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## Depreciation, Amortization, and Depletion

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Strictly speaking, the calculation of income demands complete revaluation of all assets and obligations at the end of every period. Practically, the question is: How shall the requisite value estimates be obtained?  
—Henry Simons

### I. Introduction

Henry Simons correctly noted that a comprehensive income tax requires the revaluation of all assets and obligations to take into account accumulated gains and losses at the end of every tax period. As a general matter, all income tax systems have accepted that, in many instances at least, the practical question of valuing property for each relevant period can be very difficult to answer. Changes in the value of property will often not be taken into account until some particular moment, such as when ownership of the property is transferred or the property becomes worthless. However, such deferral of accounting for accrued gains and losses may result in either undertaxation, if the value of the property has increased, or overtaxation, if it has decreased. Most tax accounting systems allow or require the periodic estimation of gain or loss on certain types of property.<sup>1</sup> Depreciation (often called amortization when involving nonphysical property) is one of the most important instances where the taxpayer is allowed to deduct estimations of loss over time.<sup>2</sup> The decision to accrue estimated declines in value through depreciation is largely predicated on three points: that the

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<sup>2</sup>See generally Dale Chua, *Depreciation Schedules*, in Tax Policy Handbook 136 (P. Shome ed. 1995).

If property has a useful life shorter than the taxable year, its full cost could be completely deducted before the next taxable year, obviating the problem of unaccounted losses.<sup>3</sup> For this reason, most jurisdictions deny a full deduction for the cost of any property with a useful life of greater than one year, while at the same time restricting depreciation allowances to such cost.

Because gain in the value of property is not typically recognized until the property is transferred (or until it is scrapped or otherwise becomes worthless), most tax jurisdictions include a counterbalancing or compensating rule not to recognize accrued but unrealized losses.<sup>4</sup> Also, many jurisdictions do not tax either the gains or the losses on certain property held by individuals. Finally, many tax systems exempt from tax the income generated by some types of property. However, depreciable property usually generates currently taxable income. If deductions were not allowed for losses in the value of such property, there would be a mismatching of income and loss, and therefore overtaxation.<sup>5</sup> For this reason, depreciation deductions are typically limited to property that generates currently taxable income.

Many types of physical property used to produce income are subject to wear and tear, which reduces the property's value.<sup>6</sup> In addition, technological changes may make the property relatively obsolete and therefore also less valuable. Nonphysical property may also lose value, either because the right to possession or use is limited in time (such as with the case of a lease or patent) or because of technological obsolescence. These factors—wear and tear, obsolescence, and in the case of nonphysical property, a limited term—all tend to cause the value of certain types of property to decrease over time. Although the rules of different jurisdictions vary, as a general matter it is to the costs of such property that depreciation deductions are normally restricted. The most common, and perhaps most important, method of fixing such a restriction is by limiting deductions to types of property that have predictable useful lives.

Of course, the knowledge that property is losing its value as a result of wear and tear or obsolescence over its useful life does not permit the fixing of the value of each intervening yearly reduction.<sup>7</sup> In addition to yearly fluctuations in the effects of wear and tear and

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<sup>3</sup>If the property has a life greater than the current tax year, a full deduction would result, interest and tax rates remaining equal, in an exemption from tax of any net income, except for economic rents. See Institute for Fiscal Studies, *The Structure and Reform of Direct Taxation* (Report of Committee chaired by J. E. Meade) 231–32 (1978). However, it would be possible to take only a partial deduction. See *infra* note 13 and accompanying text.

<sup>4</sup>See generally the discussion of the role of compensating distortions in a comprehensive income tax in Boris I. Bittker, *A "Comprehensive Tax Base" as a Goal of Income Tax Reform*, 80 Harv. L. Rev. 925, 983–84 (1967).

<sup>5</sup>See Jeff Strnad, *Taxation of Income from Capital: A Theoretical Reappraisal*, 37 Stan. L. Rev. 1023, 1027–28 (1985). See also Example 1 *infra* sec. III(A).

<sup>6</sup>The value of the property may decrease for various reasons. One common way is for it to lose efficiency and therefore its productivity. As output drops, so does income; as a result, its value necessarily declines.

<sup>7</sup>Nominal errors in useful lives can be corrected by "recapturing" excess depreciation deductions, or by allowing additional deductions when the property is transferred or becomes worthless. See *infra* sec. III(E). However, even with such corrections, if each yearly allowed depreciation amount varies from the actual, there can be a considerable tax effect owing to the time value of money. See Paul Samuelson, *Tax Deductibility of Economic Depreciation to Insure Invariant Valuations*, 72 J. Pol. Econ. 604 (1964); Jeff Strnad, *Periodicity and Accretion Taxation: Norms and Implications*, 99 Yale L. J. 1817, 1822, 1865–79 (1990).

obsolescence, other factors may cause variation in the value of the property. Various market forces, such as changes in supply or demand for the product produced by the property or in the cost of production or availability of replacement property because of technological innovation or other reasons, will likely result in a corresponding increase or decrease in its value. Generally speaking, these effects are less predictable and may result in increases as well as decreases in value. As a result, there is probably no jurisdiction that generally includes such effects when determining allowable depreciation.<sup>8</sup> However, repairs or improvements made to property, or an increase in the term of nonphysical property, may increase its productivity or its productive life and therefore its value. Because these effects are often easier to estimate, they are frequently included in determining depreciation allowances.

There are techniques other than depreciation for compensating for accrued decreases (or increases) in the value of property held for the production of income. One technique would, instead of allowing current deductions for depreciation, allow a deduction only when the property is transferred (or scrapped), but also give the taxpayer an additional allowance for the time value of the postponement of the deduction.<sup>9</sup> There are a number of problems with this approach. First, whenever interyear tax payments or refunds are involved, circumstances may change, with regard to both the tax system and the taxpayer. Rates may go up or down, taxpayers may go out of business, and, in either case, cash flow is invariably affected. However, as noted, most jurisdictions restrict depreciation in some fashion to property whose decline in value can be predicted through the fixing of a useful life. Nevertheless, property without a known useful life may also depreciate in value. At least in these cases, it might be preferable to allow the taxpayer some allowance for the delay in realizing a tax benefit for incremental reductions in asset value.<sup>10</sup>

It is also possible to go the other way around, and deduct a portion of the full cost of property in the first year in an amount equal to the discounted value of all future deductions, after which no more deductions would be allowed. This technique, proposed by the economists Alan Auerbach and Dale Jorgenson,<sup>11</sup> has a number of advantages, the principal one being that future changes in the inflation rate will not change investment incentives and, therefore, will not create distortions. Again, however, changes in effective tax rates are not automatically compensated

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<sup>8</sup>An estimate for depreciation is not necessary if the actual decline in fair market value of the property is known. There may be other instances where actual declines in value can be ascertained without a property transfer. In the majority of instances, jurisdictions do not allow such evaluations outside of the system of depreciation. There are two important exceptions. The first is property held as inventory or trading goods. The other involves the use by certain jurisdictions of "extraordinary provisions." See *infra* notes 140, 142.

<sup>9</sup>In fact, such a system could be used to compensate for all accrued but unrealized changes in the value of property. See Mary L. Fellows, *A Comprehensive Attack on Tax Deferral*, 88 Mich. L. Rev. 722, 728–31 (1990).

<sup>10</sup>The tax administration could construct tables for taxpayers to use in estimating the value of the lost depreciation deductions. See David J. Shakow, *Taxation without Realization: A Proposal for Accrual Taxation*, 134 U. Pa. L. Rev. 1111, 1118–23 (1986). Of course, this does not solve the problem of unpredictable annual variations in the value of the property.

<sup>11</sup>Alan Auerbach and Dale Jorgenson, *The First Year Capital Recovery System*, 10 Tax Notes 515 (April 14, 1980).

for, and it would be necessary to estimate real rates of return and asset lives to determine the discount rate. While the latter is also necessary in other systems of depreciation, errors can be adjusted during the lifetime of the asset.<sup>12</sup> This means that if tax or interest rates change, or if the life of the property is miscalculated, while there may be no distortion, there may still may be windfalls, either for the taxpayer or the government.

The author is not aware of any tax system which employs either of these systems.

## II. Definition of Depreciable Property

### A. Categories of Property

Although all techniques for accounting for the accrued decrease in the value of business property are related, many jurisdictions have different rules for different types of property. Although methods vary, property may be divided into a number of different categories. For physical property,<sup>13</sup> categories include (1) buildings other than industrial plant, (2) industrial plant and equipment, (3) depletable property (e.g., minerals), (4) land, and (5) inventory. For nonphysical property, they include (1) term-limited rights (e.g., leases, copyrights), and (2) property without specific time limits on use, such as goodwill. In addition, there are sometimes special provisions regarding the self-creation of otherwise depreciable property and incidental expenses, such as repair relating to depreciable physical property. Depending on the jurisdiction, some systems, for example, the accounting-based rules of the French, Germans, and Japanese, tend to rely relatively more on general rules that apply to many categories, while others, particularly those of the Commonwealth, tend to have specific (and sometimes not entirely congruent) rules for each category, or even subcategory, of property.

### B. Property the Cost of which Cannot Be Deducted in One Year

Income tax laws generally allow deductions for the costs of earning or securing current taxable income.<sup>14</sup> Income tax laws should, however, prohibit the taking of a current deduction for the purchase of any property that has a useful lifetime longer than a year.<sup>15</sup> As a corollary, any of the costs of self-creating such property should be treated in the same fashion as the costs of purchasing it.<sup>16</sup> The treatment of the costs of repairing or otherwise extending the life of such

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<sup>12</sup>See *infra* note 140 and accompanying text.

<sup>13</sup>Although frequently used, the distinction between physical and nonphysical (also referred to as tangible and intangible, or material and nonmaterial) is not always obvious. For example, is computer software physical or nonphysical?

<sup>14</sup>See *supra* ch. 16.

<sup>15</sup>Except for *de minimis* rules, which would allow an immediate deduction for relatively small costs. See the discussion at the text accompanying notes 44–48 *infra*.

<sup>16</sup>See generally Fellows, *supra* note 11, at 768–70 (1990).

property should depend on the effect of the cost. If the effect lasts beyond a taxable year, that cost should also not be deductible. However, if the effect lasts for less than the taxable year, a current deduction is appropriate.<sup>17</sup>

Depreciation deductions should be permitted only for costs relating to a subcategory of such property. Depreciation deductions should be allowed for all of the related costs that had been disallowed as deductions.

Certain systems, typically those found in civil law countries, base their income tax systems directly on financial accounting.<sup>18</sup> The French, German, and Japanese, for example,<sup>19</sup> follow the rules noted above fairly clearly and directly. They have a general provision disallowing a current deduction for expenditures for property, both physical and nonphysical, with a useful life longer than a year.<sup>20</sup> Contained within this accounting rule is the principle that only such property, including any related costs, may be depreciated, provided that other criteria are also satisfied.<sup>21</sup> Indonesia, which adopted a major tax reform in 1984, has a similar rule, although not expressed in terms of financial accounting.<sup>22</sup>

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<sup>17</sup>However, it may be difficult to make distinctions among such different costs. When the costs are distinguished, the effect is to divide the property into different pieces, each of which is viewed separately. In theory, this could also be done for the different costs involved in the creation of an asset. Considerations of administrative ease may play the most important role in determining how such costs are treated. *See* the discussion *infra* at note 54. *See* also the discussion concerning *de minimis* rules below.

<sup>18</sup>*See supra* ch. 16, Appendix A. There are a number of benefits when financial and tax accounting treatment are equal; these benefits are pointed out throughout the chapter. However, in addition to the obvious benefit of simplicity, the most important benefit may be this: the tax incentive to overstate depreciation so as to minimize tax due can be significantly lessened by the disincentive not to understate income in financial reports. This effect will perhaps be greatest for listed companies, where pressure to report profits, and therefore boost share prices, may be greatest.

