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A balance sheet for land – experiences from the Netherlands

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A BALANCE SHEET FOR LAND - EXPERIENCES FROM THE NETHERLANDS

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1. Introduction

The dimension of land is essential in environmental and ecosystem accounting. Land plays an essential role in ecosystem related activities such as agricultural and forestry production. However, most other industries depend on the production factor land as well. This is why the SEEA should prominently pay attention to land, for example by including accounts for land cover and use accounts but also by adopting asset accounts and balance sheets for land.

As a point of departure, the next section of this paper explains the set up of national accounts balance sheet for land. The following section 3 deals with conceptual issues related to measuring land values and changes therein also in the context of SEEA. This section raises a couple conceptual questions which need an answer in the context of the SEEA revision. One particular conceptual issue touched upon in this paper is whether the SEEA concept of depletion is applicable for land, especially in cases in which land suffers from severe productivity decline, for example due to unsustainable agricultural and forestry practices.

Section 4 highlights several measurement issues which may arise when putting together balance sheets or asset accounts for land. The measurement issues reflected in this paper are those particularly found in countries with industrialised or services based economies. In developing countries with agricultural based economies, these measurement issues may be very different from those presented in this paper. It is important to notify that the work on balance sheets for land in the Netherlands represent work in progress.

Section 5 provides some preliminary results and winds up with some conclusions.

2. National account balance sheet for land

National accounts balance sheets record the stock values of assets and liabilities at the beginning and the end of an accounting period. The opening balance sheet, at the beginning of a period, equals by definition the closing balance sheet at the end of the previous period.[1] All differences between opening and closing balance sheets of an accounting period are recorded in one of the accumulation accounts. In case all changes in assets and liabilities are exhaustively accounted for, the opening balance sheet plus all entries in the accumulation accounts equal the closing balance sheet. This consistency between opening and closing balance sheets and accumulation accounts in the SEEA very well shown by the so-called asset accounts for natural resources.

[1] When different surveys are used to estimate the balance sheet at the beginning of the period and the balance sheet at the end of the previous period, statistical discrepancies may arise between these balance sheets.

Changes in non-financial assets are recorded in three different accumulation accounts. In the *capital account*, transactions in non-financial assets are recorded, both transactions with third parties (sales and purchases) as internal bookkeeping transactions linked to production (changes in inventories and consumption of fixed capital). The *other changes in volume account* records the volume change of assets as a result of factors other than transactions, like the destruction of assets by natural disasters. The *revaluation account* records those changes in the value of assets that result from changes in their prices.

The System of National Account (SNA) divides non-financial assets into produced assets (fixed assets, inventories and valuables) and non-produced assets, which are in turn subdivided into natural resources, contracts, leases and licenses and purchased goodwill and marketing assets. In the SNA and SEEA Volume I five different kinds of natural resources are recognized: land, subsoil assets, non cultivated biological resources, water resources and other natural resources (primarily radio spectra). Cultivated biological resources are recorded as produced assets, while natural resources over which no ownership can be enforced (atmosphere, oceans) are not recognised as assets in the SNA.

3. Conceptual issues

3.1 How to value land?

Like for any other asset category the preferred way to value assets is by using market values. These values could be derived from information on land transactions, i.e. sales and purchases of pieces of land. For agricultural land this method can be applied quite easily. However, land very often changes hands together with buildings and structures. Using land values derived from transactions without buildings as a proxy for land values underlying buildings and structures may easily lead to downward biases. The reason for this is that most land without structures is located at the outskirts of cities or in rural areas, whereas most land underlying buildings is often located within cities. Land prices in urban areas are often much higher than the land prices in rural areas.

The only alternative to estimate these land values is to separate the value of buildings from real estate transactions. These transactions usually include the value of land together with the value of buildings or structures on the land surface. Separating building values from real estate transaction prices would do the trick. In this context it is important to notice that the value of two identical houses (or buildings) may differ if they are differently located. Such price differences are for example the outcome of differences in the presence of environmental and other amenities (e.g. the presence of recreational parks, highways, public services, job

opportunities)[2]. The benefits and inconveniences of a particular neighbourhood are obviously reflected in the land component of real estate prices. By buying a piece of land you will also buy the quality of its surrounding area.

