taken any time, even when the good in question is in good working order and not in need of repair. Major renovations of ships, buildings or other structures are frequently undertaken well before the end of their normal service lives;

(*b*) Major renovations, reconstructions or enlargements increase the performance or productive capacity of existing fixed assets or significantly extend their previously expected service lives, or both. Enlarging or extending an existing building or structure constitutes a major change in this sense, as does the refitting or restructuring of the interior of a building or ship or a major extension to or enhancement of an existing software system.

10.49. It is difficult to provide simple objective criteria that enable improvements to be distinguished from repairs because any repair may be said to improve the performance or extend the working life of the unrepaired asset. For example, machines may cease to function at all because of the failure of one small part, especially equipment with electric circuits. The replacement of such a part does not, however, constitute gross fixed capital formation. Thus, improvements have to be identified either by the magnitude of the changes in the characteristics of the fixed assets—that is, by major changes in their size, shape, performance, capacity, or expected service lives—or by the fact that improvements are not the kinds of changes that are observed to take place routinely in other fixed assets of the same kind, as part of ordinary maintenance and repair programmes.

10.50. Gross fixed capital formation in the form of improvements to existing fixed assets is to be classified with acquisitions of new fixed assets of the same kind. Accordingly, it is the improved asset that is henceforth relevant to the System and on which consumption of fixed capital must be calculated subsequently. However, it may also be useful for some analytical purposes to record improvements separately so that they may also be grouped with the improvements considered in the following section, if needed.

Improvements to tangible non-produced assets

10.51. In practice, these consist of improvements to land. Acquisitions that lead to major improvements in the quantity, quality or productivity of land, or prevent its deterioration, are treated as gross fixed capital formation. They consist of acquisitions related to the following kinds of activities:

(*a*) Reclamation of land from the sea by the construction of dykes, sea walls or dams for this purpose;

(*b*) Clearance of forests, rocks, etc. to enable land to be used in production for the first time;

(*c*) Draining of marshes or the irrigation of deserts by the construction of dykes, ditches or irrigation channels;

(*d*) Prevention of flooding or erosion by the sea or rivers by the construction of breakwaters, sea walls or flood barriers.

10.52. These activities may lead to the creation of substantial new structures such as sea walls, flood barriers, dams, etc., but these are not themselves used directly to produce other goods and services in the way that most structures are. Their construction is undertaken to obtain more or better land, and it is the land, a non-produced asset, that is needed for production. For example, a dam built to produce electricity serves quite a different purpose from a dam built to keep out the sea, and it is useful to classify them separately.

10.53. Acquisitions of tunnels and other structures associated with the mining of mineral deposits, etc., are classified as gross fixed capital formation in structures and not as improvements to land. These activities lead to the creation of assets that are used separately from the land through which they are drilled or bored. Site clearance and preparation for purposes of construction—i.e., the clearance of land previously used in production—is also not classified as improvements to land but treated as an integral part of the gross fixed capital formation in buildings or other structures.

10.54. Acquisitions or disposals of land itself are recorded as purchases or sales of non-produced assets and not as gross fixed capital formation. Thus, improvements to land must be shown on their own in a classification of gross fixed capital formation. The decline, between the beginning and the end of the accounting period, in the value of the improvement to land is shown, by convention, in consumption of fixed capital. This treatment is a convention in that, as noted above, an improvement does not lead to the creation of a new fixed asset that can be separately identified and valued, but it is consistent with the need to write down the value of all gross fixed capital formation over time as a result of consumption of fixed capital.

Costs of ownership transfer

Fixed assets

10.55. Acquisitions of new assets are valued at actual or estimated purchasers' prices plus the associated costs of ownership transfer incurred by units acquiring the assets. Similarly, acquisitions of existing assets are valued at the actual or estimated prices payable to their previous owners plus the associated costs of ownership transfer incurred by the units acquiring the assets. The costs of ownership transfer consist of the following kinds of items:

(*a*) All professional charges or commissions incurred by the unit acquiring the asset—fees paid to lawyers, architects, surveyors, engineers, valuers, etc., and commissions paid to estate agents, auctioneers, etc.;

(*b*) All taxes payable by the unit acquiring the asset on the transfer of ownership of the asset.

