

Cordillera Administrative Region (CAR)

Asset Accounts for Land: 1999-2015

**System of Environmental - Economic Accounting 2012
Central Framework**



REPUBLIC OF THE PHILIPPINES
PHILIPPINE STATISTICS AUTHORITY
REGIONAL STATISTICAL SERVICES OFFICE
CORDILLERA ADMINISTRATIVE REGION

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Atop Mt. Yangbew, overlooking La Trinidad Valley
La Trinidad, Benguet, Philippines

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Foreword

The Philippine Economic-Environmental and Natural Resources Accounting (PEENRA) System of the Philippine Statistics Authority (PSA) serves as a valuable tool to assess and monitor the state of natural resources and the impacts of human economic activities to the environment.

The PEENRA was piloted in the Cordillera Administrative Region with accounts covering four resources including land and soil resources devoted to agricultural uses encompassing an eight-year period – 1990 to 1998. With the initiative of Regional Statistical Services Office – CAR to compile and further develop the environmental accounts of the region, the asset accounts for land were prepared following the System of Environmental-Economic Accounting (SEEA) 2012 – Central Framework.

Starting 2016, another pilot activity of the CAR is the development of the asset accounts for land with pilot estimates for 1999 to 2015 in the RSSO-CAR. The release of this report is a significant accomplishment of the PSA to guide policy-makers, project implementers and regional stakeholders in making evidence-based decisions on the environment, preparing environmental policies and programs, and mainstreaming environmental concerns for the region. It is our desire that these environmental statistics will help build and institutionalize the region's databank of the environment statistics to support the region's implementation of the Sustainable Development Goals (SDG) indicators.



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The CAR ENRA Steering Committee examined and approved the processes and results of the project. The committee was co-chaired by Director Ralph C. Pablo of the DENR and Director Milagros A. Rimando (NEDA), Director Fay W. Apil (MGB), Director Reynaldo S. Digamo (EMB), Dr. Carlos S. Arida (WWRRC), ARD Augusto D. Lagon (DENR) and Engr. Francis G. Basali (DENR) as members.

Jeanniel Barcayan (Project Staff) compiled the draft publication manuscript and Winsky B. Salisa designed the cover and the graphics for the publication and led the typesetting process.

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Executive Summary

The Cordillera Administrative Region (CAR) has a total land area of 1,829,368 hectares. Of this area, 275,769 hectares or 15.1 percent are Certified Alienable and Disposable Lands while 1,553,599 hectares or 84.9 percent are Forestlands (RSET, 2014).

The region remains to be the country's primary top producer of highland vegetables. The 2015 Crop Production Survey revealed that the region contributed 83.1 percent or 262,283 metric tons of the total production of cabbage, carrots and white potato in the country. Land used for agricultural purposes is one of the vital components that determine the region's economic performance. Thus, there is a need to understand the nature and characteristics of the resources and monitor the land use changes for proper conservation and management.

Land used for agricultural purposes exhibited a steady decline with an average decrease of 0.002 percent or about 5 hectares annually from 227,761 hectares in 1999 to 227,681 hectares in 2015. The changes reflected in agricultural land were only accounted from the administrative data on land conversion from lands devoted to agricultural purposes to built-up areas.

The stock of land resources for agricultural purposes in monetary terms revealed an uptrend. It increased by an average of 11.7 percent or ₱92 billion annually from ₱302.9 billion 1999 to ₱1.8 trillion in 2015 despite of the gradual decrease of land area for agricultural purpose due to conversion to other land uses. This was an effect of the increase of prices of land in general. The estimated total value of land in the region particularly land devoted to agriculture, aquaculture, forestry and built-up areas amounted to ₱21.7 trillion in 2015.

Introduction

The Cordillera Administrative Region (CAR) has a total land area of 1,829,368 hectares which accounts for 6.1 percent of the total land mass of the Philippines. It is delineated into alienable and disposable lands and forestlands. Alienable and disposable lands refer to those lands of the public domain which have been the subject of the present system of classification and declared as not needed for forest purposes. It covers those purposes intended for residential, agricultural, conversional purposes that also include other civil uses. As of 2010, the region has a total of 275,769 hectares of alienable and disposable land and 1,553,599 hectares of forestland. The region has a mountainous topography characterized by towering peaks, plateaus and intermittent patches of valleys. Almost 71.0 percent of the region's land area has slopes of 30.0 percent and above.

The region is the least populated region in the country with 83.8 population density. The total population in 2000 was 1,365,412 and grew to 1,722,006 in 2015 reflecting a growth of 1.5 percent and an average of 23,773 additional persons annually. Agriculture remains to be the primary occupation which employs 43.9 percent of the region's workforce as of January 2016.

The limited alienable and disposable land areas and the growing population of the region has led to encroachment and land use/cover conversions. The denudation of forest areas for economic development and conversion to other land uses further increased erosion rates and the depletion of nutrients, which if left unchecked, would affect the region's capability to sustain its agricultural needs and the needs of the growing regional economy. This makes it imperative to monitor the drivers of change in order to conserve, manage and protect the region's land resources.

Cordillera is the prime supplier of upland vegetables in Northern Luzon despite its rugged physical characteristic and limited arable agricultural lands. Vegetables like potatoes, carrots, broccoli, cauliflower and cabbage have become synonymous with Cordillera. The increasing population in the region and the country underscores the need to conserve and manage its land and soil resources so as to maintain or improve productivity of the land to feed the growing population. Since food production is dependent on both the quantity and quality of land and soil resources, it is vital to understand the nature of these resources in order to manage them sustainably.