This treatment of a building as an asset that may be put on any land leads to a useful definition of the building itself: *the value of a building or structure, excluding the land on which it is built, is equal to the depreciated cost of producing the building or structure.* Since the depreciated value of the buildings and structures can be measured (at a macro or meso level) with the Perpetual Inventory Method (PIM), such measures can be used to derive land values from real estate values.

3.2 Scope of SNA / SEEA balance sheets for land

It is important to recognise that the SEEA 2003 (§7.61) considers a broader asset boundary than the SNA by including, at least in physical terms, not only land with observable market values but all land with important use functions. The question raised here is which land falls reasonably within the scope of market valuation.

In the SNA all land subject to ownership should be valued on the basis of its market price. In cases where ownership cannot be identified, the government could be considered the land owner by default. This means that all land within the boarders of the national territory should in principle be represented in the nation's balance sheet. However, some land values, like remote an inaccessible deserts or tundra's, may be close to zero. One may expect that all privately owned land has positive values. For certain parts of government owned land however one may argue that the value of this land is already included in the value of adjacent land. Including in the balance sheet a value for this government owned land would in this case lead to double counting. One may argue that this surplus value of the adjacent land is a spill over effect. However, this is only the case when the government owned land has a demonstrated value on its own. This self standing asset value does not seem to exist for roads that have only one function namely giving access to residential areas.

This problem arises when the value of privately owned land is based on the expectation that the government will neither sell land nor will change its use. This may for example be the case with land underlying roads and public parks. The value of most privately owned land depends, among other things, on its accessibility to the public infrastructure. An accessible house (including the land) has usually a higher value than a remote house next to a dirt road. This surplus value is created by roads or public means of transport with which the house is easily accessible. This surplus value follows the land owners trust that the government will neither sell the land underlying these roads nor will use it for other purposes. As soon as the government would reallocate the land underlying roads the adjacent privately owned land would quite likely decrease substantially.

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[2] It is assumed that the cost to build both (identical) houses is identical, and that both pieces of land have the same quality.

A second argument against valuing land underlying roads is that it does not seem to have a real market value as long as it is used as such. In the Netherlands, as in many other countries, the government develops spatial zoning plans in which the use of land to various purposes (agriculture, dwelling, office locations, nature, etc.) is being predetermined. Land prices are very much determined by the kind of economic activities this land is allowed to be used for. Changes in zoning plans will lead via the other changes in volume of assets (a reclassification of land use) to changes in the national balance sheet positions for land.

Based on these arguments, but also due to measurement difficulties, land underlying public infrastructure is not valued as such in the Dutch national balance sheet for land. Only government owned land underlying dwellings (EA.2111 and EA.2121), land underlying non-residential buildings (EA.2112 and EA.2122), agricultural land and associated surface water (EA.22) and construction land (Part of EA.21?[3]) is included. Excluded is all land used for transportation and utilities (EA.2113 and EA.2123), wooded land and associated surface water (EA.23), mayor surface waters (EA.24) and other land (EA.25).

Question 1 – Does the London Group agrees that government owned land allocated to public facilities should be left unvalued in the SEEA balance sheet?

3.3 Land ownership versus land use

Like any other asset type, the value of land should be recorded in the balance sheet of its economic owner. However, the owner is not necessary equal to the (only) user of land. At least two situations can be distinguished. Firstly, the land owner (usually the government) may provide free access to the land as a public service. This is for example the case for land underlying roads or with public parks. A second possibility is that the land owner charges users for using the land. Examples are the rent of agricultural land or land underlying buildings. The building itself may, or may not be subject to the rental agreement. Land rents, or natural resource leases more generally, may create problems when accounting for the full cost of production including the use of natural resource like land.

According to the SNA the income generated by resource leases should be recorded as property income. This means that rent payments are not directly reflected in the production (or income generation) account of the land user. Instead property income is recorded in the income distribution account. For the tenants (for example farmers) the national accounts register the production associated with the use of the land (agricultural output) but no cost for using the land. Production accounts therefore wrongfully show large profits.

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[3] The SEEA is does not state clearly under which asset type land like construction land, land underlying graveyards and dumping grounds should be recorded.

A solution is to explicitly reflect in the new SEEA land rents in the production, or income generation, account of the tenant. This seems a useful step in the process of showing explicitly the use of natural resources in production.

Question 2 – Does the London Group recognize the usefulness to explicitly present land rents, together with other resource rents, as capital income in the production account (i.e. the income generating account) of the SEEA?