Costs of ownership transfer incurred by the unit acquiring the

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asset are treated as an integral part of the value of that unit's gross fixed capital formation. The value at which the asset enters the balance sheet of its new owner therefore includes the costs of ownership transfer.

10.56. Consistently with this method of valuation, disposals of existing fixed assets are valued at the prices payable by the units acquiring the assets to the units disposing of the assets minus any associated costs of ownership transfer incurred by the latter. Such costs are similar to those listed above, for example, lawyers' fees, estate agents' fees or commissions, auctioneers' commissions, taxes, etc. Taxes on ownership transfer do not, however, include capital gains taxes payable by the units disposing of the assets.

10.57. When a fixed asset is produced and sold for the first time, the costs of ownership transfer incurred by the first owner are included as an integral part of the value of the gross fixed capital formation recorded at the time. They are therefore gradually written off as part of the consumption of fixed capital charged on the use of the asset over its service life. If an asset is sold, however, before the end of its service life, this process is interrupted and a second set of costs of ownership transfer are incurred by both the first and the second owner. The value of the positive gross fixed capital formation recorded for the second owner is equal to the price paid by the second owner to the first owner plus the transfer costs incurred by the second owner. On the other hand, the value of the negative gross fixed capital formation recorded for the first owner is equal to the price paid by the second owner to the first owner minus the transfer costs incurred by the first owner. The positive gross fixed capital formation undertaken by the second owner must, therefore, exceed the negative gross fixed capital formation recorded for the second owner by the value of the costs of ownership transfer incurred by both units. This amount measures the total value of the gross fixed capital formation undertaken by the two units together.

10.58. Because of costs of ownership transfer, the value at which the disposal of an asset is recorded for the first owner may be less than the value of the asset in the opening balance sheet or at which it entered the balance sheet if acquired within the same period. In this case, a nominal holding loss equal to the difference between the two values is recorded for the first owner. Holding losses are incurred when owners of existing assets are unable to recover the costs of ownership transfer incurred on both the initial purchase and subsequent sale of an asset, although it may be difficult to separate such losses from other holding gains or losses when the prices of existing assets are changing for other reasons. The treatment of costs of ownership transfer is explained in more detail in the annex to this chapter where it is shown that, other things being equal, that part of the transfer costs incurred by the first owner on the initial acquisition of the asset that have not already been written off as consumption of fixed capital by the time it is sold plus the transfer costs incurred on the subsequent sale result in a holding loss for the first owner.

Land

10.59. The costs of ownership transfer incurred on purchases and sales of land affect the values recorded in the same way as the costs of ownership transfer on fixed assets described above. However, as land is not a produced asset, it is not possible to have gross fixed capital formation in land itself. The value of the costs of ownership transfer associated with purchases and sales of land must therefore be separated from the purchases and sales themselves. They are recorded under a separate heading in the classification of gross fixed capital formation. Consumption of fixed capital may then be charged using suitably long service lives. However, as land that has been sold disappears from the balance sheet of the seller, any acquisition costs previously incurred by the seller that have not already been written off as consumption of fixed capital together with the selling costs result in a holding loss for the seller.

10.60. All owners and purchasers of land within the economic territory are deemed to have a centre of economic interest in the economy. If an owner or purchaser would not otherwise qualify as a resident unit, a notional resident unit is created for this purpose. The notional resident unit is deemed to purchase the land while the non-resident is deemed to purchase the equity of the notional unit—i.e., to acquire a financial instead of a non-financial asset. Thus, all purchases and sales of land take place between resident units except when the boundaries of the economic territory itself are changed as a result of the purchase or sale—for example, when a foreign government, or international organization, purchases or sells land that is added to, or taken away from, the enclave in which its embassy or offices are located. Moreover, as purchases and sales of land between residents are also recorded excluding costs of ownership transfer for both buyers and sellers, the total value of the purchases and sales of land between residents must be equal to each other at the level of the total economy, although not at the level of individual sectors or subsectors.

Other non-produced assets

10.61. The costs of ownership transfer incurred on purchases and sales of these assets, which include, for example, mineral deposits that are used in production, are treated in the same way as land, being recorded under the same heading of the classification of gross fixed capital formation.