Objectives of the Study

The main objective of the study is to support the institutionalization of environmental-economic accounting following the UN System of Environmental-Economic Accounting (SEEA) 2012 – Central Framework, particularly in land resource accounting. By highlighting the limitations encountered, the study also hopes that stronger data support for environmental accounting be addressed. Indicators that can be derived from the accounts will also provide relevant information in support of the sector level development planning and policy of the concerned agencies and other relevant sectoral agencies. Similarly, indicators may also be used in monitoring policies and programs that ensure sustainable development in support of the 17 Sustainable Development Goals (SDG) of the 2030 Agenda for Sustainable Development.¹

¹ Adopted from the paper presented on the 13th National Convention on Statistics entitled Accounting for Forest Cover of the Philippines: A Tool for Sustainable Management by Bathan, Virginia M. et al.

Framework of the Study

Scope and Coverage

Environmental assets are naturally occurring living and non-living components of the Earth, together constituting the biophysical environment, which may provide benefits to humanity (UN, 2014, p.13). Land is one of the seven individual components of the environment that are considered environmental assets in the Central Framework. The primary purpose of land in the SEEA is to provide space.

Land is defined as a unique environmental asset that delineates the space in which economic activities and environmental processes take place and within which environmental assets and economic assets are located (UN, 2014, p.174). The additional foci in the latest version of SEEA are land use and land cover. Land use, as defined by SEEA 2012, reflects both the activities undertaken and the institutional arrangements put in place in an area, either for economic production purposes or for maintenance and restoration of environmental functions (UN, 2014, p.175). On the other hand, land cover refers to the observed physical and biological cover of the Earth's surface, including natural vegetation and abiotic surfaces (UN, 2014, p.176).

The study covers the physical and monetary accounting for land including the land cover change matrix that illustrates the conversion of a particular land cover to another, e.g. tree covered area to agricultural land/crops.

Classification of land cover

The SEEA 2012 – Central Framework established an interim land cover classification with 14 classes based on the Food and Agriculture Organization's (FAO) Land Cover Classification System (LCCS). The LCCS is used to systematically record the biophysical characteristics of all areas of land within any territory. There is an enormous number of different land cover features that can be created with the LCCS approach. For the purposes of standardization and harmonization across statistical data sets, a classification comprising 14 classes has been established:

1. Artificial surfaces (including urban and associated areas)
2. Herbaceous crops
3. Woody crops
4. Multiple or layered crops
5. Grassland
6. Tree-covered areas
7. Mangroves
8. Shrub-covered areas
9. Shrubs and/or herbaceous vegetation, aquatic or regularly flooded
10. Sparsely natural vegetated areas
11. Terrestrial barren land
12. Permanent snow and glaciers
13. Inland water bodies
14. Coastal water bodies and intertidal areas

To align the local land cover classification used by the Department of Environment and Natural Resources – National Mapping and Resource Information Authority (DENR-NAMRIA) vis-à-vis the SEEA 2012 – Central Framework interim land cover classification, the Project constructed a bridge table through consultation with other government agencies (Table 1).

Table 1. Bridge Table on SEEA 2012 Interim Land Cover Classification and NAMRIA Land Cover Classification²

SEEA 2012 – Central Framework	DENR-NAMRIA
Artificial surfaces (including urban and associated areas)	Built-up areas
Crops	Annual cropland Perennial cropland
Grassland	Grassland (Fallow) Wooded grassland
Tree-covered areas	Closed Forest Open Forest Plantation Forest
Mangroves	Mangrove forest
Shrub-covered areas	Shrub land
Regularly flooded areas	(Regularly flooded areas)/Marshland
Terrestrial barren land	Barren land
Inland water bodies	Inland water
Sparsely natural vegetated areas	
Permanent snow and glaciers	
Coastal water bodies and inter-tidal areas	

Following the land cover classification of the Central Framework, scope and coverage of the study include all the land cover following the initial data assessment on available georeferenced and administrative data. The local land cover classification and terms are also used in the operationalization of the framework. “Mangroves” is not included in the accounting matrix since there is no mangrove forest in the region.

The preliminary estimates of physical and monetary asset account including the land cover change matrix on land resource pertain to the period 1999 to 2015 at the regional level.

Conceptual Framework

The asset accounts for land in the region, in physical and monetary terms, used the UN SEEA 2012 – Central Framework as basis. The SEEA 2012 – Central Framework has been formally adopted by the United Nations Statistical Commission (UNSC) as the international statistical standard for environmental-economic accounting. It is a multipurpose conceptual framework for understanding the interaction between the economy and the environment,

²The land cover classification “Permanent snow and glaciers” is not applicable in the Philippines. Also, no equivalent local classification matched for the “Sparsely natural vegetated areas” and “Coastal water bodies and inter-tidal areas”. “Fallow” area can either be classified as “Tree-covered area”, “Shrub covered areas”, or “Grassland” depending on major physical characteristics. Adopted from the paper presented on the 13th National Convention on Statistics entitled “Accounting for Forest Cover of the Philippines: A Tool for Sustainable Management” by Bathan, Virginia M. et al. with inputs from DENR-CAR

including that of stocks and changes in stocks of environmental assets (UN, 2014, vii).

The opening stock represents the stock of resources at the beginning of the accounting period while the closing stock represents the stock of resources at the end of the accounting period. Within the period, several factors may occur resulting to changes in the stocks. These changes could either be due to managed expansion, natural expansion and upward reappraisals for additions to stock or managed regression, natural regression and downward reappraisals for reductions in stock. The closing stock for a year is equal to the opening stock of the succeeding year.

The physical and monetary accounts are then computed for an accounting period. The monetary value of the physical account is computed by multiplying each transaction item by the zonal value for each type of land use. The zonal value is defined as the value of real properties which can more or less approximate the present fair market value of real properties as basis for computing the Property Tax (capital gains tax, documentary stamp tax, estate tax when the property is sold or transferred). It is highly dependent on the area where the property is located (Anchor Land Holdings Inc., 2013).