3.4 Soil depletion and degradation

A SEEA asset account explains systematically all differences in the opening and closing balance sheet of an accounting period. Looking at the entries in asset accounts, one could make a distinction between those changes that are directly related to production (capital formation, depletion) and those that are not (catastrophic losses, holding gains and losses).

In the context of land this distinction has not been made in the SEEA so far. The 2003 SEEA (§8.373) recognises that quantitative dimension of soil is subject to depletion, being the loss of soil and the nutrients it contains as a result of agricultural and forestry production. This is why the 2003 SEEA regards soil as a self standing asset apart from the land. However, agricultural production can have a much wider direct impact on the quality of land, just to name a few examples:

- Intensive land irrigation may lead to salination of soil;
- Uncontrolled removal of virgin vegetation and unsustainable agricultural practices may lead to soil structure decline and water and wind erosion;
- Uncontrolled use of (wrong sorts of) pesticides may lead to soil contamination.

All these production related impacts may lead to a loss in the productive capacity of land. This is why one may argue that the current soil depletion concept in the 2003 SEEA is too narrow to reflect all direct negative impacts from agricultural and forestry production on land. More generally one may wish to reflect in general all negative impacts on land that lowers its productive capacity in terms of agricultural and forestry production. Clearly, from a purely physical point of view one should not refer to this damage as soil or land depletion. In the SEEA 2003 depletion is understood as the withdrawal of nutrients and soil in quantitative terms. But this is merely a matter of precise wording. For the time being we will address this value loss simply as land depletion. The fundamental question raised here is whether the depletion element of income and saving in the SEEA should be stretched to include all losses in the productive capacity of land that is the *direct* consequence of unsustainable agricultural and forestry production.

Otherwise, the decline in land productivity that result from externalities, or the *indirect* consequence of production and consumption activities elsewhere (such as

acid rain or desertification of land due to global warming), should obviously not be included in the depletion element of income and saving. Such kinds of asset losses will remain to be recording in the other changes in volume of assets account.

Another way to put this question is whether in the SEEA these direct production induced losses in the value land should be reflected either in the production accounts (as a cost of production) or in the other change in volume of assets account?

Question 3 – Should the depletion element in the SEEA include all losses in the productive capacity of land that is the consequence of unsustainable agricultural and forestry production of the land user and which lead to a value decline in current and future capital services of the land?

This decline in capital services will undoubtedly be reflected by falling market values of the land. A logical consequence of this line of reasoning is that in the SEEA soil would no longer be considered as an asset separate from the land. This would bring the SEEA in line with SNA in this regard. Also this proposed change in the classification of assets is more in line with economic reality since the characteristics of the soil is very likely to be reflected in the value of agricultural land.

It is relevant to mention in this context that losses in the productive capacity of land may be offset by land improvements which are regarded as capital formation in the SNA (and the SEEA).

3.5 The depletion element in property income

As with any other asset, the user of land does not necessarily correspond to the owner. Since land is considered a non-produced asset, rent payments for land do not show up as a produced service (land lease) in the production account of the SNA. In the SNA rent is considered as part of property income to be recorded in the primary distribution of income account. This means that the rent income appears firstly in the income generation of the tenant and at a later stage, after the distribution of income, in the income and capital account of the land owner.

This poses a problem with the recording of land depletion. When the extractor of a natural resource is also the owner, natural resource depletion shows up nicely in this agent's production, income and capital account. However, this is no longer the case when the extractor (land user) and land owner are distinct agents. In this situation, land depletion should first show up as part of the total user cost of capital in the production (or income generation) account of the tenant (for example the farmer). On the other hand, it is the land owner whose income and saving should be charged against land depletion.

The only obvious solution to match the accounts of tenant and landlord is to redistribute the depletion element, as a component of property income, from the

tenant to the landlord in the primary income distribution account of the SEEA. Please be aware that this situation may occur for any 'depletable' natural resource, not only land, for which its use (or extraction) and ownership is not in the hands of one economic agent. It is also important to understand that is complexity does only occur in the SEEA and not in the SNA. In the SNA the recording of depletion is entirely unlinked to the production account but instead recorded in the other in volume of assets account.

Question 4 – Does the London Group agree that when ownership and use (or extraction) of a natural resource are not in the hands of one economic agent, the depletion element of property income should be redistributed, together with property income, from the user/extractor to the owner of the natural resource?

