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Agenda item: II

ISSUES NOTE: THE RECORDING AND MEASUREMENT OF LAND AND NATURAL RESOURCES (AND DWELLINGS)

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INTRODUCTION

1. It is recognised that "land is a quantitatively important asset that is notoriously difficult to measure" (OECD, 2009). Previous country comparison exercises on the availability of methods to value land and related natural resources were undertaken by OECD (2007, 2008, and 2011). OECD (2009, Chapter 18) also captures specific practical issues related to the valuation of land and dwellings. These notes all highlight the difficulties in recording and measuring land and natural resources (now just referred to as land). The issue was given increased prominence more recently within Recommendation 15 (Sector Accounts) of the G20 Data Gaps initiative (Financial Stability Board, 2011), which describes a need for more detailed information on non-financial assets, including in particular land.

2. In response to this, the OECD developed and launched a questionnaire on land towards the end of 2011 as an input to its 2008 SNA Implementation Workshop. Delegates supported the idea of a dedicated Workshop to tackle issues related to land and also dwellings. Twenty three countries responded to the questionnaire. Experiences ranged widely, from having no information on the valuation of land to using specific estimation techniques and country related data to estimate either sub-aggregates or the total value of land. For example, of those countries that responded to the survey, the total value of land for the balance sheet was available for countries: Australia, Canada, Czech Republic, Finland, France, Japan, Korea, Mexico, Sweden and the United Kingdom. Partial estimates were available for sub-classifications for countries: Austria, Italy, and The Netherlands.

3. A number of countries requested greater guidance on practical issues relating to the recording and measurement of land. This short note captures the main issues raised by individual countries and proposes a series of specific discussion points for the AEG that could serve as input into the forthcoming Workshop.

SUMMARY OF PRACTICAL ISSUES

4. *Choice of methodology*: There is no common method used to estimate land. Similar findings were reported to the earlier country survey (OECD, 2008). The current available methods for valuing land can be grouped within four broad approaches: a) Direct collection via a survey or census, b) use of modeling, such as use of land-to-structure ratios, c) use of administrative data such as land registers or cadastrals, d) derivation by residual using land and dwellings data and deriving land as a residual. Each method has strengths and weaknesses and method choice will depend on the availability of data.

5. *Sub-classifications*: There is no commonly used approach to the sub-classification of land. Within the 2008 SNA there is now no formal disaggregation of land (10.178), as it notes that guidance should come from SEEA. The SEEA currently includes a very detailed sub-classification structure for land. Country experiences show that many different broad classifications of land are used in practice. For example, by use of land type, by taxable land and non-taxable land, and the 1993 SNA classification. The motivation for using different classifications is likely to have been driven by the availability of data, calculation and user requirements. A broad enough classification which facilitates and encourages estimates to be compiled should be considered, for example, of that currently highlighted in the 1993 SNA .

6. *Data sources*: Relevant data sources are one of the main issues in obtaining appropriate estimates. The two most commonly available data sources for asset information are the use of some form of survey or census, or existing records based on administrative data. Where censuses are used, some countries extrapolate the estimates for the intermediate years. Some countries use existing register data from other government departments. Each of these types of data sources has limitations, e.g. coverage, timeliness, or volatility. A combination of different data sources should be used where possible. For example, the use of comprehensive administrative data for addresses and land sizes could be supplemented by regular survey data for valuations to ensure the latest estimates are available. Practical guidance on how to use and update data sources where there is a change in ownership would also be useful.

7. *Separation of land from dwellings*: It is often easier to collect the value of dwellings and other buildings which also includes the value of land. It is then a difficult estimation exercise to separate the value of land. Many countries use a proportion or residual method to estimate the value of the land from the combined total. Other countries acknowledge this issue and do not attempt to apportion land from the total, and then just publish both estimates together. This can mean that volatility of one asset is reflected in both. The SNA notes that when the value of land cannot be separated the asset should be classified to the structure (10.177). This issue is primarily caused by the limitations of the available data sources. A PIM approach is often used to estimate land values, by firstly estimating the stock of dwellings and other buildings and structures and then subtracting this from a total estimate of land and buildings from the balance sheet. The can lead to estimation issues where the final estimate for land may be negative, or display unrealistic movements. The assumptions for the asset life and method of depreciation used should be assessed closely (see also below). It is important to note that the differentiation of land and building values is not merely an issue for balance sheets. Estimates of GDP can be affected too in those countries that take a user-cost approach to the measurement of imputed rent, typically in developing economies.

8. *Reliable price indices*: Reliable information on land prices is often limited with either no relevant price indices existing or the coverage is not appropriate. Prices are typically based on real estate transactions, survey of existing land values, housing price or construction price indices, and are also affected by the methods used to differentiate between land and buildings. Obtaining different prices for

different types of land is also a challenge, with prices needed for residential, non-residential and cultivated land, where each has different characteristics.