Basic Accounting Structure of Physical Account for Land

Asset account for land organizes relevant information that include quantities of stock and changes over time. A basic structure for physical asset account for land based on the SEEA 2012 – Central Framework used in this study is presented in Table 2.

Table 2. Basic Structure of Physical Asset Account for Land

Opening stock of resources	
Addition to stock	
Managed expansion	Represents an increase in the area of a land cover type due to human activity.
Natural expansion	An increase in the area resulting from natural processes including seeding, sprouting, suckering or layering.
Upwards reappraisals	Reflect changes due to use of updated information that permits a reassessment of the size of the area of different land covers.
Reductions in stock	
Managed regression	A decrease in the area of a land cover type due to human activity.
Natural regression	A decrease in the area of a land cover type due to natural reasons.
Downwards reappraisals	Reflect changes due to use of updated information that permits a reassessment of the size of the area of different land covers.
Closing stock	

Source: SEEA 2012-Central Framework

Operational Framework

Sources of Data

The data used in the estimation of physical asset account for land were mostly from line bureaus and offices under the DENR. Georeferenced data used as baseline came from NAMRIA, the agency mandated to provide natural resources data in the form of maps, charts, texts and statistics.

The 2010 Land Cover Maps and Statistics are the result of the latest national mapping activity carried out by NAMRIA using ALOS-AVNIR-2, SPOT5 and Landsat imageries with 10 meter resolution. Data presented include area and land cover type from provincial to national level. Land cover classification follows the DENR Department Memorandum Circular 2005-05: Adopting Forestry Definitions Concerning Forest Cover/Land Use.

Other data from Department of Agrarian Reform (DAR) and PSA were used for the land cover change matrix. The zonal value downloaded from Bureau of Internal Revenue (BIR) website were used for monetary asset accounts. The BIR zonal values were used in the estimation of the monetary values of each land use. It is an approximation of the prevailing market values expressed in Philippine peso.

Data Limitations

Land cover of the region provided by DENR-CAR (sourced from NAMRIA) for 2003 and 2010 were the only years with data of the same format. However, the 2003 Land Cover was not used as advised by NAMRIA since no ground validation was conducted. The land area of the region in 2010 based on cadastral map was adjusted to equal the official total land area of 1,829,368 hectares.

Land cover change matrix is also included in this study to account the changes/conversions of land from a particular land cover to another. Entries in the matrix are limited only to the data provided by DENR and DAR.

Data on area of land use for aquaculture from PSA-CAR is limited only to the period 2008 to 2016.

Estimation Methodology

Physical Asset Account

Information on the land cover area was generated through the data provided by NAMRIA and DENR. The areas of the land cover by classification for 2010 served as baseline data. Closing stock for a year is derived by adding area on managed/natural expansion and subtracting area caused by managed/natural regression on the opening stock of the year. Closing stock for the year will be the opening stock for the next year.

The compilation of the asset account in physical terms reflects the changes in the beginning and ending stocks of land cover in the region. Stocks increased due to natural and/or managed expansion. Decrease in stock is brought about by natural and/or managed regression.

Procedure:

1. The adjusted Land Cover of the region in 2010 served as baseline data and used as the opening stock for 2010. The adjusted Land Cover was derived using the following formula:

$$LCA_{adj,t} = LCA_t - [LCA_{diff} * (PC)]$$

Where:

$$\begin{aligned} LCA &= \text{Land Cover Area} \\ LCA_{diff} &= |TLA_t - TLA_{CAR}| \\ TLA_{CAR} &= \text{Total Land Area of CAR} = 1,829,368 \\ TLA_t &= \text{Total Land Area for a given year} \\ PC &= \text{Percent Contribution} = (LCA_t / TLA_t) \\ adj &= \text{adjusted value} \\ t &= \text{year} \end{aligned}$$

2. Additions to stock of tree-covered area were caused by the afforestation/reforestation efforts. A matching entry of reductions in stock of grassland and shrub-covered area which was distributed according to their respective percent contribution was recorded.
3. Reductions in stock of crops or land devoted to agriculture were caused by land conversion to artificial surfaces (built-up areas). A matching entry of additions to stock to artificial surfaces was recorded.

Monetary Asset Account

In monetary terms, the land account was estimated using the physical land area in each year, multiplied by the highest prevailing zonal value obtained from the BIR. The BIR zonal values were summarized according to the land type and land use. It is an approximation of the prevailing market values expressed in peso. The land cover were converted from hectare to square meter to directly multiply the zonal value to the land cover area. The monetary estimates of the opening and closing stocks as well as the changes in area of land cover were calculated by multiplying the physical area (in square meter) with the highest prevailing zonal value in the region.

The framework also provides information on the effect of the year to year change in price through the item revaluation. In the monetary accounts for land, revaluation was computed as a residual. This was done by deducting from the closing stock the difference between the opening stock and the net changes.

Procedure:

1. The adjusted land cover of the region in 2010 served as baseline data and used as the opening stock for 2010.

2. The highest prevailing zonal value per type of land in the region was used to estimate the prevailing market price of land. The specific land type used in assessing the zonal values was classified according to the land type defined on the monetary asset account for land, their values were added to incorporate them on the table.
3. All the entries were multiplied by their corresponding zonal value (summarized) to come up with the estimates on prevailing market value of lands. The process of estimation is presented in the following formula:

$$PMV_t = LCA_t * ZV_t$$

Where:

PMV = Prevailing market value

LCA = Land cover area (in square meter)

ZV = Highest prevailing market value in the region per land classification

t = year

4. The formula for revaluation is presented below:

$$Rev_t = CS_t - (OS_t - Net_t)$$

Where:

Rev = Revaluations

CS = Closing stock

OS = Opening Stock

Net = Net changes

t = year

Land Conversion

The land cover change matrix shows land cover at two different points in time. It shows the area of different land cover types at the beginning of the reference period (opening area), the increases and decreases of this area according to the land cover type it was converted from (in the case of increases) or the type it was converted to (in the case of decreases) and, finally, the area covered by different land cover types at the end of reference period (closing area).