<sup>19</sup>This chapter refers to the tax laws of major industrial economies, primarily Australia, France, Germany, Japan, the United Kingdom, and the United States. The chapter also makes frequent reference to the tax laws of a sample of developing and transition economies that have recently undergone major tax reforms (primarily Indonesia, Kazakhstan, and Lesotho). The sample reflects the involvement of either the author or the IMF Legal Department in reforms in these countries and is intended to highlight techniques of adopting rules to developing and transition country circumstances. Finally the chapter occasionally makes reference to other countries that have may have an unusual rule in a particular instance.

<sup>20</sup>Property that has been manufactured by the taxpayer is included in this rule, as in general are any repairs that extend the life or term of the property. *See* FRA CGI art. 39-1-2°, FRA CGI Ann. III art. 38 *quinquies*, FRA Council of State Decision of July 18, 1941; JPN IT art. 31, JPN IT Reg. 21-7 I, II; DEU EStG § 7. The German rule explicitly allows a deduction of costs for maintaining property if the effect of the maintenance lasts for less than one year. DEU Einkommensteuer-Richtlinien (EStR) § 157.

<sup>21</sup>The French statute provides for "write-offs for depreciation actually taken...to the extent that such write-offs are generally justified according to the usage of each industry, commerce, or business . . ." FRA CGI art. 39-1. 2°. This rule applies generally to all property both physical and nonphysical with a "predicted life" of more than a year. The cost of property with a life of more than one year cannot be deducted currently, and only assets with a life of more than one year may be depreciated. *See, e.g.*, Decision of the Conseil d'Etat of Feb. 24, 1936 (FRA). The Japanese statute is similar to the French, as is a Japanese regulation. *See* JPN IT arts. 22(3), 31; JPN Rule 7. The

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Typically, Commonwealth countries do not have financial accounting-based systems. They often do not have express statutory provisions disallowing current deductions for property with a useful life of more than one year or specifically limiting depreciable property to this category. The result is often a confusing set of rules. For example, the British statute denies deductions for costs of "capital."<sup>23</sup> The definition of capital is found not in the statute, but almost entirely in court cases. Unfortunately, the often rather lengthy court definitions are perhaps less clear than the rather succinct accounting system rules. For example, no major British court decision appears to have directly noted that for property to be capital, it must have a useful life of more than a year. Nevertheless, that does seem to be the general implication of existing case law.<sup>24</sup>

Unlike the accounting-based systems, British law does not have a stated statutory rule restricting depreciation to property that is defined as capital in nature. Instead, further statutory language provides allowances for depreciation only for certain limited classes of both physical and nonphysical property. While each class of physical property has its own separate requirement that the expense be capital in nature, there is no general principle that applies to all property or even to all physical property. While the rules for nonphysical property are more general, only listed types of nonphysical property may be depreciated.<sup>25</sup>

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German statute more specifically denies a current deduction, and limits depreciation, to property with a use "which extends by experience to a period of more than one year." DEU EStG § 7 (1).

<sup>22</sup>The Indonesia statute states that "the cost of earning, collecting, and securing income paid over more than one year may only be deducted through amortization . . ." *Id.* art. 9(II). "The acquisition price or value . . . shall be adjusted for . . . improvements, alterations, or additions" IDN IT art. 10(II).

<sup>23</sup>The original Income Tax Act 1842, Act 5 & 6 Vict. c. 35(1), S. 100, schedules A, B, C & D, denied deductions for "capital withdrawn from or any sum employed...as capital in [a] trade." The current U.K. statutory provision denying a deduction for capital is found in GBR ICTA § 74(f), (g).

<sup>24</sup>In 1879, a taxpayer coal company attempted to take deductions for depletion. The House of Lords upheld the disallowance of the deduction. "[T]he capital involved in making it, would gradually be exhausted and lost; but the *decaying character of the property* would not make it the less subject to be taxed...so long as the mineral lasted." *Coltress Iron Company v. Black*, [1881] 6 A.C. 315, 327 (Lord Penzance) (emphasis added). Effectively, this would include as capital any property that lasts for more than a year, in that other property would become "exhausted" in less than a year, and the loss could be realized accordingly. Future cases further defined capital as something that was "not once and for all" but of "enduring benefit." *Atherton v. British Insulated and Helsby Cables Ltd* [1926] A.C. 205, 213–14 (Viscount Cave). *Coltress* and its progeny are still relied upon. *See also* Butterworths U.K. Tax Guide 1990–91 § 7:103. The idea of permitting a partial deduction to allow for depreciation was not considered.

<sup>25</sup>The British system did not, in fact, develop to permit deductions for depreciation. Instead, provisions were added to give "allowances" for "capital expenditure" for physical property. These "allowances," in effect, were viewed not as rules essential to determine an accurate picture of actual income, but as a kind of concession. In other words, there was no importation of the rules, or for that matter, the theory, of financial accounting. The current rules providing capital allowances are found in GBR CAA §§ 1(1)(a); 22(1)(a); 35(1); 37(1)(a); 52(1)(a); 60(1)(b); 61(1)(a); 67A(1), (2); 68(1)(b); 159(1)(a). For depletion, *see id.* § 105(1). For certain nonphysical property *see* GBR ICTA § 520(1).

As under the accounting system jurisdictions, the cost of property that has been manufactured by the taxpayer is a capital cost. However, in the United Kingdom, the treatment of costs of repairs done to maintain property is neither simple nor particularly logical. The statute specifically disallows as a deductible expense costs to improve structures, unless the structures constitute manufacturing plant.<sup>26</sup> There is no such statutory provision for improvement of equipment. However, court cases suggest that an improvement would be "part of the cost of the income-earning machine" and therefore not deductible.<sup>27</sup>

Using different logic, court cases have allowed deductions for repairs, with no apparent reference as to how long the repair might last or even to whether the property repaired is itself otherwise eligible for depreciation.<sup>28</sup> Courts have disallowed deductions for renewals of structures, apparently meaning something that transcends mere repairs and comes closer to a replacement.<sup>29</sup> Naturally, this has required the courts to make nice distinctions among repairs, improvements, and renewals,<sup>30</sup> distinctions that are not based on the length of effect of the activity and that therefore do not appear necessary or justified by any theory of depreciation. To add to the confused nature of the system, notwithstanding these cases a deduction will apparently be allowed for renewals if they are of equipment, and apparently even for some plant.<sup>31</sup>

The confusing and patchwork nature of the U.K. rules appears due, at least in part, to the lack of a coherent theory expressed in statutory form, itself the result, most likely, of the incremental fashion in which the system for allowing for depreciation was created.<sup>32</sup> Other Commonwealth countries often rely on British case law, frequently along with their own, often unclear, statutory provisions. The mix may not always be much more systematic than the scheme found in the United Kingdom.<sup>33</sup>

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<sup>26</sup>The United Kingdom's Income and Corporation Taxes Act disallows the deduction of "capital employed in improvements of *premises . . .*" GBR ICTA § 74(g) (emphasis added). Improvements to manufacturing plant would be nondeductible but would be depreciable, given that plant is itself depreciable. GBR CAA § 12.

<sup>27</sup>*See, e.g.,* Commissioner v. Nchanga Consolidated Copper Mines, Ltd. [1964] A.C. 948, 959 (citing New State Areas Ltd. v. Commissioner for Inland Revenue, S.A.L.R. [1946] A.D. 610, 620, 621 (Watermeyer, C.J.)).

<sup>28</sup>*See, e.g.,* Phillips v. Whieldon Sanitary Properties Ltd. (1952) 33 T.C. 213, 219 (Donovan, J.).

<sup>29</sup>*See id.*

<sup>30</sup>They are discussed in Butterworths U.K. Tax Guide 1990–91 (John Tiley ed., 9th ed. 1990) §§ 7:115–7:119.

<sup>31</sup>This confusing distinction is discussed in *id.* at § 7:119.

<sup>32</sup>*See* Walter W. Brudno & Frank Bower, *Taxation in the United Kingdom* 192 (Harvard World Tax Series 1957).

<sup>33</sup>For example, the Australian statute denies a deduction for "losses and outgoings of capital, or of a capital . . . nature," AUS ITAA § 51(1) and has case law defining capital predicated on U.K. case law. *See e.g.,* Sun Newspapers Ltd. v. Fed. Comm'r of Taxation (1938) 61 C.L.R. 337, 380 (citing Atherton [1926] A.C. 205). *See also* 1994 Australian Master Tax Guide ¶ 14-060. Unlike the British statute, the Australian statute does not specifically limit depreciation for physical property to capital items. However, for nonphysical property, the statute expressly limits allowances to expenditures of a capital nature. AUS ITAA §§ 124L(1)(a), (b). Somewhat akin to the British case law, improvement of capital property is generally capital and not deductible, while maintenance and upkeep are

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The U.S. system has two separate, although related, principles. The statute, under a confusingly worded provision entitled "Capital expenditures," denies a current deduction for "[a]ny amount paid out for new buildings or for permanent improvements or betterments made to increase the value of any property or estate."<sup>34</sup> A regulation further states that this means physical property with a life of "substantially" longer than the "tax year," although no such specific rule is applicable to nonphysical property.<sup>35</sup> Another section applies this rule to costs of self-constructed property and includes related and "indirect" costs.<sup>36</sup> While the capital expenditures rule covers improvements, there is no specific rule concerning costs of repair.<sup>37</sup>

In a manner analogous to that of the British experience, therefore, an enormous amount of administrative and judicial attention has been devoted to the distinction between nondeductible improvements and deductible repairs.<sup>38</sup> As with the U.K. cases, the U.S. courts have paid little or no attention to whether the effect of the improvement or repair was to last for longer than a year. There is no specific rule that limits depreciation to that property that cannot be deducted because of its longevity, although this is implied in another regulation.<sup>39</sup> There is also a section that disallows a deduction for costs of property for which a deduction has

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not capital and may be deducted. 1994 Australian Master Tax Guide ¶ 14-060. The Lesotho statute is also somewhat unclear on this point. It first denies a deduction for expenses "chargeable to capital account." LSO ITA § 33(3)(c). However, the statute does not explicitly tie depreciation to costs that are so chargeable to "capital account." Instead, it defines "depreciable asset" as "tangible movable property or an industrial building which is wholly or partly used in the production of income subject to tax and which is likely to lose value because of wear and tear, or obsolescence." *Id.* § 3(1). Although implicitly this must refer to property whose usefulness extends beyond the taxable year, this is not stated outright. An "intangible asset," for which depreciation may be allowed, is also not defined with reference to capital. The statute also allows for a deduction for "expenditure (other than expenditure of a capital nature) incurred on repairs to assets used in the production of income . . ." *Id.* § 42(1).

<sup>34</sup>USA IRC § 263(a)(1).

<sup>35</sup>The regulation reads that the statutory language refers to "a capital expenditure that is taken into account through . . . a charge to capital accounts . . ." USA Treas. Reg. § 1.263(a)-1(b). Examples of such capital expenditures include "buildings, machinery and equipment, furniture and fixtures, and similar property having a useful life *substantially beyond the taxable year* . . . a copyright . . . [t]he cost of goodwill . . ." *Id.* § 1.263(a)-2(a), (b), (h) (emphasis added). See also *id.* § 1.446-1(a)(4) (the regulations to the accounting rules under USA IRC § 446).

<sup>36</sup>See USA IRC §§ 263A (a), (b).

<sup>37</sup>There used to be a repair allowance as part of the Class Life Asset Depreciation Range System. See *infra* note 50.

<sup>38</sup>See, e.g., USA Treas. Reg. § 1.162-3; *Fidelity Storage Corp. v. Burnet*, 58 F.2d 526 (1932), *rev'd* 18 BTA 517 (1929) (roof repairs with new material are deductible), *Georgia Car & Locomotive Co. v. Helvering*, 2 BTA 986 (1925) (new roof not deductible); see generally 4 RIA United States Tax Reporter ¶¶ 1625.172 through 1625.185.