4. Measurement issues

In the Netherlands the land use statistics is a key source in the compilation of balance sheets for land. Land use statistics provide a breakdown of all land (and inland water bodies) in the Netherlands into types of land. They are based on aerial photographs and are published about every three years. Using land use statistics ensures consistency between the sum of the areas of all types of land and the total area of land in the Netherlands.

A disadvantage of the land use statistics is that they are not consistent with the classification of land in the SNA or SEEA. Land under small roads within a neighbourhood is for example classified as land underlying dwellings. Furthermore, the delineation of an area of land is not necessary conform the SEEA, for example when associated surface water is involved. However, the land use statistics are still the most comprehensive source available.

4.1 Agricultural land

Agricultural land is divided into two separate groups: open farmland and land underlying greenhouses. The scarce data that exist about the difference in prices between land for cattle breeding and land for arable farming show that these prices are fairly equal, so a division of land into these two kinds of open farmland does not provide much extra quality to the estimates.

The agricultural census is being used for interpolation and extrapolation of open farmland estimates that are derived from the land use statistics. This census provides yearly data on the use of agricultural land. The agricultural land surface according to the agricultural census is about 18 percent lower than the land surface derived from land use statistics. Unlike the agricultural census, the land use statistic includes for example farmyards and the land underneath farms. The rate of change in agricultural

area is about the same for both statistics, so the agricultural census can still be used for the interpolation and extrapolation of the data from the land use statistics.

For the price per hectare of agricultural land several data sources are being used. For different time periods different organisations have been responsible for measuring the price of agricultural land. The most recent data source is the Economic Institute for Agriculture (LEI). All data sources provide the weighted average price per hectare for the whole of the Netherlands (as well as for different regions). Since the resulting prices from the different data sources are within 1 percent of each other, they are treated as a continuous time series. [4]

The value of the agricultural land is subsequently estimated by multiplying the agricultural area with the price per hectare. This means that farmyards and land underlying farms receive the same value as the "actual" agricultural land.

For land underlying greenhouses, neither the areas nor the rate of change in areas from the agricultural census are anything like the data from the land use statistics. The main reason is that greenhouses are increasingly used for non-farm purposes, like storage of camper trailers and vans. The agricultural census only registers the land that is actually used for greenhouse farming. Since other data sources are unavailable, linear interpolation and extrapolation is used to estimate the area of land underlying greenhouses. Land underlying greenhouses is subsequently split into agricultural land and land underlying structures. The estimated area of agricultural land is derived from the agricultural census while the remainder is classified as land underlying structures. Since all land underlying greenhouses may be used both for farming and non-farm purposes, it is assumed that prices are equal for both types op land use.

Data from the LEI is used to value land underlying greenhouses. The LEI provides land prices excluding the greenhouses itself but including infrastructure like the connection to the grid. It is not clear whether it will be possible or even necessary to exclude the value of grid connections. Another problem with the data is that the price per hectare of land underlying greenhouse depends on how square the area is. A square area is cheaper to heat and therefore the price of the underlying land will be higher. Unfortunately good data on the contours of greenhouses is unavailable. Some assumptions are therefore needed to estimate the average price of land underlying greenhouses. This price per hectare is subsequently multiplied by the total land area to arrive at a total value of land underlying greenhouses.

4.2 Land underlying dwellings

The value of land underlying dwellings is measured as the value of the dwelling including the land minus the depreciated cost of building the dwelling. The value of the dwelling including the land is derived from tax registers. In the Netherlands for tax purposes the (so called) WOZ-value of every dwelling including land is

[4] Comparison is possible because of overlapping time periods.

registered. This value is based on actual prices of dwellings sold and provides an accurate figure of the market prices, except for the fact that all dwellings are registered in prices of the beginning of the previous year. In order to estimate the value at current prices, the price index for existing owner-occupied dwellings is used. Although this price index takes hold of price differences between different kinds of dwellings, it does not correct for the on average increasing size of dwellings in time. As such the price index probably suffers from an upward bias. No data on the size of this bias is available, so for the time being the expected bias is being ignored.

The Perpetual Inventory Method (PIM) is used to determine the depreciated cost of dwellings. The PIM measures the net value of dwellings excluding the underlying land, but including the depreciated value of ownership transfer cost. Since the WOZ-value is the price for which the dwelling is expected to be sold, it excludes the transfer of ownership cost. For estimating the value of land underlying dwellings, the PIM-value excluding transfer of ownership cost is therefore subtracted from the WOZ-value.