Procedure:

1. The adjusted land cover of the region in 2010 served as baseline data and used as the opening stock for 2010.
2. Only the net changes were included in the matrix. The rows of the matrix stand for the additions/subtractions during the accounting period.

Results and Discussion

Land Cover

Land cover is categorized into major land use groupings namely open, closed and plantation forest; inland water; other land uses which include built up area, annual and perennial crop, barren land and grassland; and other wooded lands which include fallow, shrubs and wooded grassland.

Table 3 shows the result of the adjustment made with the 2010 land cover of the region. The region's closed forest is 250,237.6 hectares or 13.7 percent of the region's total land area, open forest is 517,358.6 hectares (28.3%), plantation forest is 15,376.8 hectares (0.8%), built-up area is 15,596.8 hectares (0.9%), annual and perennial croplands are 227,703.6 (12.4%), barren and grassland areas are 150,591.6 hectares (8.2%), other wooded land is 629,690.2 hectares (34.4%) and inland water is 22,812.8 hectares (1.2%).

Table 3. Land Cover, CAR: 2010 (in Hectares)

Land Cover	
Closed forest	250,237.6
Open Forest	517,358.6
Plantation Forest	15,376.8
Built-up area	15,596.8
Annual Crop	225,401.6
Perennial Crop	2,302.1
Barren land	13,034.1
Grassland	137,557.4
Fallow	125.4
Shrubs	307,502.1
Wooded grassland	322,062.7
Inland Water	22,812.8
Total	1,829,368

Source: Philippine Statistics Authority

Physical Asset Accounts

As shown in Table 4, estimates of land used for agricultural purposes in 1999 covered a total of 227,751 hectares. It shows a decreasing trend by an average rate of 0.002 percent or about 5 hectares annually. In 2015, there were only 227,681 hectares left for agriculture.

In 2015, tree-covered area of the region covers a total of 869,856 hectares or 47.5 percent of the region's total land area, 31.6 percent of which is open forest, 13.7 percent is closed forest and 2.2 percent is plantation forest. Area of closed forest remains stable while open forest and plantation forest exhibits an increasing trend.

Forest cover in the region increased from 756,556 hectares in 1999 to 869,856 hectares in 2015. This indicated a 15.0 percent growth rate from 1999 to 2015 with an annual average growth of 0.9 percent or 7,081 hectares per year.

Table 4. Land Cover Estimates, CAR: 1999-2015 (in Hectares)

Year	Artificial surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies
1999	15,549.7	227,750.7	475,575.0	756,556.0	318,089.6	..	13,034.1	22,812.8
2000	15,552.7	227,747.7	473,543.6	759,946.1	316,730.9	..	13,034.1	22,812.8
2001	15,552.7	227,747.7	471,412.4	763,502.7	315,305.5	..	13,034.1	22,812.8
2002	15,560.7	227,739.7	470,138.8	765,628.2	314,453.6	..	13,034.1	22,812.8
2003	15,571.8	227,728.6	469,414.8	766,836.4	313,969.4	..	13,034.1	22,812.8
2004	15,577.0	227,723.4	469,300.8	767,026.8	313,893.1	..	13,034.1	22,812.8
2005	15,577.7	227,722.7	468,953.7	767,606.0	313,661.0	..	13,034.1	22,812.8
2006	15,583.3	227,717.2	468,931.5	767,642.9	313,646.1	..	13,034.1	22,812.8
2007	15,591.9	227,708.5	467,303.3	770,360.2	312,557.1	..	13,034.1	22,812.8
2008	15,592.1	227,708.3	464,798.4	774,540.6	310,881.7	..	13,034.1	22,812.8
2009	15,596.8	227,703.6	459,745.5	782,973.0	307,502.1	..	13,034.1	22,812.8
2010	15,597.0	227,703.4	459,476.9	783,421.3	307,322.4	..	13,034.1	22,812.8
2011	15,601.9	227,698.5	455,331.3	790,339.7	304,549.6	..	13,034.1	22,812.8
2012	15,608.7	227,691.7	449,523.5	800,032.0	300,665.0	..	13,034.1	22,812.8
2013	15,614.8	227,685.6	432,064.1	829,169.2	288,987.3	..	13,034.1	22,812.8
2014	15,619.0	227,681.4	417,910.3	852,789.8	279,520.5	..	13,034.1	22,812.8
2015	15,619.2	227,681.2	407,684.0	869,856.0	272,680.6	..	13,034.1	22,812.8

Source: Philippine Statistics Authority

Note: (..) Not applicable

Physical Asset Accounts, Land Cover Change

The recorded changes in land used for agricultural purposes can be explained by the land conversions from agricultural lands to built-up areas. During the period covered, the total agricultural lands converted to artificial surfaces were 79.7 hectares. In general, there was no apparent trend in land conversions. The conversion of agricultural land to built-up areas can relate to population growth and upland migration.