<sup>39</sup>This is buried in a completely different section concerning "methods of accounting." "[A]s a further example . . . a liability that relates to the creation of an asset having a useful life extending substantially beyond the close of the taxable year is taken into account in the taxable year incurred through capitalization . . . and may later affect the computation of taxable income through depreciation . . ." USA Treas. Reg. § 1.446-1(c)(1)(ii)(A).

otherwise been allowed.<sup>40</sup> Kazakhstan, which adopted a major reform in 1995, uses phrasing that is clearer than the American.<sup>41</sup>

Many jurisdictions have *de minimis* rules, allowing a deduction for costs of acquiring a limited amount of property with a life of longer than a year. The simplification benefits of such a rule depend on the entire system for depreciation. Where a pooling system is used, it is not difficult to depreciate low-cost items: their cost is simply added to the pool in the year they are acquired and there is therefore no need to keep track of the individual assets. In contrast, under a single-asset system, there would be a stronger case for a *de minimis* rule on simplification grounds. The purpose of such rules is to aid administration, but also sometimes to provide relief to small taxpayers. There are various ways in which such rules can be implemented. For example, the German rule permits an immediate deduction for the costs of a unit of movable property with a value of less than DM 800.<sup>42</sup> However, a problem immediately arises as to what constitutes a single unit of property; much property can itself be broken up into smaller pieces. The German solution is to require that the property be "capable of individual use,"<sup>43</sup> which effectively limits costs for creation and for repair. A slightly different tack is taken in the Japanese law, although it uses a test similar to that of the Germans to determine what constitutes a separate piece of property.<sup>44</sup> With a few minor exceptions, physical property that costs less than ¥10,000 is deductible. The U.S. statute takes a rather different approach, allowing small taxpayers a deduction of up to a total yearly limit on the sum of all costs associated with depreciable physical property of \$17,500.<sup>45</sup> Larger taxpayers are not affected by this rule.<sup>46</sup>

Some jurisdictions have rules of thumb regarding deductibility of repair or maintenance expenses. The Japanese, for example, give the taxpayer a choice of capitalizing such costs or of taking an immediate deduction up to limits set by two rules of thumb. The limits for deductibility are set at either 30 percent of an asset's total maintenance expense, or 10 percent of the asset's

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<sup>40</sup>*Id.* § 1.161-1.

<sup>41</sup>One article denies deductions to expenses for "fixed assets and other expenses of a capital character...." KAZ TC art. 14(1). Another article defines fixed assets as "assets with a value over 40 minimum wages and a service life of more than one year which are subject to depreciation in accordance with art. 20." *Id.* art. 5(18). Art. 20 states that assets subject to depreciation do not include "property the value of which is fully deducted in the current year in the determination of taxable income." *Id.* art. 20(2), (3). Two additional articles involve "intangible assets," for which depreciation is allowed under the provisions of art. 20. *See id.* arts. 23, 24. The Kazakhstan statute also includes a general provision denying more than one deduction to expenses "included in several expenditure categories . . ." *Id.* art. 14(2). There is a clear-cut rule with regard to costs of repairs: they are deductible, up to a fixed limit. This is discussed *infra* at the text accompanying notes 50–52.

<sup>42</sup>DEU EStG § 6(2).

<sup>43</sup>*Id.*

<sup>44</sup>JPN IT Rule 7; JPN IT Basic Circular Notice (195).

<sup>45</sup>USA IRC §§ 179(a), (b), (d)(1).

<sup>46</sup>*Id.*

total acquisition cost, whichever is lower.<sup>47</sup> The United States used to have a *de minimis* rule based on fixed percentages of acquisition costs, but repealed it when accelerated depreciation was introduced in 1981.<sup>48</sup> Kazakhstan defines deductible expenses to include repairs on physical property up to 10 percent of the written-down value of the sum of all depreciable property within a particular category of property.<sup>49</sup> All other repairs must be depreciated.<sup>50</sup>

By and large, the accounting-based jurisdictions appear to have the most transparent and coherent rules concerning what costs for acquiring, creating, and sustaining property cannot be deducted because the effective life of such property extends beyond a year, and limiting depreciation to a subclass of such property. The British and other Commonwealth rules are frequently confusing and inconsistent. Nor are the U.S. rules a model of statutory clarity. Whether or not rules based on accounting are used, the statute should be as clear as possible as to the relationship between asset life, deductibility, and depreciability. First, the statute should deny a current deduction for the costs of any property with a useful life of greater than the current tax year. The German rule provides some guidance.<sup>51</sup>

Another way to do this might be to deny a current deduction for any costs of a capital nature. This could be separately defined to include all property that has a life longer than the current tax year. All costs of self-creation, preparation, repair, or extension that increase the life of the property beyond a single year should be included in "cost."<sup>52</sup> Depreciation allowances should then be limited to those costs for which a deduction was denied. While this can be easily included in accounting-type rules,<sup>53</sup> a separate statement could also be added that restricts depreciation allowances for capital costs.

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<sup>47</sup>A number of other methods are also permissible. JPN IT Rule 7. *See generally* Yuji Gomi, Guide to Japanese Taxes 1994–95 ¶ 6-308.

<sup>48</sup>Under that rule, all expenditures for repair and improvement of "repair allowance property" that were not clearly capital expenditures could be treated as deductible to the extent that they did not exceed the repair allowance. The repair allowance was obtained by multiplying the repair allowance percentage by the average basis of the repair allowance property in the ADR (asset depreciation range) class. The repair allowance percentages for the various ADR classes were listed in a number of Revenue Procedures. USA Treas. Reg. §§ 1.167(a)-11(d)(2)(iii), 1.167(a)-11(d)(2)(iii); Rev. Procs. 72-10, 77-10.

<sup>49</sup>The phrasing of this rule to apply to cumulative written-down values of classes of property is due to the use of pooling in the Kazak statute. Pooling is discussed *infra* at sec. III(G).

<sup>50</sup>*See* KAZ TC art. 21.

<sup>51</sup>"In the case of business assets, if the use or exploitation thereof by the taxpayer in the obtaining of income extends by experience to more than one year [the rule describes how much is to be deducted each year]" DEU EStG § 7(1).

<sup>52</sup>*See* the German rule, *supra* note 22. However, an argument could be made that the effective life of each separate repair should be tracked separately, so that each can be depreciated separately. Although theoretically appealing, this would add to administrative inconvenience and would be a highly unusual provision; the author is not aware of any jurisdiction that does so.

<sup>53</sup>*See supra* note 23.

The German *de minimis* rule makes administrative sense to the extent that it allows taxpayers to avoid keeping separate track of assets with relatively trivial costs. However, if pooling is used to keep track of assets, the argument in favor of such a rule is greatly reduced.<sup>54</sup> Also, as noted, once such *de minimis* rules are adopted, it is necessary to have careful rules regarding what constitutes a single asset. Another possibility would be to adopt the U.S. cumulative *de minimis* rule, which is restricted to small taxpayers and which obviates the need to determine what is a separate piece of property and allows smaller taxpayers to avoid the trouble of depreciating such property. Some combination of these rules, such as allowing deductibility of costs for assets under a certain amount, but with a total limit on costs so deducted, and perhaps limited to small taxpayers, would also be possible.

Rules of thumb regarding the deduction or capitalization of maintenance costs, while not being true to theory, are probably worth the deviations from theory for purposes of improving ease of administration. Variations on the Japanese, old U.S., and new Kazak rules may all be reasonable guides.

### C. Property Held to Generate Current Taxable Income

No deduction should be allowed that represents personal consumption. Therefore, any decrease in the value of any property resulting from personal consumption should not be deductible through depreciation. While perhaps this rule could be subsumed under the general requirement that deductions be limited to the costs of earning current taxable income, the denial of deductions for capital costs found in many laws sometimes appears to require a separate statement of this condition with regard to depreciation.<sup>55</sup> Also, because one of the purposes of depreciation is to prevent mismatching of income and expenses, it should apply only to property that generates *currently* taxable income.<sup>56</sup> As noted above, the French, German, and Japanese rules are closely related to the financial accounting treatment given assets, which means that only

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<sup>54</sup>See *infra* sec. III(G).

<sup>55</sup>A related issue was raised in *Commissioner v. Idaho Power Co.*, 418 U.S. 1 (1974). That case involved the interrelation between IRC § 263 (which disallows deductions "paid out for new buildings or for permanent improvements or betterments") and IRC § 167(a)(1) (which allows a deduction for depreciation of "property used in a trade or business")(see also notes 36 and 64 and accompanying text). The taxpayer contended that § 167 existed independently of § 263, while the Commissioner contended that § 263 took precedence over § 167. The court found for the Commissioner. This is a good example of the need to spell out the interaction between provisions denying deductions and those allowing deductions, particularly the deduction for depreciation. See *supra* ch. 16, sec. ----. See also KAZ TC § 15(3).

<sup>56</sup>This means that even if property is subject to a capital gains tax on sale or transfer, if it is not also held for the generation of taxable income currently, depreciation deductions should not be allowed.

property used to generate business income may qualify for depreciation.<sup>57</sup> Indonesia similarly provides through a general statutory rule.<sup>58</sup>

Reminiscent of the capital requirement discussed above, the British statute does not include a general rule restricting depreciation to property held to generate currently taxable income. Instead, a separate limit is included for each class of depreciable physical property, while another statutory provision relates to nonphysical property.<sup>59</sup> Other Commonwealth countries, however, may use a smaller number of more general rules, although typically they have separate sections for physical and for nonphysical assets.<sup>60</sup> Kazakhstan does so as well.<sup>61</sup> The U.S. statute, however, includes a general rule that restricts depreciation for both physical and nonphysical property to that "used in the trade or business" or "held for the production of income."<sup>62</sup>

Some jurisdictions with accounting-based systems, such as France and Japan,<sup>63</sup> and the Commonwealth jurisdictions of Australia and Lesotho<sup>64</sup> as well as the United States<sup>65</sup> explicitly allow for apportionment of costs of property used partly for the generation of taxable income and partly not, and allow depreciation attributable to the costs of the former. Other jurisdictions, such

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<sup>57</sup>The German rule specifically restricts depreciation to "business" property used "in the obtaining of income" DEU EStG § 7(1). *But see infra* the discussion concerning apportionment at text accompanying notes 65–70.

<sup>58</sup>The Indonesian statute first generally restricts deductions for depreciation or depletion, allowing them only when they are a "cost of earning, collecting, and securing income," and then more specifically restricts depreciation to property "owned and used in a business or owned for the production, recovery, or securing of income." IDN IT § 11(1), (12).

<sup>59</sup>Capital allowances for each separate class are limited to property held "for the purposes of [a] trade." GBR CAA §§ 1(1)(a); 22(1)(a); 35(1); 37(1)(a); 52(1)(a); 60(1)(b); 61(1)(a); 67A(1), (2)(b); 68(1)(b); 159(1)(a). For depletion, the rule is found in *id.* § 98(1), and for certain nonphysical property in GBR ICTA § 520(1).

<sup>60</sup>For example, the Australian statute includes a general rule limiting depreciation of physical assets to "plant or articles . . . used for the purpose of producing assessable income." AUS ITAA § 54(1). There is also a general rule that applies to depreciable nonphysical property. *Id.* §§ 124L(1), 124M. Other rules concerning depletion Other rules concerning depletion allowances for minerals carry similar restrictions. *See, e.g., id.* § 122DG(2). Lesotho has similar separate restrictions for physical property and nonphysical property, LSO ITA §§ 3(1), 44(1), and a specific rule for depletion. *Id.* § 43.

<sup>61</sup>Physical asset depreciation is limited to "capital goods used in production," and intangible asset depreciation to "those utilized over a long period in economic activity." KAZ TC §§ 20(1), 24(1).

<sup>62</sup>USA IRC § 167(a). However, a separate rule exists for depletion, which is restricted as well to a deduction against gross income. *Id.* § 613.

<sup>63</sup>*See* Direction général des impôts, Précis de fiscalité ¶ 517 (1994) [hereinafter Précis]; JPN IT § 31.

<sup>64</sup>AUS ITAA § 61; LSO ITA § 41(4).