9. *Valuing different sub-classifications of land*: Different sub-classifications of land will have different valuation issues. For example, land prices can develop at different rates depending on the use of land and geographical location, and the ease of collection of relevant information will depend on the type of classification. The valuation of residential and non-residential land will typically require the underlying land to be distinguished from any dwellings or buildings. This can be done by using related data items such as building permits, or land-to-structure ratios. Cultivated land will typically not have these issues and may be able to be estimated directly using the agricultural land area.

10. *Valuing land improvements (investment)*: There are different methods used in practice depending on the data sources available. For example, the use of the PIM, administrative information on agriculture (e.g. capturing clearing of land), use of civil engineering or construction surveys. In the cases where land improvements are not estimated, then this would likely be included within the total value for land, implying a bias to the total estimate.

11. *Depreciation and service lives*: The PIM can be used to estimate the stock of dwellings and other buildings and structures. A value for land can then be derived as a residual by subtracting the stock of dwellings and building estimates from a combined land, dwelling and building value. In practice, the choice of depreciation method is central to the use of the PIM and the treatment of different assets may also differ. For example, buildings will depreciate over time while typically, land is assumed not to depreciate, even if the quality may change i.e. via a reclassification. Additional guidance to describe depreciation methods may be needed for these assets. A specific issue could be the treatment of historic buildings where older (historic) buildings often attract a higher value than newer buildings. Does this only reflect perceived differences in quality or is there a scarcity element that needs to be considered, particularly with regards to different depreciation rates and service lives for these type of assets?

12. *Revaluation and changes in volume*: SNA notes that any change in value that arises from a change in the classification of a building or land, for example from residential to commercial, should be reflected as a volume and not price change; implicitly this means a change in the volume of land (SNA 12.23). However there are some borderline issues where additional guidance might be needed. These relate to spillover effects. For example, if a park is reclassified as land on which residences can be built, the value of the properties overlooking the land is likely to decrease. The increase in the value of the park represents a quality change but the decrease in the value of the surrounding buildings reflects a price change, despite the fact that the 'quality' has changed. Is this consistent with the underlying principle that quality and volume changes are interchangeable? Should guidance be provided in this regard, if only to recommend that for practical purposes these cases should be treated as price changes as it would be difficult to do otherwise (see also 14 below)?

13. *Treatment of land under roads and rail*: Land under roads and rail is covered within SEEA which also gives guidance on the valuation. In this recent review only a small number of countries mentioned this aspect specifically so it was unclear if other countries took this into consideration. In one situation it was noted that land under roads were considered to be owned by government. In some countries, there are now examples of private tollways and private railways, where there would need to be a distinction made between land under the road, and the ownership of the actual road.

14. *Sectorisation and government land*: Full sectorisation of land data is not easily available, again primarily driven by availability of data sources. There was a general consensus that the valuation of government land should be included in the overall estimate of land as it does not constitute double counting although practice did differ between countries (e.g. examples of building a road which would

impact on the value of the surrounding land which may then reflect double counting, or where land is sold and its classification also changes). However, in some countries the value of the land owned by governments is not easily assessed or captured. In such cases the value of the land is derived using a relationship between the land area and surrounding land values. Additional guidance would be useful on deriving sectorised estimates and treatment of land where there is a change in ownership or sector.

15. *Economic value of national parks*: There was a distinct difference between the treatment of national parks between some countries. One country noted that a national park had no economic value and was not in scope of the value of land, while another determined that development of national park assets represented a stored economic value that could be utilized. This is mentioned in SNA 12.21 and one approach may be that the government is deemed to own the national park. Additional guidance may be helpful on this.

16. *Production boundary for resource leases*: This issue highlights a potential need for information on resource leases related to land in the SNA. For tenants (e.g. farmers) the production associated with the use of the land (agricultural output) is captured whereas the cost for using the land are only recorded as property income. The production accounts will therefore record no charge for the use of land which is needed for productivity measurement.

SPECIFIC POINTS FOR DISCUSSION

17. The items highlighted above are not meant to be exhaustive, nor categorised under order of importance. Many are only marginal issues in terms of their economic importance. Some however merit further discussion and so the AEG's views are sought on the following:

(a) Is the development of a comprehensive practical guide to the measurement of land, based on best practice from individual countries, required?

(b) What guidance can be developed to separate the value of land from the dwelling. Should there be an explicit recommendation that fixed ratios (over time) should not be used? [Point 7]

(c) Where estimates for land are derived as a residual, e.g. through the use of the PIM to estimate dwellings and deducting this from a total land and dwellings, what quality assurance mechanisms (including e.g. depreciation rates) can be used to ensure the quality of the final land estimates [Points 1, 11, 12]

(d) Which sub-classification of land is recommended for practical purposes? [Point 5]

(e) Is guidance needed to deal with spillover effects on quality? [Point 12]

(f) When there is a private road or rail, does the land under the structure belong to the government or the owner of the private road or rail? [Point 13]

(g) Should the economic value of National Parks be estimated and included in the total value of land? [Point 15]

(h) Should rents be separately identified on land within property income? [Point 16]

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