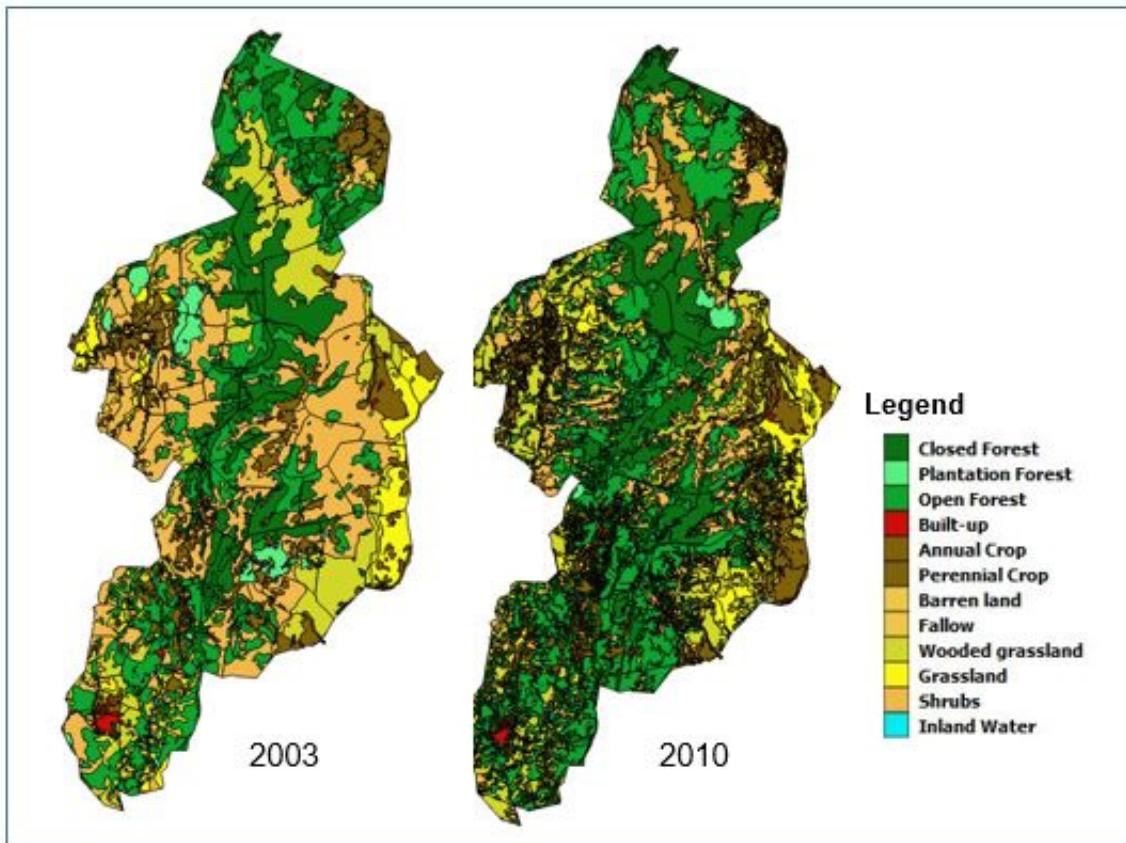
The conversion of other wooded land (grassland and shrub land) to tree-covered areas are reflected in the increase in forest cover. This is to address the needs of the people including poverty reduction and disaster and climate change mitigation. It is also a way to preserve the rich biodiversity of the region and its role as the Watershed Cradle of Northern Luzon.

The total afforested/reforested area from 1999 to 2015 was 124,072 hectares. On the other hand, a total of 6,052 hectares were affected by forest disturbance and removals on the same time period.

Figure 1 shows the conversion of land covers from one type to another. Assuming that the map for 2003 is valid, it reflects the changes made by the afforestation/ reforestation activities of the combined efforts of different government agencies and private sectors.

The presence of artificial surfaces on agricultural lands can also be observed from the figure. None of the data compiled can relate to the changes in regularly flooded areas, terrestrial barren-land and inland water of the region.

Figure 1. Land Cover Map, CAR: 2003 and 2010



Monetary Asset Accounts

The results of the estimation of monetary accounts for land are presented in Table 5.

In 1999, the opening stock of land used for agriculture was valued at ₩302.9 billion and estimated to be at ₩1.8 trillion in 2015. The value of agricultural land was estimated to have an annual average increase of 11.7 percent or ₩92 billion yearly increment. The monetary value of agricultural land exhibited an increasing trend due to the increase in prices even if the area was decreasing.

Valuation of land for built-up areas and forestry also showed an increasing trend. The opening stock for built-up areas was valued ₩18.3 trillion in 1999 and was estimated at ₩18.4 trillion in 2015. For forestry, the opening stock of land was valued at ₩105.9 billion in 1999 and was estimated to be valued at ₩1.6 trillion in 2015. The increase in the valuation of land for forestry was due to the increase in land cover.

Despite the unchanging zonal value of land used for aquaculture, the monetary estimates varied. The fluctuation was due to the changes in the area of the land.

Table 5. Estimated Value of Land, CAR: 1999-2015 (in Pesos)

Year	Agriculture	Forestry	Aquaculture	Built-up	Total
1999	302,908,377,209.4	105,917,838,952.8	...	18,270,955,196,735.2	18,679,781,412,897.4
2000	302,904,391,199.4	106,392,455,332.8	...	18,274,476,671,735.2	18,683,773,518,267.4
2001	592,143,922,645.4	878,028,130,322.9	...	18,274,476,671,735.2	19,744,648,724,703.5
2002	1,332,277,097,907.1	980,004,068,078.9	...	18,283,862,219,235.2	20,596,143,385,221.1
2003	1,332,212,516,247.1	981,550,537,910.0	...	18,296,833,749,235.2	20,610,596,803,392.2
2004	1,332,182,079,867.1	981,794,266,311.0	...	18,302,947,039,235.2	20,616,923,385,413.3
2005	1,332,177,657,267.1	982,535,622,143.9	...	18,303,835,339,235.2	20,618,548,618,646.2
2006	1,332,145,343,037.1	982,582,959,963.0	...	18,310,325,804,235.2	20,625,054,107,235.2
2007	1,332,094,490,157.1	986,061,036,599.9	...	18,320,539,844,235.2	20,638,695,370,992.2
2008	1,776,124,526,716.1	1,367,064,124,057.6	117,548,000.0	18,320,759,804,235.2	21,464,066,003,008.9
2009	1,776,088,304,296.1	1,426,968,310,055.9	111,224,000.0	18,326,216,386,735.2	21,529,384,225,087.2
2010	1,776,086,795,776.1	1,427,785,321,555.2	115,076,000.0	18,326,443,631,735.2	21,530,430,825,066.4
2011	1,776,048,221,656.1	1,440,394,140,791.9	117,816,000.0	18,332,254,476,735.2	21,548,814,655,183.2
2012	1,775,995,034,236.1	1,458,058,396,523.2	119,892,000.0	18,340,266,684,235.2	21,574,440,006,994.5
2013	1,775,947,770,136.1	1,511,160,926,082.1	118,134,000.0	18,347,386,596,735.2	21,634,613,426,953.4
2014	1,775,914,888,456.1	1,554,209,459,255.1	113,568,000.0	18,352,339,926,735.2	21,682,577,842,446.4
2015	1,775,913,178,696.1	1,585,312,611,535.3	119,098,000.0	18,352,597,486,735.2	21,713,942,374,966.6