<sup>65</sup>Treas. Reg. §1.167(a)-5.

as the United Kingdom, do not do so explicitly, but have so allowed through case law.<sup>66</sup> The German rule is quite different. If more than 50 percent of movable depreciable property is used for business purposes, the entire asset is depreciable. If more than 10 percent is not, none of it is. If the business use lies between those two percentages, the taxpayer may choose.<sup>67</sup> Understandably, according to at least one commentary, this rule makes little sense.<sup>68</sup>

It is an essential requirement that to qualify for depreciation, the property, regardless of its type, must be held or used for the production of currently taxable income. While apportionment in the case of "dual use" property seems to make theoretical sense, it may make tax administration that much more difficult. However, the German rule seems unnecessarily favorable to the taxpayer as far as depreciation is concerned.<sup>69</sup>

#### **D. Wear, Tear, Obsolescence, and Useful Life**

Depreciation is an estimate of a decline in the value of property. Therefore, property that does not decline in value, or whose decline cannot be reasonably estimated, should not be eligible for depreciation. Generally speaking, it would be possible to allow depreciation for the costs of any property that declines in value. As noted earlier, property can be expected to decline in value for many reasons, including wear and tear, obsolescence, or time-limited rights of use. A number of jurisdictions predicate depreciation first on the existence of these attributes. However, while reductions in value resulting solely from limited terms of use are simple to estimate, it may be quite difficult to do so for those reductions that result from wear and tear and obsolescence. Most jurisdictions therefore greatly restrict how depreciation may be computed. For example, land may be subject to wear and tear, but because it has no fixed useful life, the decrease in value owing to such wear and tear might be difficult to estimate, and a deduction for depreciation of land as such is not generally allowed.

Most jurisdictions rely to some extent, either explicitly or implicitly, on the concept of "useful life," to determine whether the costs of a property are eligible for depreciation treatment at all (i.e., it must have a determinable useful life), as well as what amount of depreciation will be permitted (i.e., annual rate of depreciation is fixed by reference to that determinable useful life). In essence, a useful life analysis extends the concept of limited term of use (so often applicable for analysis of the decline in value of nonphysical property) to physical property. A variation of the useful life analysis is to assign useful life rules of thumb to property by type. These assume that a particular kind of property always has an ascertainable useful life and fixes that life. The necessary result of the first function of useful life is that certain types of property

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<sup>66</sup>GBR CAA §§ 1, 24(1)(a); *G.H. Chambers (Northiam Farms) Ltd. v. Watmouth* [1956] 3 All E.R. 485.

<sup>67</sup>DEU EStR § 14.

<sup>68</sup>See Klaus Tipke & Joachim Lang, *Steuerrecht* 295–97 (13th ed. 1991).

<sup>69</sup>The German rule should be seen in the light of capital gains tax being levied on property labeled business property (and hence depreciable) but not on private (nonbusiness) property.—L.M.

are excluded entirely from depreciation. The second function, using useful lives to fix annual depreciation deductions, will be discussed below.<sup>70</sup>

Some systems do not base their analysis for some, or even all, property either on wear and tear or obsolescence or on a useful life analysis. Instead, they simply provide specific rules for the depreciation of particular properties or classes of properties. Still other systems may provide apparent rules of thumb that are so arbitrary as to suggest that they are not based on any useful life analysis or on any readily available theory of depreciation. However, two major problems can arise if neither the "subject to wear and tear and obsolescence" or "determinable useful life" rules exist. First, if the rules refer only to specific properties or classes of property, certain types of property, which according to theory should be subject to depreciation allowances, may be excluded, perhaps even unintentionally. Second, if the rules are too general, some property, which according to theory should not be subject to depreciation allowances, may slip through the cracks and be included.

The French accounting-type rule makes no reference to physical wear and tear or to obsolescence. However, only physical and nonphysical property, with reasonably ascertainable useful lives may be depreciated.<sup>71</sup> However, if the useful life of property cannot be fixed beforehand, and then "extraordinary depreciation" occurs, a deductible provision, similar in effect to depreciation, is allowed.<sup>72</sup> The German rule specifically limits depreciation to property that suffers from wear and tear and depletion, as well as extraordinary technical or financial depreciation.<sup>73</sup> The German regulations also state that only property with a determinable "limited" life may qualify.<sup>74</sup> The Japanese rule is somewhat different, although the effect is largely the same.<sup>75</sup> Under the French rule, depreciation of goodwill is not generally allowed because it has no ascertainable useful life.<sup>76</sup> However, the Germans and Japanese have special

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<sup>70</sup>It should be noted that it may be possible to estimate reductions in a property's value attributable to wear and obsolescence on a current basis without knowing its useful life. However, knowing an asset's useful life allows the mechanical application of a number of techniques for computing depreciation allowances.

<sup>71</sup>The French statutory provision does not expressly state this. See FRA CGI § 39-1-2°. However, decisions of the Council of State make clear that no property can be depreciated unless its useful life can be determined when acquired. See Decision of the Conseil d'Etat of Feb. 24, 1936, Recueil des décisions du Conseil d'Etat [Lebon] 236.

<sup>72</sup>FRA CGI Ann. III, art. 38 *sexies*.

<sup>73</sup>DEU EStG § 7(1), (6).

<sup>74</sup>DEU EStDV §§ 9a-11d, EStR §§ 42-59c.

<sup>75</sup>The Japanese statute is similar to the French. See JPN IT art. 31. While regulations do not specify that a useful life be determinable, this is implied by the fact that depreciation is based on the determined service life. JPN IT Reg. 21-3. See also JPN IT Basic Circular Notice 191-(3), which states that "since depreciable assets means assets the utility of which decreases gradually, objects of art and curios *the value of which does not decrease despite the lapse of time* are not included (emphasis added)."

<sup>76</sup>However, a provision may be made for extraordinary loss.

rules for the amortization of goodwill.<sup>77</sup> The Indonesian statute has recently switched to an accounting-type model for depreciation. Although the wording is different, the treatment of the costs of physical assets is broadly similar in effect.<sup>78</sup> While the costs of nonphysical property are depreciated, broadly speaking, on the basis of expected useful life, there is no specific restriction requiring that a useful life be ascertainable.<sup>79</sup>

The U.K. statute has no general rule restricting the depreciation of property to wear and tear or obsolescence or to property with determinable useful lives. For certain types of both physical and nonphysical property, there are, however, individual provisions allowing a fixed yearly amount of depreciation for each of a number of different classes. These categories are fixed by type of property and have only two different rates of depreciation; at least in cases other than certain buildings, these categories and rates appear not to be based on useful lives, even as a rule of thumb.<sup>80</sup> A major exception exists in that there is no provision for the depreciation of structures other than industrial buildings or plant and hotels, even if the structure (such as an office building) is used to generate current income.<sup>81</sup> Goodwill is not included as depreciable property.

The Australian statute is in some ways quite similar to the U.K. law, while in others it departs radically. Although it does not specify that a useful life must be determinable, depreciation for the costs of physical property is based on the effective life of the unit.<sup>82</sup> As with the United Kingdom, no depreciation is allowed for the cost of buildings other than plant. Goodwill is also not included. The Lesotho statute starts out by limiting depreciation for physical property to that which "is likely to lose value because of wear and tear or obsolescence."<sup>83</sup>

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<sup>77</sup>See *infra* sec. II(E)(2).

<sup>78</sup>The previous system (in effect 1984–94) included no general restriction for physical property based on determinable useful lives. However, similar to the U.S. statute, all categories of such property (other than buildings) were assigned to classes based on property life. IDN IT art. 11(III). However, the Minister of Finance was empowered to issue a decree determining what types of property had what useful lives, making the system similar to the Kazak one. *Id.* art. 11(XIV). The new law switches to a financial-accounts-based system, predicated on expected useful lives; however, the Minister is to issue a decree fixing the useful lives of (at least some) types of property. IDN IT (1994) arts. 11(10), (11).

<sup>79</sup>IDN IT art. 11(X).

<sup>80</sup>Costs for industrial buildings, hotels, and dredging are all depreciated at 4 percent a year, GBR CAA §§ 3, 7, 134, and costs for machinery and plant, motor vehicles, mining, patents, and copyrights are all depreciated at 25 percent a year. *Id.* §§ 24, 67, 69, 70–72, 34, 98, 105; GBR ICTA § 520.

<sup>81</sup>See Butterworths U.K. Tax Guide 1990–91 §§ 8:12–8:14 (John Tiley ed., 9th ed. 1990).

<sup>82</sup>Depreciation is allowed only for costs of "plant or articles" and a "unit of industrial property," which includes "rights" such as patents, copyrights, or designs. See AUS ITAA §§ 54(1) 124K(1), 124L. Depreciation is based on the "effective" life of the property, with six different spans of effective lives from fewer than 3 years to 30 or more. *Id.* §§ 55(1)–(5), 124M(1).

<sup>83</sup>LSO ITA § 3(1).

However, the statute makes no reference to useful lives for physical property; there, depreciation is allowed by type of property, although a catchall category allows the depreciation of any depreciable physical property (other than nonindustrial buildings, which are specifically excluded).<sup>84</sup> Intangible assets are depreciated on the basis of useful life.<sup>85</sup>

The U.S. statute begins with a general rule that restricts depreciation for the costs of property, both physical and nonphysical, that is due to "exhaustion, wear, and tear (including a reasonable allowance for obsolescence)."<sup>86</sup> As with the Australian statute, in the case of physical property there is no explicit reference to useful lives.<sup>87</sup> However, also as with the Australian statute, the standard method of determining annual depreciation allowances for the costs of physical property is based on the estimated useful life of that property; there are also a number of rules of thumb that appear to assume consistent useful lives for a few additional classes of property.<sup>88</sup> Regulations permit depreciation for nonphysical property only when its useful life is limited and its length "can be estimated with reasonable accuracy."<sup>89</sup> Explicitly excluded in this rule is goodwill, presumably because it has no accurately determinable useful life.<sup>90</sup> However, a separate statutory provision permits depreciation of purchased goodwill and certain other nonphysical property.<sup>91</sup>

In a manner somewhat similar to the U.S. and Lesotho statutes, the Kazak statute first limits depreciation to physical property that is liable to wear and tear.<sup>92</sup> It then assigns physical property to a small number of classes, the apparent assumption being that the property in each category has roughly comparable useful lives.<sup>93</sup> However, there is a residual class covering all physical property liable to wear and tear (other than land) that is not listed in the other classes. This means that it is possible for different types of physical property that might have radically different useful lives to be depreciated at the same rate. There is no requirement that

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<sup>84</sup>*Id.* § 43; LSO ITA sixth sched.

<sup>85</sup>*See* LSO ITA § 44(2).

<sup>86</sup>USA IRC § 167(a).

<sup>87</sup>USA Treas. Reg. § 1.167(a)-2.

<sup>88</sup>There are essentially nine property classifications, of which six are based on useful lives, and three—residential rental property, nonresidential real property, and railroad grading or tunnel bores—are based on type; these last three appear to be rules of thumb. USA IRC § 168(c)(1), (e)(1).

<sup>89</sup>USA Treas. Reg. § 1.167(a)-3.

<sup>90</sup>*Id.* *See also* X-Pando Corp. v. Commissioner, 7 T.C. 48, 53–54 (1946).

<sup>91</sup>USA IRC § 197.

<sup>92</sup>KAZ TC art. 20(1).

<sup>93</sup>*Id.* art. 20(3).

nonphysical property be subject to obsolescence, but it must have an ascertainable useful life. Nevertheless, a single depreciation rate is fixed for all nonphysical property.<sup>94</sup>

As noted, a large number of different techniques exist for restricting depreciation to property whose decline in value can be reasonably estimated. For both physical and nonphysical property, either a "subject to wear and tear and obsolescence" or a "determinable useful life" rule would be necessary. In part because a determinable useful life can provide a basis for determining reasonable depreciation allowances, this rule should probably be included.<sup>95</sup> If for administrative reasons it is preferred that various types of property be listed with their assumed useful lives, such lists can be seen as guidance in specific applications of the general rule. However, in such cases, rather than have catchall rules, it might be better to require the taxpayer to declare a fixed useful life. This would avoid any ambiguity regarding such assets as financial securities.