Not only land values but also volume changes in land use can be derived from the above mentioned sources. It is important to emphasise that the volume change of land is not necessarily equal to change in concomitant land areas. This is because land underlying dwellings can not be treated as a homogenous asset. Land in the middle of a city has usually a much higher value and is therefore economically speaking of a higher quality than land in smaller villages. In practice, the volume change of land underlying dwellings appears to be higher than the increase in the area of land underlying dwellings. This is consistent with the observation that in the Netherlands a larger part of dwellings are being built in the highly populated areas where land prices are above average. However, more research is still needed to determine whether the results are plausible.

4.3 Land underlying non-residential buildings

In principle the value land underlying non-residential buildings can be estimated in a similar way as the value of land underlying dwellings. A WOZ-value is available for all non-residential buildings except churches, which are tax exempted. The main difference is that the WOZ-value for non-residential buildings including land cannot be used directly. Unlike dwellings including land, the WOZ-value for non-residential buildings including land is not based on actual transactions. The reason for this is that there are few actual transactions in non-residential buildings. For estimating the WOZ-value of non-residential buildings including land, various methods are being applied by the tax authorities. When possible, the net present value of future rentals is applied as a valuation method. In other cases, the depreciated value of construction costs is estimated based on extensive guidelines.

In theory, the WOZ-value should be a good estimate of the value of the non-residential buildings including land. In practice however, the PIM-value of the non-residential buildings (excluding land) is higher than the WOZ-value of the building

including land. The service lives in the PIM are quite similar to the guidelines for estimating WOZ-values so this cannot be the problem. The difference might however be caused by the depreciation profile. In the PIM, the depreciation profile is in accordance with the OECD handbook *measuring capital*, which leads to a depreciation profile that is approximately geometrically shaped. The WOZ-values are based on a linear depreciation method. Since linear depreciation profiles leads to lower net values than geometric ones, this might explain the unexpected difference between the two estimates.

Therefore, the PIM-value of non-residential buildings (excluding transfer of ownership cost) is recalculated with a linear depreciation profile. This value is subtracted from the WOZ-value to arrive at the estimate of the value of land underlying non-residential buildings.

4.4 Assigning ownership and use

The use of land balance sheets for productivity accounts requires that these balance sheets must have a breakdown by institutional sectors but also by industries. The institutional sector classification is particularly used for net worth estimates. The breakdown by sector is based on ownership. The industry classification is particularly useful for productivity measurement which is based on the kind of economic activity that uses the land in production (not necessarily the owner). The industry classification poses the biggest problems and is therefore discussed first.

4.4.1 Industry classification

Agricultural land

All open farmland is assigned to agriculture. This includes all land underlying greenhouses used in agricultural production. For land underlying other greenhouses, an estimate is made of the area (and value) of land that is occupied by garden centres. It is based on the number of garden centres and their average size. This value is assigned to retail trade. It is assumed that all other land underlying greenhouses are sidelines of agricultural companies. The value is therefore assigned to agriculture.

Land underlying dwellings

When a dwelling including the underlying land is leased, the combined payment is in the national accounts recorded as the sale of a service. In this case, the lease of the land falls within the production boundary. The lender of the land is therefore deemed the user of the land underlying dwellings. When only the underlying land is leased (separately form the building), the lease falls outside the production boundary and the lessee is therefore deemed the user.[5] In the Netherlands, land underlying dwellings is used by the real estate industry (including owner-occupied housing), insurance and pension funds and by the government. Land assigned to insurance and

[5] For land underlying non-residential buildings the same argument applies.

pension funds is based on annual business reports. Differences in valuation between annual reports and the national accounts are (for the time being) ignored. A division between the real estate industry and the government is not yet made. Estimates will primarily be based on data on land leases, which is common practice in some cities. Apart from land lease the government also owns dwellings (including the underlying land). However, this is only 0.3 percent of all dwellings. Assuming that the value of land underlying these dwellings is equally 0.3 percent of the value of all land underlying dwellings will probably not give rise to large errors.

Land underlying non-residential buildings

Dividing land underlying non-residential buildings into industries poses the biggest problems. Since some industries are located in densely populated areas (retail trade, hotels and restaurants) while others are located in less densely populated areas (manufacturing), the ratios in the value of non-residential buildings excluding land are probably not a good source for dividing the value of the land underlying non-residential buildings.

