in PS 5.1, and PS 5.4, 5.5 and 5.6 impose additional requirements when a DRC approach has been used. The requirements are:

- A statement that the DRC approach has been used. (PS 5.1.(p))

If the valuation is being undertaken for inclusion in accounts prepared under IFRS, the value is reported as being on the basis of Market Value, but in order to comply with PS 5.1(p), a statement is required explaining that because of the specialised nature of property, the value is estimated using a depreciated replacement cost approach and is not based on the evidence of sales of similar assets in the market. This statement matches a requirement in IAS 16 for the entity to include a similar statement in the published accounts.

If the valuation is being undertaken for inclusion in accounts prepared under UK GAAP, the value can be actually reported on the “basis” of depreciated replacement cost, or for plant and equipment VPMB (see UK PS 1.1 and, for the public sector, UK PS 1.12 and UK Appendix 1.5.) Although this reporting convention discloses that a DRC approach has been used, it is good practice to make an additional statement explaining that because of the specialised nature of the asset the valuation is not based on the evidence of sales of similar assets in the market.

- For assets held in the private sector, a statement that the valuation is subject to the adequate profitability of the business paying due regard to the total assets employed must be included.(PS 5.4)
- For assets held in the public sector, a statement that the valuation is subject to the prospect and viability of the continued occupation and use. (PS 5.5)
- If the valuer has been readily able to identify that the asset has a higher value for an alternative use this must be reported, (PS 5.6 (a)). This is most likely to arise in connection with specialised property, where the land may have a higher value for redevelopment than the DRC value.
- If the valuer considers that the value of the asset would be materially lower if the business were ceased, the report must also contain a statement to this effect. (PS 5.6.(b)). It is not a requirement of the Red Book to provide an actual figure for this purpose. If the entity wishes to establish the impact of possible closure of a specialised facility on the value of the assets employed it may commission valuations to reflect the “break up”, salvage or alternative use value of the asset. This would be a separate exercise and not part of a DRC valuation for inclusion in the financial statements. Any valuations provided would need to be on the Special Assumption that the entity had ceased operations, see PS 2.3.

## APPENDIX A

### CHECK LIST

This check list is intended to provide the valuer with a simple way of confirming that all the matters discussed in this Paper have been considered.

Where large numbers of properties are to be valued it may be helpful for a separate list to be prepared for groups of properties and a schedule prepared. The schedule could indicate against each entry the matters that have been discussed and agreed. It may be helpful to attach such a schedule to the report so that any reader will be fully aware of the approach taken. This will also help ensure that consistency is achieved when a revaluation is undertaken.

	<b>Item for consideration</b>	<b>Reference in VIP</b>	<b>Comments</b>
1	Appropriate to use DRC	3.1 – 3.9	<input type="checkbox"/>
2	Qualification of the valuer	4.1 -4.2	<input type="checkbox"/>
	Specialist assistance	4.3	<input type="checkbox"/>
3	Terms of engagement settled	5.1 – 5.2	<input type="checkbox"/>
4	Assessing replacement cost	6.1 – 6.5	
	Site value	7.1 – 7.12	
	Actual		<input type="checkbox"/>
	Modern equivalent		<input type="checkbox"/>
5	Buildings and site improvements	8.1 - 8.6	
	Plant identified		<input type="checkbox"/>
	Infrastructure works		<input type="checkbox"/>
	Size of modern equivalent		<input type="checkbox"/>
	Specification of modern equivalent		<input type="checkbox"/>
6	Consideration of historic buildings	8.7 – 8.8	<input type="checkbox"/>
7	Sources of cost information	8.9 – 8.14	<input type="checkbox"/>
8	Assessment of depreciation	9.1 – 9.2	<input type="checkbox"/>

	Physical deterioration	9.4 – 9.6	<input type="checkbox"/>
	Functional or technical obsolescence	9.7 – 9.11	<input type="checkbox"/>
	Economic obsolescence	9.12 – 9.13	<input type="checkbox"/>
	Asset life	9.18 – 9.22	<input type="checkbox"/>
9	Depreciation method	9.23 – 9.30	
	Straight line	9.23 – 9.24	<input type="checkbox"/>
	Reducing balance	9.25	<input type="checkbox"/>
	S-curve	9.26 – 9.27	<input type="checkbox"/>
10	Other considerations	10.1 – 10.4	<input type="checkbox"/>
11	Final Reconciliation	11.1 – 11.2	<input type="checkbox"/>
12	Reporting		<hr/>
	All items under PS 5.1	12.1	<input type="checkbox"/>
	Statement that DRC used		<input type="checkbox"/>
	PS 5.4 (private sector)		<input type="checkbox"/>
	PS 5.5 (public sector)		<input type="checkbox"/>
	PS 5.6 (alternative values)		<input type="checkbox"/>
	Alternative value statements		<input type="checkbox"/>