A French-type rule that allows for a special after-the-fact allowance when a useful life cannot be determined—provided that a reasonable estimate of a reduction in value can be found— makes theoretical sense, although it could prove difficult to administer. One possibility would be to permit such an allowance only if there was clear evidence, such as a recent price for identical property. Another would be to follow the French rule that any additional allowances be reflected in financial statements; however, this would probably be a less effective tool with unquoted companies or in jurisdictions where financial reporting is relatively unimportant. A third possibility would be not to permit deductions or allowances for property without determinable useful lives, but instead, when the property is transferred or is rendered worthless, to impute the time value of the lost deductions. This, however, might be too much of an administrative burden for developing and transition countries.

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<sup>94</sup>*Id.* arts. 20(3)(3), 24.

<sup>95</sup>*See supra* sec. II(D).

## E. Exclusions of Particular Property

### 1. Land

As a general matter, costs for acquiring land would be excluded from depreciation either through the operation of the wear and tear or determinable life rules. However, land can be prepared or developed in a way that increases its value, but that preparation or development may itself have a limited useful life. If the value of the preparation or development can be separated from the rest of the land, a reduction in value of this separate amount can be estimated. If the development or preparation is itself part of otherwise depreciable property, those costs can be included and depreciated together.<sup>96</sup> However, if there is a specific statutory exclusion of land, it should be drafted so as not to cover the preparation or development of land that itself may have a determinable useful life. Depletion, an issue related to but different from other matters concerning land, is discussed below.<sup>97</sup>

The French statute does not explicitly exclude the cost of land from depreciation; it only excludes property with no determinable useful life. Therefore, preparations of land that are part of the costs of another depreciable property should not be excluded, nor would other land workings that themselves have a determinable useful life.<sup>98</sup> The German rule is similar,<sup>99</sup> as is the Japanese.<sup>100</sup> Indonesia specifically excludes land and makes no specific reference to whether the workings of land can be depreciated as part of the cost of other property.<sup>101</sup> The same is true of Kazakhstan<sup>102</sup> and the United States.<sup>103</sup> The U.K. law has no specific rule allowing land to be depreciated. As noted earlier, the costs of nonindustrial buildings are generally not subject to depreciation. However, a provision allowing depreciation of certain buildings includes the cost of land preparation.<sup>104</sup> Australia has a more restrictive rule.<sup>105</sup>

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<sup>96</sup>See the discussion *supra* concerning costs regarding self-creation or improvement of property. However, if they are related to depletion, they may not fall in value at the same rate as the mineral property and should have a separate depreciation provision.

<sup>97</sup>See *infra* sec. III(D).

<sup>98</sup>See Précis, *supra* note 65, ¶ 1082.

<sup>99</sup>DEU EStDV §§ 9a–11d.

<sup>100</sup>See JPN IT Reg. 21 (I).

<sup>101</sup>IDN IT art. 11(I).

<sup>102</sup>KAZ TC art. 20(2)(1).

<sup>103</sup>USA Treas. Reg. § 1.167(a)-2.

<sup>104</sup>GBR CAA § 13.

<sup>105</sup>AUS ITAA § 54(2)(b) limits depreciation for “structural improvements on land” to “(i) fences, dams, and other structural improvements on land which is used for the purposes of agricultural and pastoral pursuits; (ii) structural

(continued)

If a statute includes a general rule limiting depreciation to property with a fixed useful life, there would appear to be no specific reason to exclude land, nor would there then be a reason to provide a special rule for the workings of land. However, an additional rule, perhaps more appropriate for a regulation than a statute, could spell out that the costs of working land that are related to construction of otherwise depreciable assets must be included as costs and that other workings are depreciable provided that they have a determinable life.

## 2. *Goodwill*

What exactly constitutes goodwill may not be entirely self-evident. It is generally thought to include the value, based on reputation, that the relevant public attaches to a particular product or service and the undertaking that provides it. It can be created through the provision of a good product or service and can be enhanced through such things as advertising. It can often be transferred through the sale of a trademark, and can constitute part of the value of the transfer of a copyright, a patent, or an entire business.

As noted earlier, some jurisdictions disallow depreciation for goodwill because it has no ascertainable useful life, making it difficult to estimate a decline in its value.<sup>106</sup> Also as noted, it might be possible to impute the value of lost deductions at the point when goodwill is transferred or becomes worthless. However, there are other justifications for disallowing any deductions for a decline in the value of goodwill in certain circumstances. These circumstances exist when costs that relate to the creation or maintenance of goodwill are not disallowed, but are deductible; as a compensating distortion, losses in goodwill itself should not be deducted. As noted, goodwill can be a valuable component of an enterprise, reflected in such things as company trademarks. It derives from many things, perhaps the most important of which are the quality of the enterprise's product and advertising. If the costs of carrying on the business, and of advertising, are generally deductible, losses in the value of goodwill itself should not be.<sup>107</sup> Obviously, a separate and more accurate solution would be to deny a current deduction for at least certain costs, like advertising and promotion, and to either depreciate them independently if a useful life can be estimated or treat them as part of the cost of creating or maintaining goodwill.<sup>108</sup>

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improvements (not including an improvement that is an access road...)...on land that is used for the purposes of forest operations.”

<sup>106</sup>This is true of both French and U.S. rules, while British and Australian rules do not include goodwill as depreciable property. *Supra* sec. II(D).

<sup>107</sup>At least some evidence would suggest that advertising and promotional expenses have the effect of creating goodwill that lasts longer than a single year. *See* George Mundstock, *Taxation of Business Intangible Capital*, 135 U. Penn. L. Rev. 1179, 1186–89 (1987). Nevertheless, it is common for jurisdictions to permit the deduction of advertising and promotional expenses. *See supra* ch. 16.

<sup>108</sup>*See id.*

This argument works with regard to goodwill that is self-created. However, if goodwill is purchased, rather than created, and deductions for a decline in the value of goodwill are disallowed entirely, there may be a tax incentive for self-created, rather than purchased, goodwill.<sup>109</sup> For example, the German statute permits the amortization of goodwill, but only if it is acquired rather than created; the statute fixes a specific period that is not based on any determinable useful life.<sup>110</sup> The United States also allows depreciation of goodwill over a fixed period and limits such amortization in the case of self-created goodwill to licenses, permits, covenants not to compete, franchises, trademarks, and trade names.<sup>111</sup> Other jurisdictions also allow depreciation or amortization of goodwill over fixed periods, although the provisions themselves are typically not limited to goodwill, but to categories of nonphysical property.<sup>112</sup> The actual periods involved do not appear to be justified by any theory.<sup>113</sup> However, the rules presumably assume that an arbitrary period may better match income and expense than assuming an infinite life and allowing recovery only on sale.

As can be seen, there is little consistency among different jurisdictions concerning how the costs of goodwill should be treated. However, particularly if advertising and promotional costs are deductible, there may be an argument for allowing depreciation of acquired goodwill. As noted earlier, the difficulty in determining useful life might require a special exception to the general rule, as well as a specific rate of depreciation. It may also be possible to deny any depreciation deductions until the goodwill is sold or disposed of and a fair market value of the goodwill is obtained. At the time of the realization, the time value of money of the disallowed depreciation can be imputed.

### 3. *Inventory*

Any change in the value of property that is stock or inventory is typically accounted for separately from the depreciation provisions.<sup>114</sup> Thus, inventory should be expressly excluded from the operation of depreciation.<sup>115</sup>

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<sup>109</sup>Frequently, self-created goodwill is not designated as separate property until an enterprise is sold. Because of this, it is less likely that the issue of depreciating the costs of self-created goodwill would arise.

<sup>110</sup>DEU EStDV §§ 9a–11d; EStR §§ 42–59c. (Note that the seller of goodwill will normally have been taxed.—L.M.)

<sup>111</sup>USA IRC § 197 (a), (c)(2), (d)(1)(D), (E), (F).

<sup>112</sup>For a summary of treatment in the EU, see Commission of the European Communities, Report of the Committee of Independent Experts on Company Taxation 254 (1992). In Kazakhstan, a single, arbitrary depreciation rate is fixed for all nonphysical property. KAZ TC § 24(2).

<sup>113</sup>*Id.* The Japanese generally allow the depreciation of goodwill, either as a fixed percentage or over a fixed period. Both, however, are determined by the taxpayer. JPN IT Reg. 21-3.

<sup>114</sup>Accounting for inventory is discussed *supra* ch. 16.

<sup>115</sup>See, e.g., KAZ TC art. 20(2)(2); USA Treas. Reg. § 1.167(a)-2(a).

#### 4. *Property the Costs of Which Have Already Been Accounted For*

If the decline in the value of an asset is already accounted for in some way, no deduction for depreciation is needed. Jurisdictions such as France, Germany, and Japan, which generally rely on accounting-type rules, disallow double deductions through their general accounting rules.<sup>116</sup> Some jurisdictions, such as Kazakhstan, have a general provision denying multiple deductions for the same item of expense, while others, such as the United States, have a rule specifically denying depreciation for property whose cost has been otherwise deducted. Still others, such as Australia, deny deductions for property that has been depreciated.<sup>117</sup> A general rule like that in Kazakhstan could, for the sake of clarity, be supplemented with a more specific statement applying the rule to depreciation.<sup>118</sup>

### III. Depreciation Rates and Methods

#### A. Economic Depreciation

Ideally, allowed depreciation deductions should reflect the actual decrease in the market value of the property. However, absent a yearly sale or exchange of an identical asset, the actual decrease in fair market value will be difficult to determine.

#### Example

##### Depreciation based on discounted cash-flow analysis

Assume that Taxpayer *A* purchases the right to use an industrial formula for a period of five years. Assume in this example that there is no inflation and that the formula will produce a cash flow of \$1,000 every year until the right to use the formula expires. The market value of the five-year know-how would be equal to the sum of its cash flow. However, \$1,000 paid two years from now is worth less than \$1,000 paid one year from now. To determine the net present value of \$1,000 paid each year for five consecutive years, each \$1,000 would have to be appropriately discounted.<sup>119</sup>

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<sup>116</sup>See Précis, *supra* note 65, ¶ 517; JPN IT art. 31; JPN IT Rule 3; DEU EStG § 6.

<sup>117</sup>AUS ITAA § 56(3).

<sup>118</sup>There have been instances where double deductions have been allowed. For example, in the United States, an investment credit was allowed for certain property. Originally, the amount of the credit had to be subtracted from the cost of the property for purposes of computing depreciation, but this rule was repealed in 1964. (Strictly speaking, a double deduction was not involved, but the effect of allowing a 100 percent deduction plus a credit is equivalent.) In 1982, Congress required the basis of property to be reduced by one-half the investment tax credit. See Staff of the Joint Committee on Taxation, General Explanation of the Revenue Provisions of the Tax Equity and Fiscal Responsibility Act of 1982, JCS-38-82, at 35–37 (1983). Lest the reader consider this an esoteric point, note that the revenue increase from this provision was estimated at \$14 billion over the period 1983–87.

<sup>119</sup>"[T]he invested capital represents the ability to generate future earnings, and as an asset with a limited life ages, its value will decline by an amount representing a netting of (a) the loss of the portion of the investment that

(continued)

**Table 1. Depreciation of Asset Yielding Constant Income**

Year	Cash Return	Present Value	Fair Market Value	Depreciation	Taxable Income
	--	\$952	\$4330	--	--
1	\$1,000	\$907	\$3546	\$784	\$216
2	\$1,000	\$864	\$2723	\$823	\$177
3	\$1,000	\$823	\$1859	\$864	\$136
4	\$1,000	\$784	\$952	\$907	\$93
5	\$1,000	--	--	\$952	\$48

Cash Return: total cash return from investment during the year (as indicated in column 1). Present Value: the present value at the beginning of year 1 of \$1,000 realized during the year (as indicated in column 1). Fair Market Value: the value of the investment at the beginning of the year (as indicated in column 1). Depreciation: the accrued capital loss during the previous year (as indicated in column 1) or the change in fair market value during the year. Taxable Income: income under a Haig-Simons tax base, or the difference between the cash income of \$1,000 and the accrued capital loss listed in the Depreciation column.

In this example, the decline in the value of the formula accelerates very slightly over the years. The example assumes that no changes in supply or demand or of obsolescence in the formula will affect its rate of return. Also, at the end of the term during which the taxpayer may exploit the formula, the formula has no residual value.