Acquisitions less disposals of tangible fixed assets (P.511)

10.62. Acquisitions less disposals of tangible fixed assets usually constitute by far the largest component of gross fixed capital formation, at least at the level of the total economy. The tangible fixed assets included under the general headings of structures, machinery and equipment and cultivated assets are defined and described in the annex to chapter XIII, so that there is no need to repeat such a description here. Also, the fact

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diate consumption in production should be valued at the prices prevailing on the date to which the balance sheet relates, and not at the prices at which the products were valued when they entered inventory. In the balance sheets, figures for inventories frequently have to be estimated by adjusting figures of book values of inventories in business accounts, as described in chapter VI.

13.48. As is the case elsewhere in the System, inventories of materials and supplies are valued at purchasers' prices, and inventories of finished goods and work-in-progress are valued at basic prices. Inventories of goods intended for resale without further processing by wholesalers and retailers are valued at prices paid for them, excluding any transportation costs incurred by the wholesalers or retailers. For work-in-progress inventories, the value for the closing balance sheet can be calculated by applying the fraction of the total production cost incurred by the end of the period to the basic price realized by the finished product on the date to which the balance sheet relates. If the basic price of the finished product is not available, it can be estimated by the value of production cost with a mark-up for expected net operating surplus or estimated net mixed income, as explained in chapter X, paragraphs 10.108 to 10.115. This approach can be used, for example, for partially completed structures, machinery and equipment, software and architectural and design services with long production periods, which are included in work-in-progress inventories to the extent that no transfer of ownership to the intended user is deemed to have taken place. (Own-account production of buildings and structures produced under a contract of sale/purchase agreed in advance are treated as gross fixed capital formation because the transfer of ownership to the intended user is deemed to have taken place.)

13.49. Growing single-use crops (including timber) cultivated by human activity and livestock being raised for slaughter are also counted as work-in-progress inventories. The conventional way of valuing standing timber is to discount the future proceeds of selling the timber at current prices after deducting the expenses of bringing the timber to maturity, felling, etc. For the most part, other crops and livestock can be valued by reference to the prices of such products on markets.

Valuables (AN.13)

13.50. Valuables are items that are not used primarily for production or consumption, that are of significant value, that are expected to appreciate or at least not to decline in real value, that do not deteriorate over time in normal conditions, and that are acquired and held primarily as stores of value.

13.51. Given their primary role, it is especially important to value works of art, antiques, jewellery, precious stones and metals at current prices. To the extent that well-organized markets exist for these items, they should be valued at the actual or estimated prices that would be paid for them were they purchased on the market, including any agents' fees or commissions, on the date to which the balance sheet relates.

13.52. An approach in the absence of organized markets is to value these items using data on the values at which they are insured against fire, theft, etc., to the extent information is available.

2. Non-produced assets (AN.2)

Tangible non-produced assets (AN.21)

13.53. Tangible non-produced assets are assets that occur in nature and over which ownership rights have been established. Environmental assets over which ownership rights have not, or cannot, be established, such as the high seas or air, are excluded because they do not qualify as economic assets.

Land (AN.211)

13.54. Land is defined in the System as the ground itself, including the covering soil and any associated surface waters over which ownership rights are enforced. Excluded are any buildings or other man-made structures situated on it or running through it; cultivated crops, trees and animals; subsoil assets; non-cultivated biological resources and water resources.

13.55. The value of land includes the value of the stock of major improvements that cannot be physically separated from the land itself. Thus, although expenditures on land improvements are treated as gross fixed capital formation in the System, they do not lead to tangible assets that can be shown in the balance sheets separately from the land itself. Land is valued at its current price paid by a new owner, including written-down costs of ownership transfer.

13.56. Because the current market value of land can vary enormously according to its location and the uses for which it is suitable or sanctioned, it is essential to identify the location and use of a specific piece or tract of land and to price it accordingly. In a number of instances it may be difficult, if not impracticable, to separate the value of land from that of the buildings erected on it, because in the market for real estate, as well as in the accounting records of transactors, distinctions are often not made between the buildings and the land on which they stand.

13.57. For land underlying buildings, the market will, in some instances, furnish data directly on the value of the land. More typically, however, such data are not available and a more usual method is to calculate ratios of the value of the site to the value of the structure from valuation appraisals and to deduce the value of land from the replacement cost of the buildings or from the value on the market of the combined land and buildings. When the value of land cannot be separated from the building, structure, or plantation, vineyard, etc. above it, the composite asset should be classified in the category representing the greater part of its value.