Source: Philippine Statistics Authority

Note(...) Data not available

Conclusions and Recommendations

This study is subject to improvement and expansion. Though the following are the conclusions of this study:

- a. Land conversion from agricultural land to built-up areas reflect the growing population of the region. Moreover, conversion to built-up areas such as commercial and industrial uses denotes the consideration of the economic viability of the land.
- b. The valuation of land in the region displays an increasing trend and it is due to the price increases of land as a whole.

The following areas have to be addressed in the improvement of the estimation of land accounts:

- a. There is a need to reconcile various information/data to address consistency in definition of terms used by agencies concerned with land accounts in accordance with international standards. The standardization not only ensures comparability of statistics produced by different government agencies, it also guarantees that terms and statistics are at par with other countries.
- b. The concerned agencies should improve and update their databanks/databases to be able to conduct a complete and meaningful land accounting. Data on the following should be continuously updated, and where appropriate and possible, incorporated in the reports regularly submitted by the concerned agencies:
 - i. Actual area effectively converted not only from agricultural land to built-up areas but also other conversions such as forest land to agricultural land and/or built-up areas;
 - ii. Data implying the changes in the area of barren lands and inland water bodies should be identified to be incorporated in the accounting table. Data on regularly flooded areas should have at least two-year survey results for comparison; and
 - iii. As much as possible, all data must have a provincial estimate or disaggregation to make way for asset accounting at the provincial level.
- c. Conduct special studies on land valuation to provide overview of existing land market in the region and compare different valuation methods.
- d. Land use planning should be prioritized and implemented to prevent the spate of unproductive and destructive land conversions.
- e. Organic farming could be an option to protect the quality of land and soil and ensure quality agricultural products.

Appendices

Appendix Table 1
Physical Account for Land Cover, CAR: 1999 (in Hectares)

	Artificial Surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies	
Opening stock of resources	15,539.5	227,760.9	478,403.2	751,836.1	319,981.3	..	13,034.1	22,812.8	
Additions to stock									
Managed expansion	10.2	...	78.2	4,850.4	52.3	...	...	...	...
Natural expansion	...	...	...	...	...	...	...	...	...
Upward reappraisals	...	...	...	...	...	...	...	...	...
Total additions to stock	10.2	-	78.2	4,850.4	52.3	-	-	-	-
Reductions in stock									
Managed regression	...	10.2	2,906.5	130.6	1,944.0	...	...	...	...
Natural regression	...	...	...	...	...	...	...	...	...
Downward reappraisals	...	...	...	...	...	...	...	...	...
Total reductions to stock	-	10.2	2,906.5	130.6	1,944.0	-	-	-	-
Closing stock	15,549.7	227,750.7	475,575.0	756,556.0	318,089.6	..	13,034.1	22,812.8	

Note: (...) Data not available

(-) Not applicable

(-) Nil or Zero

Appendix Table 2
Physical Account for Land Cover, CAR: 2000 (in Hectares)

	Artificial Surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies
Opening stock of resources	15,549.7	227,750.7	475,575.0	756,556.0	318,089.6	..	13,034.1	22,812.8
Additions to stock								
Managed expansion	3.0	...	78.4	3,521.0	52.4	...	...	...
Natural expansion	...	...	...	...	...	...	...	...
Upward reappraisals	...	...	...	...	...	...	...	...
Total additions to stock	3.0	-	78.4	3,521.0	52.4	-	-	-
Reductions in stock								
Managed regression	...	3.0	2,109.8	130.8	1,411.1	...	...	...
Natural regression	...	...	...	...	...	...	...	...
Downward reappraisals	...	...	...	...	...	...	...	...
Total reductions to stock	-	3.0	2,109.8	130.8	1,411.1	-	-	-
Closing stock	15,552.7	227,747.7	473,543.6	759,946.1	316,730.9	..	13,034.1	22,812.8

Note: (...) Data not available

(.) Not applicable

(-) Nil or Zero

Appendix Table 3
Physical Account for Land Cover, CAR: 2001 (in Hectares)

	Artificial Surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies	
Opening stock of resources	15,552.7	227,747.7	473,543.6	759,946.1	316,730.9	..	13,034.1	22,812.8	
Additions to stock									
Managed expansion	...	...	22.4	3,594.0	15.0	...	...	...	...
Natural expansion	...	...	...	...	...	...	...	...	...
Upward reappraisals	...	...	...	...	...	...	...	...	...
Total additions to stock	-	-	22.4	3,594.0	15.0	-	-	-	-
Reductions in stock									
Managed regression	...	...	2,153.6	37.4	1,440.4	...	...	...	...
Natural regression	...	...	...	...	...	...	...	...	...
Downward reappraisals	...	...	...	...	...	...	...	...	...
Total reductions to stock	-	-	2,153.6	37.4	1,440.4	-	-	-	-
Closing stock	15,552.7	227,747.7	471,412.4	763,502.7	315,305.5	..	13,034.1	22,812.8	