Now assume that, instead of a formula of limited term, the investment in the example is an item of physical property. The example would then assume that the property produces the same amount of income every year for five years and then abruptly stops producing any. In the real world, it is unlikely that many physical assets would perform in such a manner over the period of their useful life. A number of studies of individual physical properties have been undertaken over the years to estimate how quickly they lose value over their useful lives. On average, it seems that most physical property tends to lose a greater amount of value earlier than the property in the example.<sup>120</sup> Also, at the end of a physical property's useful life, the property often has a residual or scrap value.

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generated last year's earnings and (b) the increase in value of the remaining investment (i.e., of the future years' earnings that are now nearer on the time horizon)." David S. Davenport, *Depreciation Methods and the Importance of Expectations: Implications for Human Capital*, 54 Tax Notes 1399, 1400 (1992).

<sup>120</sup>See, e.g., Charles R. Hulten & Frank C. Wykoff, *The Measurement of Economic Depreciation*, in *Depreciation, Inflation, and the Taxation of Income from Capital* 81–125 (Charles R. Hulten ed. 1981).

## B. Straight Line and Accelerated Depreciation

Financial accounting techniques typically use a different method of estimating depreciation deductions.<sup>121</sup> Straight-line depreciation, which is perhaps the most basic type, assumes that the property will lose an equal amount each year during its useful life. In the above example, this would be one-fifth of the cost of \$4,330 in each of the five years, or \$886 a year. This yearly amount in deductions would be more than that allowed in the example for the first three years and less for the last two. Because of the time value of money, the straight-line deductions are more generous.

Other methods of financial accounting, usually reserved for physical property, allow for greater depreciation deductions in the early years than is found in the straight-line method. Empirical evidence suggests that most physical property declines more rapidly than assumed either in the example or in the slightly faster straight-line depreciation. For this reason, faster depreciation may be provided for such property. There may be another, even faster rate to account for physical property that is subject to unusually rapid technological obsolescence, such as computers, or to other property like cars and trucks, that can continue to operate even when partially broken down.

Even faster depreciation may be allowed to offset the erosion of nominal property value attributable to inflation. This chapter does not specifically address the effects of inflation, which is treated more generally in chapter 13 (see vol. 1). However, it is worth noting here that if there were no other method in place for adjusting for the effects of inflation, increasing the rapidity of depreciation deductions could reflect the faster decrease in nominal value of property attributable to an overall increase in prices.

Another reason for allowing for faster depreciation is that tax rules often seek to provide taxpayers with a schedule of deductions that is more beneficial to them than actual economic depreciation. As a result, effective tax rates are reduced below the apparent or statutory tax rate. This is often justified by the argument that increasing depreciation deductions for an asset in the early years will create an incentive to invest in that asset. This is often known as "accelerated" depreciation, although that term can sometimes be used to refer to any method of depreciation faster than straight-line. Using accelerated depreciation to reduce the rate of taxation on income from a particular asset below that of income from other assets creates an incentive for the taxpayer to invest in that asset, which would distort choices otherwise dictated by the market. Economists would also argue that the incentive effects are heavily biased toward less risky assets.<sup>122</sup>

## C. Declining-Balance Depreciation

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<sup>121</sup>It should be remembered that an important goal of financial accounting is to let the owners know what their income actually is. However, to protect potential investors and creditors in a business, most financial accounting standards have rules built into them to ensure that income estimates are under- rather than over-stated. See Financial Accounting Standards Board, *Statements of Financial Accounting Concepts* 60–62 (1994).

<sup>122</sup>I am indebted to Peter Goss for pointing this out to me.

One technique of increasing the proportion of total allowable deductions taken in the early years is called the "declining-balance" method, which is often expressed as a factor of how much more depreciation is to be taken relative to straight line. If a factor of 2 in a declining-balance method were used in Example 1, in the first year twice the amount of straight-line depreciation would be allowed. Because straight line allowed one-fifth, or 20 percent, double-declining depreciation would allow 40 percent, or \$1,772. However, if depreciation is to reflect a reduction in market value of an asset, 40 percent of cost cannot be allowed each year for five years; the total would add up to more than the cost of the asset, and an asset cannot be worth less than zero. The declining-balance method requires that, for each consecutive year after the first, the percentage allowed as depreciation be taken not of original cost, but of the amount of cost remaining after the previous year's deduction. In this example, the "balance" left for depreciation would be \$4,330 minus \$1,772, or \$2,558. Forty percent of that amount would be \$1,023.

Under a pure declining-balance system, not all the depreciation is taken over the predicted useful life of the asset. Instead, the amount of depreciation is extended indefinitely, with ever smaller amounts allowed in each successive year. Indefinite depreciation for each asset would not, however, be practicable. This issue can be resolved in several ways. First, a declining-balance system can be used until the last year of the useful life, at which point the remaining amount can be deducted in the final year. A variation on this rule is to either require or allow the taxpayer to switch over to a straight-line system sometime before the end of the useful life.<sup>123</sup> Second, the depreciation account for the asset could simply be kept open past the end of the asset's useful life. Such depreciation accounts are referred to as "open ended" because they include assets placed in service in more than one year.

Under the open-ended accounting system, a declining balance can be expressed simply as a yearly percentage deduction of the remaining cost. An estimate of the useful life of an asset can be used to determine which percentage should be allowed; in the above example, one can determine that 200 percent declining balance system is equal to a 40 percent annual deduction for those assets with five-year useful lives. But once the 40 percent annual deduction is selected for a particular asset, the useful life is no longer relevant to determining the allowable deductions.<sup>124</sup>

While in the real world some physical property such as computers or cars might actually lose value as rapidly as is estimated in a 200 percent declining balance system, in the majority of cases it is likely that such a system would vastly overstate economic depreciation.<sup>125</sup> However, a

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<sup>123</sup>For example, in the United States a declining-balance depreciation by a factor of 2 for an asset with a ten-year useful life requires a switch to straight line at the fifth year. In this way, the amount of cost left to be depreciated (41.2 percent) is deducted in equal portions (6.86 percent) during the final, straight-line period. See USA IRC § 168(b)(1).

<sup>124</sup>Because such a system of open-ended accounts does not depend on a fixed date at which the asset's useful life ends, it is more commonly used to determine allowances not for single assets, but for all similar assets. This allows asset accounting on the basis of "pools," an issue that is discussed at greater length in sec. *G infra*.

<sup>125</sup>See Hulten & Wykoff, *supra* note 122.

declining-balance system need not "accelerate" depreciation over actual economic depreciation; the net present value to the taxpayer of a declining-balance system depends on the percentage of annual balance allowed. For many physical assets, a declining balance rule probably more accurately reflects economic depreciation than does straight line.<sup>126</sup> A system seeking to increase the value of depreciation over straight line can do so also by reducing the estimated useful life of the asset by a certain percentage. Either a straight-line or a declining-balance system can then be used.

Using a rule of thumb percentage (such as 125 percent) of straight line over useful lives as a rough estimate of economic depreciation still depends on determining the useful lives of assets, an activity that is hardly an exact science. And, obviously, trying to fix depreciation not on some rule of thumb, but on even more accurate empirical data, is more difficult. There are an enormous number of different assets, and, as noted earlier, technology and markets constantly change. Giving the authority to the taxpayer on her or his own to determine depreciation allowances is clearly an invitation to overestimation; giving the government such authority could easily overburden the tax administration.

Whenever there is great mismeasurement of the depreciation of an asset for tax purposes and the amounts invested in such assets are significant, the effect on tax revenues (and investment incentives) can be substantial. For example, in Indonesia, such sectors as cement, steel, and mineral processing are very important to the economy, employ long-lived assets, and, under their system of depreciation, had been entitled to what empirically appears to have been massively accelerated allowances. As a result, the effective tax rate on income from such assets has been very low. In such circumstances at least, special classes with special depreciation schedules should be fixed.

Certain assets clearly depreciate very rapidly. For example, cars, trucks, and especially computers (as well as other office equipment) may depreciate very rapidly even though their useful lives are rather long. While cars or computers may be used for years, their fair market values may drop precipitously in a short time. For these assets, a rapid declining-balance system would be appropriate. To require slower depreciation would increase the effective tax rate on returns from such equipment, and would create a disincentive to invest in them.

Countries often also provide special depreciation incentives for certain types of preferred property. These choices are not based on any attempt to match economic with tax depreciation. Instead, they are designed to create incentives for the taxpayer to invest in such property by reducing the effective tax rate on the income it produces. Special tax incentives designed to distort market investment choices are not generally the subject of this chapter. However, when such incentives are adopted, policymakers should make public both the intended effects of such incentives and the justification for adopting them.

As noted earlier, jurisdictions have vastly different basic statutory structures for determining amounts of depreciation deductions. Apart from special incentive provisions, they can be divided into (1) those that base deductions primarily on useful life, (2) those that use

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<sup>126</sup>See *id.* at 94.

somewhat broader rules of thumb, but that are also based primarily on useful life, and (3) those that use rules that appear to be largely arbitrary. Those systems that use (1) may also provide guidance, either mandatory or suggestive, as to what the useful lives of a range of properties are. Those that use (1) and (2) often provide acceleration for properties that appear to decline in value more quickly than straight line suggests. There is also a difference with regard to which jurisdictions include in their estimation the likely scrap value of the property, if any, once it has reached the end of its useful life.

The French and German rules, although somewhat different, provide some of the purest examples of system (1). They are primarily based on the useful life of the property, with special provisions for unexpected or exceptional falls in value, though never for increases in value. In France, the useful life of the property is determined by financial accounting principles, although a 20 percent variance is permitted.<sup>127</sup> Straight-line depreciation is then generally required for the property, including all nonphysical property, unless declining balance is specifically allowed.<sup>128</sup> Declining-balance depreciation is allowed, although not required, for certain physical property, including most machinery used in manufacturing and transport, office machines, and buildings used for light industry with a useful life of less than 15 years.<sup>129</sup> The degree of declining balance depends on useful lives: 1.5 for useful lives of 2–4 years, 2.0 for 5–6 years, and 2.5 for 6 years or more.<sup>130</sup> However, because the French system is based on an actual attempt to duplicate real decreases in value of the asset, extra depreciation can be taken on any property to reflect special wear, changes in technology, or even the market for the good.<sup>131</sup> However, the depreciation deductions that are taken for tax purposes also have to be taken for financial reporting purposes.<sup>132</sup> Depletion allowances are uncharacteristically based largely on special provisions that have no apparent relationship to actual depletion. In addition, there are many special rules for accelerated depreciation for specially favored property.

The German rule also bases depreciation primarily on the useful life of the property.<sup>133</sup> However, most useful lives are not determined strictly by financial accounting principles, in that the Ministry of Finance has listed recommended rates by category (machinery, office equipment, office furniture) and then more specifically by individual type.<sup>134</sup> In addition, the statute provides

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<sup>127</sup>FRA CGI art. 39-1-2<sup>o</sup>; Précis, *supra* note 65, ¶ 1083.

<sup>128</sup>*See id.*; FRA CGI Ann. II, art. 24.

<sup>129</sup>FRA CGI art. 39A; FRA CGI Ann. II, art. 22.

<sup>130</sup>FRA CGI Ann. II, art. 24-2.

<sup>131</sup>Although reasonable proof would have to be provided. *See* Précis, *supra* note 65, ¶ 1083. Special deductions can also be taken for property not normally depreciable. *See supra* note 74.

<sup>132</sup>*See* Précis, *supra* note 65, ¶ 1083.

<sup>133</sup>DEU EStG § 7.

<sup>134</sup>The tables, with useful lives and rates, are found in Afa-Tabellen, vom Aug. 15, 1957, in der Fassung der ersten bis dreizehnten Ergänzung.

specific rates for certain buildings.<sup>135</sup> However, as in France, a declining-balance system is permitted in some instances for physical property; but in Germany, all movable fixed property is eligible, and up to a factor of 3 over straight line may be used, but with a limit of 30 percent total deduction a year.<sup>136</sup> Unlike in France, there is also a provision that, for all movable fixed property, allows the taxpayer to fix depreciation as a percentage of output, although the taxpayer must provide "proof."<sup>137</sup> There is also, as in France, a general provision allowing for "extraordinary technical or financial depreciation."<sup>138</sup> There are many special rules for accelerated depreciation for specially favored property.