13.58. It is usually much easier to make a division between land and buildings for the total economy than for individual sectors or

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relevant to the System and on which consumption of fixed capital must be calculated subsequently.

10.44 A different treatment is applied to improvements to land in its natural state. In this case the improvements are treated as the creation of a new fixed asset and are not regarded as giving rise to an increase in the value of the natural resource. If land, once improved, is further improved, then the normal treatment of improvements to existing fixed assets applies.

10.45 The distinction between which ordinary maintenance and repairs that constitute intermediate consumption and which are treated as capital formation is not clear cut. As explained in paragraphs [redacted], ordinary maintenance and repairs are distinguished by two features:

a. They are activities that must be undertaken regularly in order to maintain a fixed asset in working order over its expected service life. The owner or user of the asset has no choice about whether or not to undertake ordinary maintenance and repairs if the asset in question is to continue to be used in production;

b. Ordinary maintenance and repairs do not change the fixed asset's performance, productive capacity or expected service life. They simply maintain it in good working order, if necessary by replacing defective parts by new parts of the same kind.

10.46 On the other hand, improvements to existing fixed assets that constitute gross fixed formation must go well beyond the requirements of ordinary maintenance and repairs. They must bring about significant changes in some of the characteristics of existing fixed assets. They may be distinguished by the following features:

a. The decision to renovate, reconstruct or enlarge a fixed asset is a deliberate investment decision that may be taken any time, even when the good in question is in good working order and not in need of repair. Major renovations of ships, buildings or other structures are frequently undertaken well before the end of their normal service lives;

b. Major renovations, reconstructions or enlargements increase the performance or productive capacity of existing fixed assets or significantly extend their previously expected service lives, or both. Enlarging or extending an existing building or structure constitutes a major change in this sense, as does the refitting or restructuring of the interior of a building or ship or a major extension to or enhancement of an existing software system.

10.47 It is difficult to provide simple objective criteria that enable improvements to be distinguished from repairs because any repair may be said to improve the performance or extend the working life of the unrepaired asset. For example, machines may cease to function at all because of the failure of one small part. The replacement of such a part does not, however, constitute gross fixed capital formation. Thus, improvements have to be identified either by the magnitude of the changes in the characteristics of the fixed assets such as size, shape, performance, capacity, or expected service lives, or by the fact that improvements are not the kinds of changes that are observed to take place routinely in other fixed assets of the same kind, as part of ordinary maintenance and repair programmes.

Costs incurred on acquisition and disposal of assets

10.48 Purchasing a fixed asset is often a complicated procedure that may involve using lawyers to establish legal title to the asset, engineers to certify that it is in satisfactory working order and so on. There may also be taxes to be paid occasioned by the change of ownership of the item. Further, in the case of highly complex machinery there may be significant costs associated with delivery and installation that were not included in the purchase price.

10.49 The benefits to be derived from the use of the asset in production have to cover these costs as well as the initial price of the asset. Costs incurred on acquisition of an asset are therefore treated as an integral part of the value of that unit's gross fixed capital formation. The value at which the asset enters the balance sheet of its new owner therefore includes these costs. This applies to both new and existing assets.

10.50 Just as there may be costs incurred on the acquisition of an asset, there may also be costs incurred on the disposal of an asset. Some of these may be parallel to those costs incurred on acquisition, for example legal fees and disinstallation costs. However, in the case of some significantly large and important assets, such as oil rigs and nuclear power stations, there may also be major costs associated with the decommissioning of the asset at the end of its productive life. For some land sites, such as those used for landfill, there may be large costs associated with rehabilitation of the site. These are referred to collectively as terminal costs.

10.51 All these costs associated with acquiring and disposing of assets may be described as costs of ownership transfer. ***The costs of ownership transfer consist of the following kinds of items:***

a. All professional charges or commissions incurred by the unit acquiring or disposing of an asset such as fees paid to lawyers, architects, surveyors, engineers and valuers, and commissions paid to estate agents and auctioneers;

b. Any trade and transport costs separately invoiced to the purchaser;

c. All taxes payable by the unit acquiring the asset on the transfer of ownership of the asset;

d. Any tax payable on the disposal of an asset;

e. Any delivery and installation or disinstallation costs not included in the price of the asset being acquired or disposed of; and

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