Note: (...) Data not available

(..) Not applicable

(-) Nil or Zero

Appendix Table 4
Physical Account for Land Cover, CAR: 2002 (in Hectares)

	Artificial Surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies
Opening stock of resources	15,552.7	227,747.7	471,412.4	763,502.7	315,305.5	..	13,034.1	22,812.8
Additions to stock								
Managed expansion	8.0	...	433.6	2,849.0	290.0	...	...	...
Natural expansion	...	...	...	...	...	...	...	...
Upward reappraisals	...	...	...	...	...	...	...	...
Total additions to stock	8.0	-	433.6	2,849.0	290.0	-	-	-
Reductions in stock								
Managed regression	...	8.0	1,707.2	723.5	1,141.8	...	...	...
Natural regression	...	...	...	...	...	...	...	...
Downward reappraisals	...	...	...	...	...	...	...	...
Total reductions to stock	-	8.0	1,707.2	723.5	1,141.8	-	-	-
Closing stock	15,560.7	227,739.7	470,138.8	765,628.2	314,453.6	..	13,034.1	22,812.8

Note: (...) Data not available

(..) Not applicable

(-) Nil or Zero

Appendix Table 5
Physical Account for Land Cover, CAR: 2003 (in Hectares)

	Artificial Surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies	
Opening stock of resources	15,560.7	227,739.7	470,138.8	765,628.2	314,453.6	..	13,034.1	22,812.8	
Additions to stock									
Managed expansion	11.0	...	71.2	1,327.0	47.6	...	...	...	...
Natural expansion	...	...	...	...	...	...	...	...	...
Upward reappraisals	...	...	...	...	...	...	...	...	...
Total additions to stock	11.0	-	71.2	1,327.0	47.6	-	-	-	-
Reductions in stock									
Managed regression	...	11.0	795.2	118.8	531.8	...	...	...	...
Natural regression	...	...	...	...	...	...	...	...	...
Downward reappraisals	...	...	...	...	...	...	...	...	...
Total reductions to stock	-	11.0	795.2	118.8	531.8	-	-	-	-
Closing stock	15,571.8	227,728.6	469,414.8	766,836.4	313,969.4	..	13,034.1	22,812.8	

Note: (...) Data not available

(..) Not applicable

(-) Nil or Zero

Appendix Table 6
Physical Account for Land Cover, CAR: 2004 (in Hectares)

	Artificial Surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies
Opening stock of resources	15,571.8	227,728.6	469,414.8	766,836.4	313,969.4	..	13,034.1	22,812.8
Additions to stock								
Managed expansion	5.2	...	126.2	401.0	84.4	...	...	...
Natural expansion	...	...	...	...	...	...	...	...
Upward reappraisals	...	...	...	...	...	...	...	...
Total additions to stock	5.2	-	126.2	401.0	84.4	-	-	-
Reductions in stock								
Managed regression	...	5.2	240.3	210.6	160.7	...	...	...
Natural regression	...	...	...	...	...	...	...	...
Downward reappraisals	...	...	...	...	...	...	...	...
Total reductions to stock	-	5.2	240.3	210.6	160.7	-	-	-
Closing stock	15,577.0	227,723.4	469,300.8	767,026.8	313,893.1	..	13,034.1	22,812.8

Note: (...) Data not available

(.) Not applicable

(-) Nil or Zero

Appendix Table 7
Physical Account for Land Cover, CAR: 2005 (in Hectares)

	Artificial Surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies	
Opening stock of resources	15,577.0	227,723.4	469,300.8	767,026.8	313,893.1	..	13,034.1	22,812.8	
Additions to stock									
Managed expansion	0.8	...	159.3	845.0	106.5	...	...	...	...
Natural expansion	...	...	...	...	...	...	...	...	...
Upward reappraisals	...	...	...	...	...	...	...	...	...
Total additions to stock	0.8	-	159.3	845.0	106.5	-	-	-	-
Reductions in stock									
Managed regression	...	0.8	506.3	265.8	338.7	...	...	...	...
Natural regression	...	...	...	...	...	...	...	...	...
Downward reappraisals	...	...	...	...	...	...	...	...	...
Total reductions to stock	-	0.8	506.3	265.8	338.7	-	-	-	-
Closing stock	15,577.7	227,722.7	468,953.7	767,606.0	313,661.0	..	13,034.1	22,812.8	

Note: (...) Data not available

(..) Not applicable

(-) Nil or Zero

Appendix Table 8
Physical Account for Land Cover, CAR: 2006 (in Hectares)

	Artificial Surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies
Opening stock of resources	15,577.7	227,722.7	468,953.7	767,606.0	313,661.0	..	13,034.1	22,812.8
Additions to stock								
Managed expansion	5.5	...	389.5	687.0	260.5	...	...	...
Natural expansion	...	...	...	...	...	...	...	...
Upward reappraisals	...	...	...	...	...	...	...	...
Total additions to stock	5.5	-	389.5	687.0	260.5	-	-	-
Reductions in stock								
Managed regression	...	5.5	411.7	650.0	275.3	...	...	...
Natural regression	...	...	...	...	...	...	...	...
Downward reappraisals	...	...	...	...	...	...	...	...
Total reductions to stock	-	5.5	411.7	650.0	275.3	-	-	-
Closing stock	15,583.3	227,717.2	468,931.5	767,642.9	313,646.1	..	13,034.1	22,812.8

Note: (...) Data not available

(..) Not applicable

(-) Nil or Zero

Appendix Table 9
Physical Account for Land Cover, CAR: 2007 (in Hectares)