An attempt was made to link the WOZ-register with the business register. The WOZ-register records among others the address and value of the building, and the name of the owner. The industry of the owner is not recorded. The business register records name, address and industry of all businesses. When these registers are linked, value by industry would become available. Unfortunately, this appeared to be unfeasible because business names in both registers are not standardised. As a consequence, it appeared only possible to match a subset of all businesses. Linking addresses also failed. Business registers record the contact addresses the companies. When several companies are located in the same building, it is impossible to determine which of them, if any, is the owner. Moreover, not all records in the WOZ-register have a corresponding record in the business register. If a company has several locations, only the location that is also its postal address is registered in the business register. Due to these and other problems, the resulting link between the WOZ-register and the business register proved incomplete and very biased. In conclusion both registers could not be matched.

This means that some sort of shortcut seem unavoidable. An option that is currently investigated is to divide all industries into two groups: (1) industries with a relatively high ratio between land values underlying non-residential buildings and the values of the building and (2) industries with relatively low ratios. The first group consists of industries occupying buildings with a restricted number of floors that are primarily located in town centres and cities. Higher buildings are more expensive to build than lower buildings and therefore usually have a lower ratio between land and building. The first group consists mainly of retail trade, hotels and restaurants, and education. It is assumed that the ratio between land and building in the first group is twice the ratio in the second group. With this assumption, an adjusted PIM-value by industry will be made for non-residential buildings, in which the value of non-residential buildings in the first group is doubled. The thus created distribution will be used to divide the value of land underlying non-residential

buildings into industries. An exception is made for banking and insurance companies, for which annual reports are used.

4.4.2 Ownership by institutional sector

The balance sheets by institutional sector are based on ownership. In most cases, the using industry is also the owning industry in which case industries can simply be aggregated to institutional sectors. The exceptions are leased agricultural land and land underlying buildings that is leased apart from the building. For agricultural land, the agricultural census provided data on the part of the land that is leased. This is combined with a government report on ownership of agricultural land to arrive at ownership of agricultural land by industry. Most separately leased land underlying buildings is let by the local government. Data on government rental income will be used to estimate ownership by industry.

The next step is doing the estimates by institutional sector. Some industries, like banking, insurance, mining and quarrying and public administration, belong only to one single institutional sector. In these cases, the value of land by institutional sector can be determined straightforwardly once the information on industry branch level is available. In all other cases, including agricultural land, the division of land ownership by sector is assumed to correspond to the distribution of dwellings and non-residential buildings ownership by institutional sector.

Table 1. Non-financial balance sheet

	1996	2000	2005	2006	2007
	billion euro				
Fixed assets	1052	1302	1651	1729	1799
Dwellings	447	579	801	849	887
Non-residential buildings	192	260	321	333	345
Other fixed assets	413	463	529	546	567
Inventories	53	67	71	74	75
Oil- and gas reserves					
Consumer durables	93	120	140	143	147
Land	283	734	943	1006	3
Agricultural land[1]	44	72	55	61	3
Land underlying dwellings	239	662	888	946	
Land underlying non-residential buildings					
Non-financial assets	1482	2223	2806	2952	2024

[1] Including land underlying greenhouses used for non-farm purposes

5. First results

Table 1 shows some preliminary results of balance sheet calculations for the Netherlands. This table underlines the importance of land in terms of its substantial share in national wealth. The wealth share of land in current prices has increased substantially, not only due to the enormous holdings gains on land over the last

decade, but also as a result of the rapidly expanding number of dwellings in the Netherlands.

The compilation of complete balance sheets for land is not an easy task. More research is still needed to properly assign all ownership of land. Currently, very rough methods have been used in this regard. The coverage of the balance sheet for land in the Netherlands is still incomplete. The values of construction land and privately owned recreational land are still missing but will probably be minor compared to agricultural land and land underlying buildings. One may expect prices of construction land to be readily available since most of this land recently changed hands. Prices of recreational land are harder to come by since (most) recreational land is not included in the WOZ-registers.

As soon as longer times series of land balance sheets become available the results will be included in the Dutch growth accounts. The growth accounts of the Netherlands have recently been expanded with data on oil and gas reserves and with inventories. After inclusion of land, all mayor types of non-financial assets will be represented in the Dutch growth accounts.