The Japanese rules have a similar mix of straight-line and declining-balance methods, also based on useful lives for which the Ministry of Finance provides guidance;<sup>139</sup> special deductions can also be taken for most physical property for extra wear or obsolescence.<sup>140</sup> The depletion rules are nearly identical to those in Germany.<sup>141</sup> Accelerated depreciation is also provided for favored property. In both Germany and France, scrap value is not normally taken into account in determining depreciation; however, any value realized from the sale of a depreciated asset would be included in income.<sup>142</sup>

The British rules, not surprisingly, are a fairly good example of system (3) above, where the rules appear to be largely arbitrary. As noted earlier, British depreciation rules are based on neither useful lives nor on any other apparent estimation of actual declines in value. With only two rates available for all depreciable physical and nonphysical assets (including depletion), it can be guaranteed that allowances do not approximate reality.<sup>143</sup>

At least with regard to the limited categories of property that the statute includes as depreciable, Australia is a fairly good example of system (2) above, or those that use somewhat broader rules of thumb, but that are also based primarily on useful lives. Most physical property

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<sup>135</sup>DEU EStG § 7(4).

<sup>136</sup>*Id.* § 7(2).

<sup>137</sup>*Id.* § 7(1).

<sup>138</sup>*Id.*

<sup>139</sup>JPN IT art. 31; Ministry of Finance Ordinance No. 50 (1951).

<sup>140</sup>JPN IT Reg. 21-(2) II, Rule 7-(2).

<sup>141</sup>JPN IT Reg. 21-3.

<sup>142</sup>See discussion *infra* at sec. III(E) regarding transfer of property. However, as a matter of accounting conformity, in Germany estimates of scrap value can be included in determining depreciation for depreciable property (e.g., a ship) that normally has a substantial scrap value at the end of its useful life. See International Bureau of Fiscal Documentation, Taxation of Companies in Europe, German Federal Republic 53 (1995).

<sup>143</sup>See *supra* note 82.

is put into one of seven categories, based on useful life.<sup>144</sup> A declining-balance system is then used, unless the taxpayer opts for a straight-line system at rates published in the statute.<sup>145</sup> Taxpayers generally determine the useful lives of property, although the Commissioner of Inland Revenue publishes recommended lives, which the taxpayer can use.<sup>146</sup> For most nonphysical property, a straight-line system based on useful life is used.<sup>147</sup>

Lesotho seems to lie somewhere between the British and Australian systems. Its law relies on a broad and rather crude rule of thumb for three different categories of physical property, including depletion, selected by type and not by useful life; these categories allow a 5 percent, 20 percent, or 25 percent annual deduction.<sup>148</sup> However, there is also a catchall category for physical property not otherwise listed (except buildings other than industrial, which may not be depreciated), at the annual rate of 10 percent.<sup>149</sup> However, intangible assets are depreciated over their useful lives in accordance with the straight-line system.<sup>150</sup>

The Kazak statute is similar to both the British and Lesotho rules.<sup>151</sup> As with Lesotho, there is a residual class covering all property (other than land) not listed in the other classes.<sup>152</sup> Like the U.K. system, a single, arbitrary depreciation rate is fixed for all nonphysical property.<sup>153</sup> These systems do not consider scrap value.

The U.S. statute is similar to the Australian, with most physical property put into one of nine categories based on the property's useful life; three categories are based on rules of thumb without any direct reference to useful lives: residential rental property, nonresidential real property, and railroad grading or tunnel bores.<sup>154</sup> Of course, such reference to useful lives is indirect in that property with similar useful lives was chosen for each class, and the allowable

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<sup>144</sup>See AUS ITAA § 55.

<sup>145</sup>*Id.* §§ 55, 56(1); but *see id.* § 56(1A). There are special rules for certain other properties, such as certain motor vehicles, works of art, and Australian trading ships.

<sup>146</sup>*Id.* § 54(A).

<sup>147</sup>*Id.* §§ 124S, 124M.

<sup>148</sup>*Id.* sixth sched.

<sup>149</sup>*Id.* The relatively slow rate of 10 percent is intended to prevent taxpayers from arguing that property is not listed in one of the other classes and therefore falls into the catchall.

<sup>150</sup>*Id.* § 44(2).

<sup>151</sup>See KAZ TC art. 23(1).

<sup>152</sup>*Id.* art. 20(3)(3).

<sup>153</sup>*Id.*

<sup>154</sup>USA IRC § 168(c)(1), (e)(1).

depreciation was based on estimates of those useful lives. Depreciation is allowed using a 200 percent declining balance, switching to straight line when more beneficial to the taxpayer, except for 15- or 20-year property, for which only 150 percent declining balance is allowed, and for immovable property or railroad property, for which straight line is required.<sup>155</sup> Nonphysical property is depreciated at a straight line,<sup>156</sup> and depletion is based either on a "reasonable allowance" or on a fixed annual percentage based on a large number of different categories of mineral.<sup>157</sup>

There is an obvious advantage to trying to match tax depreciation to real decreases in value. The accounting-type rules do at least set this as a principal goal. However, there are a number of objections to these systems: they are too complicated, and they give the taxpayer too much of an opportunity either to understate lives or to take unjustified additional depreciation. Therefore, justification can be found for the somewhat simpler rules followed in the United States and in Australia and for the much simplified rules followed in Lesotho and Kazakhstan. However, if administrative considerations permit a somewhat more sophisticated system, compromises can be made to keep the best of the accounting-based systems, without allowing too much latitude to the taxpayer. A compromise might include the following: along the lines of the French, German, and Japanese systems, a general rule could set annual depreciation rates as equal to straight line over the useful life unless an exception is provided.

The first exception would allow a 150 percent declining balance for all physical property, to take account of the apparently greater speed with which such property actually declines in value. The taxation authority could then publish properties by type, as amended from time to time, along with their useful lives and the yearly depreciation rates. The second exception could allow, where specifically provided in regulations, 200 percent declining balance for physical property that tends to experience more rapid declines in value, as provided by regulation. The taxation authority could then publish properties by type, as amended from time to time, along with their useful lives and the yearly depreciation rates. In addition, any policy to accelerate depreciation for purposes other than ease of administration should be clearly stated and reflected not simply in changes in allowable yearly deductions.

The question of whether scrap value should be taken into account is really one of ease of administration. Certainly, as a matter of theory, scrap values should be included where appropriate, because the existence of a scrap value would mean that the asset does not decline to worthlessness over its useful life. A rule could require that if scrap values are assumed in financial accounts, they should be included in tax depreciation accounts as well. Another possibility would be for the tax administration to provide estimates of scrap values for those items of physical property for which it publishes useful lives, at least those for which scrap value is high. Another would be to use the Japanese rule of thumb method.

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<sup>155</sup>*Id.* § 168(b).

<sup>156</sup>*See* USA Treas. Reg. § 1.167(a)-3.

<sup>157</sup>USA IRC §§ 611(a), 613(a). There are seven different groups of minerals with different allowances. *Id.* § 613(b).

## D. Depletion

Minerals that are extracted from the land will result in a reduction in the land's value; if the value of the minerals can be separated from the value of the rest of the land, a reduction in value of this separate amount can then be estimated. For a number of reasons, allowances for decreases in the value of mineral or similar property are often conceived of as separate from the accounting for depreciation of other property. One of the most important is that natural resources are often exploited at varying rates over the years. The rate of exploitation directly affects the decline in the value of the natural resource. This is in contrast to the assumption that underlies depreciation allowances for most other property, both physical and nonphysical: the rate of decrease is relatively constant throughout the property's useful life.

To account for the possibility that exploitation may vary over time, depreciation can be fixed on the basis of a reasonable estimate as to how much of each unit extracted reflects a decrease in the amount of total remaining mineral. This is known as "unit-of-production depletion."<sup>158</sup> Of course, this could be expressed as a given useful life, but only assuming a fixed rate of extraction. The second problem is that it is often difficult to determine the exact quantity of a natural resource. Without knowing how much exists, it is difficult to calculate unit-of-production depletion.

Another way to determine depletion allowances is to assume that a certain percentage of the gross income from the exploitation of the resource represents the cost of the depletion of the resource. Unlike with unit-of-production depletion, the amount of cost recovery allowed is reflected in a fixed rule of thumb percentage of gross income, and total deductions may not be limited to the cost of the original investment. This is known as percentage depletion.

The German statute allows depletion allowances to be based either on a useful life analysis or on accurate unit-of-production depletion analysis, the latter of which must be based "according to the portion of the substance consumed."<sup>159</sup> The French and Japanese each have special provisions for depletion. The French statute provides two different fixed annual percentage depletion amounts for hydrocarbons and other minerals; there is no limitation on deductions relative to the total cost of the natural resource.<sup>160</sup> The Japanese allow unit-of-production depletion or the related system based on the estimated life of the mineral or on any other reasonable estimate.<sup>161</sup> The Indonesian rule is similar to the German rule.<sup>162</sup>

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<sup>158</sup>The unit-of-production method has also sometimes been used for depreciable assets other than minerals.

<sup>159</sup>DEU EStG § 7(6).

<sup>160</sup>FRA CGI arts. 39 *ter*, 39 *ter* B.

<sup>161</sup>JPN Reg. 21-3.

<sup>162</sup>The taxpayer is allowed to use either a single fixed period, or the unit-of-production method, although a rate is not prescribed. IDN art. 11(X), (XII), (XIII).

The U.K. statute is quite different. It provides a single, and apparently arbitrary, depletion rate for all minerals.<sup>163</sup> Unlike the British provisions, the Australian provisions are based on a useful life analysis.<sup>164</sup> The Lesotho rule is like the British.<sup>165</sup> The U.S. rule gives the taxpayer a choice: it allows depletion based on a reasonable allowance or allows percentage depletion as provided in the statute. The percentage allowed is based on a large number of different categories of mineral.<sup>166</sup> As with France, total allowable depletion is not limited to cost of the mineral. The Kazak statute is similar to both the British and Lesotho rules.<sup>167</sup>

Because of the relatively greater potential variability of natural resource exploitation, unit-of-production depletion should probably be required. The German phrasing seems adequate. However, because of the difficulty of administering such a rule and the often imperfect science of determining the size of at least some mineral wealth, providing rules of thumb for classes of minerals should also be contemplated. These rules of thumb should be based on empirical evidence of the local jurisdiction.

Probably one of the easiest ways of creating such rules of thumb is through a percentage depletion allowance, as is done in the United States. However, it makes sense to limit the total costs allowed through percentage depletion to the total costs of acquiring the depletable natural resource.

## **E. Transfer of Property**

Depreciation (and depletion) allowances are designed to provide estimates of decreases in the value of property. However, except when they are based on the limited terms of nonphysical property, such decreases are unlikely ever exactly to equal the actual decline in the value of property. Therefore, if such property is transferred (or if it stops being used for the production of currently taxable income) before it becomes worthless, it is likely to have a value either greater or smaller than that predicted by depreciation. Also, in those instances where declining-balance depreciation is used, the property may well become worthless before or after the expiration of its useful life; if declining-balance depreciation is used, the property is nearly certain to become worthless before the balance reaches a trivial amount.

A transfer before the completion of depreciation allowances is therefore likely to result in an actual value at variance with its written-down value. If the actual value is lower, an additional deduction is required; if higher, the difference should be taken into income.

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<sup>163</sup>See GBR CAA § 98(5).

<sup>164</sup>AUS ITAA §§ 122DG; 124ADG.

<sup>165</sup>See LSO ITA § 43.

<sup>166</sup>See *supra* note 159.

<sup>167</sup>See KAZ TC art. 23(1).

The accounting-type jurisdictions as a general rule take into account gains and losses on the transfer of business assets; this includes those with written-down or depreciated values.<sup>168</sup>

The United States has a number of provisions whose net effect is similar.<sup>169</sup> For those assets that are not pooled,<sup>170</sup> the United Kingdom has a number of provisions that generally allow an immediate deduction for a loss and require immediate taxation of gain, although some special rules exist.<sup>171</sup> Australia, which allows pooling for most property, also has specific provisions that tax gains and losses, while permitting the rollover of gains in certain circumstances.<sup>172</sup> Both Kazakhstan and Lesotho include all gains on property as income.<sup>173</sup> Both laws also have specific rules regarding gains and losses on all depreciable physical assets.<sup>174</sup>

In order to ensure that no property, either physical or nonphysical, falls through the cracks, there should be a general provision that includes in income all gains and losses on the disposal of business property, including property subject to any depreciation or depletion allowances.

## F. Partial Years

Not all depreciable property is acquired and used on the first day of the tax year; nor may it necessarily be eligible for depreciation allowances for an entire tax year. Therefore, many countries provide a mechanism for ensuring that a full year's depreciation is not deductible when an asset is in use for only part of a year. Again, different systems use different techniques. The accounting-type jurisdictions generally use the accounting rules in their jurisdictions. In France, this means that depreciation is prorated monthly, as of the first day of the month in which it was "acquired" or "built."<sup>175</sup> The Japanese rule is nearly identical.<sup>176</sup>

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<sup>168</sup>See FRA CGI art. 38(2); DEU EStG § 6; JPN IT §§ 22, 31(2). The French law, which has a special provision for reduced taxation of long-term capital gains, specifically includes gain up to the amount of depreciation taken as fully taxable short-term gains. FRA CGI art. 39 *duodecies* (b).

<sup>169</sup>See, e.g., USA IRC §§ 168(i), 197(f)(1), 1245(a)(1), (a)(3). This also ensures that "recapture" of depreciation is reflected as a short-term capital gain. Such recapture of depreciation is referred to in some countries as a balancing charge.

<sup>170</sup>For a discussion of pooling, see *infra* sec. III(G).

<sup>171</sup>See *I.R.C. v. Wood Bros. (Birkenhead) Ltd.* [1959] A.C. 487; but see GBR CAA §§ 4(2), 60(2), 79.

<sup>172</sup>AUS ITAA § 59(1)–(2), (2A)–(2E). The net effect of rollover is the same as generally found in pooling. See *infra* sec. III(G).

<sup>173</sup>KAZ TC art. 20(6), (7). LSO ITA §§ 41(4), (8), (9), (11), 59.

<sup>174</sup>KAZ TC art. 20(6), (7). LSO ITA §§ 41(4), (8), (9), (11), 59.

<sup>175</sup>See Précis, *supra* note 65, ¶ 1100.

<sup>176</sup>International Bureau of Fiscal Documentation, *Taxation of Companies: Japan 94* (1992).

The general German rule is similar; however, this rule is trumped for movable physical property by an exception that lets the taxpayer round to the nearest half year.<sup>177</sup> The British rule allows a full deduction starting in the tax year in which the taxpayer's "obligation to pay . . . becomes unconditional,"<sup>178</sup> while the Australian and Lesotho rules require an apportionment based on the number of days from the moment the property is "used" or "installed."<sup>179</sup> The United States, on the other hand, generally assumes that physical property was "placed in service" during midyear, allowing for only one-half of the typically allowable deduction.<sup>180</sup>

Which rule is selected will depend on a balance between the relative importance of administrative simplicity and accuracy. There is probably a benefit to requiring consistent treatment among all types of depreciable or depletable property.

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<sup>177</sup>DEU EStDV §§ 9a–11d; DEU EStR §§ 42–59c.

<sup>178</sup>GBR CAA § 159. Kazakhstan, which uses a pooling system, also allows a full deduction for the entire tax year in which the property is "used." KAZ TC art. 20(1), (4), (6). Correspondingly, the full value of sales proceeds from retired property is subtracted from the pool when property is disposed of, thereby denying depreciation for the year of retirement. (Sweden provides another example of allowing full depreciation in year 1.—L.M.)

<sup>179</sup>AUS ITAA § 56(1A)–(1C); LSO ITA §§ 41(3), 43. However, a half-year convention similar to that of the United States applies when pooling is used. LSO ITA § 41(8).

<sup>180</sup>USA IRC § 168(d)(1), (d)(4)(A).

## G. Pooling

A number of countries, rather than requiring the separate tracking of assets for depreciation purposes, either permit or require certain properties to be "pooled."<sup>181</sup> Pooling can be accomplished using either closed-ended accounts (meaning that only property added in the same tax year is included) or open-ended accounts (meaning that property added in a different tax year is also included). Typically, in a pool, different properties with the same tax depreciation attributes are treated as if they were all one property. In the case of open-ended accounts, whenever a property is created or acquired, the appropriate costs are added to the sum in the appropriate pool, that is, the pool that includes all costs of assets with the same depreciation attributes as defined by the statute.<sup>182</sup>

If a property is sold or exchanged, the value received is subtracted from the pool.<sup>183</sup> If the value of the pool drops below zero, that amount is taken directly into income.<sup>184</sup> At the end of each tax year, a percentage of the entire pool is subtracted as a deduction for depreciation.<sup>185</sup> *De minimis* rules may provide for a complete deduction if the value of the pool drops below a certain amount.<sup>186</sup> A complete deduction for the closing balance is also allowed if all the assets in the pool have been retired or disposed of. As noted earlier, pooling can work only in the case of declining-balance depreciation. This is because no record is kept of the remaining useful life of any individual asset.

The principal difference in economic effect between pooling systems and separate accounting is that, under pooling, if allowable depreciation differs from actual (i.e., economic) depreciation and the asset is transferred before it is scrapped or becomes worthless, the gain or loss cannot be immediately reflected as taxable income (except when the value of the pool drops below zero). For example, under a separate accounting system, if an asset with a cost of \$100 and a written-down value (i.e., after depreciation) of 0 were sold for \$100, that \$100 would be taken into income immediately.<sup>187</sup> Under pooling, however, the written-down value of the asset would not be recorded, so it would be impossible to determine the amount of gain. Instead, the

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<sup>181</sup>A number of jurisdictions permit or require pooling for different types of assets, including Australia, Canada, Denmark, Finland, Norway, Sweden, and the United Kingdom. See International Bureau of Fiscal Documentation, *The Taxation of Companies in Europe* (looseleaf). This discussion will focus primarily on the rules of Kazakhstan and Lesotho, which have recently adopted pooling systems.

<sup>182</sup>See, e.g., KAZ TC arts. 20(4), (6)(2); LSO ITA § 41(5), (8).

<sup>183</sup>KAZ TC art. 20(6); LSO ITA § 41(8).

<sup>184</sup>KAZ TC art. 20(7); LSO ITA § 41(9).

<sup>185</sup>KAZ TC art. 20(6)(1); LSO ITA § 41(7).

<sup>186</sup>See, e.g., KAZ TC art. 20(8); LSO ITA § 41(10).

<sup>187</sup>Some tax systems allow a rollover of capital gains reinvested in similar assets or simply other business assets, outside of the context of a pooling system.

\$100 would be subtracted from the pool. This would mean that the taxpayer would not have to take into income \$100 immediately, but only over the future in the form of lost allowances.

However, the present value of those future deductions will be less than \$100 in immediate income. The extent of the benefit (or detriment) of pooling to a taxpayer over separate accounting will depend on the difference between tax and economic depreciation for each asset and on how often the particular taxpayer disposes of those assets.<sup>188</sup>

	<b>Large Asset</b>	<b>Small Asset</b>	<b>Pooling</b>
Year 1	9,000,000	1,000,000	10,000,000
Year 2	7,650,000	850,000	8,500,000
Year 3	6,502,500	722,500	7,225,000
Year 4	5,527,125	614,125	6,141,250
Year 5	4,689,056	522,006	5,220,062
Year 6	3,993,347	443,705	4,437,052

Year 6, sell asset B for \$1,000,000

Amount realized: \$1,000,000  
 Basis: \$443,705  
 Gain: \$556,295

Under a separate asset accounting system, the \$556,295 would be taken into income, and no further deductions would be allowed for the \$443,705 left to depreciate. In other words, the taxpayer would lose both the tax due on \$556,295 and the present value (in year 6) of \$433,705 in declining-balance deductions. Under pooling, this would be subtracted from the pool; that is, the taxpayer would lose the present value (in year 6) of \$556,295 plus \$443,705 in declining-balance deductions.

Because the present values of the \$443,705 are identical, the only question is which is more beneficial to the taxpayer, paying tax currently on \$556,295 or losing the present value of declining-balance deductions of \$556,295? Current taxation on \$556,295 will be greater than the loss of declining-balance deductions whose sum has a nominal value equal to the same number.

If all such assets sold were purchased by others who were taxed at the same rate, then the net effect of a sale of an asset on state revenues would be nil; the asset would continue to be in use somewhere, and while value would be subtracted from one depreciation pool, it would be added to another pool. However, this may not always be the case. Some purchasers of assets may pay tax at different rates. Others may pay no tax, either because they have offsetting losses, or because they are otherwise tax exempt as governmental or nonprofit entities, or because they are not residents. Some, for example, have reported that oil companies in particular like pooling systems, where different subsidiaries can trade large assets like drilling platforms or other

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<sup>188</sup>For example, assume that Taxpayer purchases two assets, one large and one small. For tax purposes, Taxpayer keeps track of both assets in a 15 percent declining-balance pool. Taxpayer also keeps separate track of the depreciation of each asset for financial accounting purposes. Taxpayer has estimated that a 15 percent declining-balance approximates the actual decline in value of the asset.

equipment depending on the availability to the subsidiary of other losses and where such assets can be traded out of the pooling jurisdiction entirely.

The economic effects of rolling over the capital gain associated with errors in tax depreciation increase both as the error increases and as the cost of the property increases. Perhaps in part for this reason, jurisdictions that provide for pooling generally require that structures and often other large capital items such as ships, public utilities, or locomotives be depreciated separately.<sup>189</sup> Depending on the wording of the statute, this can be accomplished by requiring either that such property be kept out of the pooling system or that each item of property be kept in its own pool, that is, a separate account.<sup>190</sup>

The oft-stated benefit of pooling is that it encompasses simpler record keeping than single-asset depreciation. However, under typical financial accounting standards, larger taxpayers often must keep separate accounts for assets of any substantial cost. Obviously, for these taxpayers, it may not be particularly onerous to require separate asset accounting for such assets. For taxpayers who are not required to keep separate accounts, the simplicity argument is more compelling. However, for any taxpayer, keeping separate account of assets that are longer lived and of a substantial cost does not seem particularly onerous. How these items of property are identified will depend on earlier choices regarding the structure of the depreciation system. However, as a general matter they could be identified through one or more attributes of cost, type, and length of useful life (or rate of declining-balance depreciation).

For example, all property with total costs in excess of a certain amount, and with a useful life of greater than ten years or a declining balance of greater than 15 percent could be required to be depreciated separately. Therefore, while a statutory provision could allow a pooling method for assets with similar depreciation profiles (meaning that they have the same rate of declining-balance depreciation), the tax administration should be permitted to deny its use in certain cases. This would allow both for ease of administration (broad classification of some assets, pooling) and for selective, careful tracking of economic depreciation for important assets.

An additional consideration in deciding whether to use a pooling system is the interaction between the depreciation method used for tax purposes and that used for financial accounting purposes. It is convenient, although not necessary, for tax and financial accounting to be the same in this respect. Although financial accounting is generally done on a single-asset method, pooled methods are often permitted under national accounting standards.<sup>191</sup>

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<sup>189</sup>See, e.g., LSO ITA § 41(5), sixth sched.; KAZ TC art. 20.

<sup>190</sup>See KAZ TC art. 20.

<sup>191</sup>See, e.g., Accounting Standard D40, *reprinted in* Financial Accounting Standards Board, Current Text, Accounting Standards 12607 (1994) (unit for depreciation may be an asset or a group of assets); Donald E. Kieso & Jerry J. Weygandt, *Intermediate Accounting* 528-29 (3rd ed. 1980); Frank Minter, et al., *Handbook of Accounting and Auditing* C4-11 (1996).