	Artificial Surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies	
Opening stock of resources	15,583.3	227,717.2	468,931.5	767,642.9	313,646.1	..	13,034.1	22,812.8	
Additions to stock									
Managed expansion	8.7	...	107.1	2,896.0	71.6	...	...	...	...
Natural expansion	...	...	...	...	...	...	...	...	...
Upward reappraisals	...	...	...	...	...	...	...	...	...
Total additions to stock	8.7	-	107.1	2,896.0	71.6	-	-	-	-
Reductions in stock									
Managed regression	...	8.7	1,735.3	178.8	1,160.7	...	...	...	...
Natural regression	...	...	...	...	...	...	...	...	...
Downward reappraisals	...	...	...	...	...	...	...	...	...
Total reductions to stock	-	8.7	1,735.3	178.8	1,160.7	-	-	-	-
Closing stock	15,591.9	227,708.5	467,303.3	770,360.2	312,557.1	..	13,034.1	22,812.8	

Note: (...) Data not available

(..) Not applicable

(-) Nil or Zero

Appendix Table 10
Physical Account for Land Cover, CAR: 2008 (in Hectares)

	Artificial Surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies
Opening stock of resources	15,591.9	227,708.5	467,303.3	770,360.2	312,557.1	..	13,034.1	22,812.8
Additions to stock								
Managed expansion	0.2	...	95.6	4,340.0	64.0	...	...	...
Natural expansion	...	...	...	...	...	...	...	...
Upward reappraisals	...	...	...	...	...	...	...	...
Total additions to stock	0.2	-	95.6	4,340.0	64.0	-	-	-
Reductions in stock								
Managed regression	...	0.2	2,600.6	159.6	1,739.4	...	...	...
Natural regression	...	...	...	...	...	...	...	...
Downward reappraisals	...	...	...	...	...	...	...	...
Total reductions to stock	-	0.2	2,600.6	159.6	1,739.4	-	-	-
Closing stock	15,592.1	227,708.3	464,798.4	774,540.6	310,881.7	..	13,034.1	22,812.8

Note: (...) Data not available

(.) Not applicable

(-) Nil or Zero

Appendix Table 11
Physical Account for Land Cover, CAR: 2009 (in Hectares)

	Artificial Surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies
Opening stock of resources	15,592.1	227,708.3	464,798.4	774,540.6	310,881.7	..	13,034.1	22,812.8
Additions to stock								
Managed expansion	4.6	...	82.4	8,570.0	55.1	...	...	...
Natural expansion	...	...	...	...	...	...	...	...
Upward reappraisals	...	...	...	...	...	...	...	...
Total additions to stock	4.6	-	82.4	8,570.0	55.1	-	-	-
Reductions in stock								
Managed regression	...	4.6	5,135.3	137.6	3,434.7	...	...	...
Natural regression	...	...	...	...	...	...	...	...
Downward reappraisals	...	...	...	...	...	...	...	...
Total reductions to stock	-	4.6	5,135.3	137.6	3,434.7	-	-	-
Closing stock	15,596.8	227,703.6	459,745.5	782,973.0	307,502.1	..	13,034.1	22,812.8

Note: (...) Data not available

(..) Not applicable

(-) Nil or Zero

Appendix Table 12
Physical Account for Land Cover, CAR: 2010 (in Hectares)

	Artificial Surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies
Opening stock of resources	15,596.8	227,703.6	459,745.5	782,973.0	307,502.1	..	13,034.1	22,812.8
Additions to stock								
Managed expansion	0.2	...	1,060.4	2,218.0	709.3	...	...	...
Natural expansion	...	...	...	...	...	...	...	...
Upward reappraisals	...	...	...	...	...	...	...	...
Total additions to stock	0.2	-	1,060.4	2,218.0	709.3	-	-	-
Reductions in stock								
Managed regression	...	0.2	1,329.1	1,769.7	888.9	...	...	...
Natural regression	...	...	...	...	...	...	...	...
Downward reappraisals	...	...	...	...	...	...	...	...
Total reductions to stock	-	0.2	1,329.1	1,769.7	888.9	-	-	-
Closing stock	15,597.0	227,703.4	459,476.9	783,421.3	307,322.4	..	13,034.1	22,812.8

Note: (...) Data not available

(..) Not applicable

(-) Nil or Zero

Appendix Table 13
Physical Account for Land Cover, CAR: 2011 (in Hectares)

	Artificial Surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies	
Opening stock of resources	15,597.0	227,703.4	459,476.9	783,421.3	307,322.4	..	13,034.1	22,812.8	
Additions to stock									
Managed expansion	4.9	...	11.7	6,938.0	7.8	...	...	...	...
Natural expansion	...	...	...	...	...	...	...	...	...
Upward reappraisals	...	...	...	...	...	...	...	...	...
Total additions to stock	4.9	-	11.7	6,938.0	7.8	-	-	-	
Reductions in stock									
Managed regression	...	4.9	4,157.3	19.6	2,780.7	...	...	...	...
Natural regression	...	...	...	...	...	...	...	...	...
Downward reappraisals	...	...	...	...	...	...	...	...	...
Total reductions to stock	-	4.9	4,157.3	19.6	2,780.7	-	-	-	
Closing stock	15,601.9	227,698.5	455,331.3	790,339.7	304,549.6	..	13,034.1	22,812.8	

Note: (...) Data not available

(..) Not applicable

(-) Nil or Zero

Appendix Table 14
Physical Account for Land Cover, CAR: 2012 (in Hectares)

	Artificial Surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies
Opening stock of resources	15,601.9	227,698.5	455,331.3	790,339.7	304,549.6	..	13,034.1	22,812.8
Additions to stock								
Managed expansion	6.8	...	11.2	9,711.0	7.5	...	...	...
Natural expansion	...	...	...	...	...	...	...	...
Upward reappraisals	...	...	...	...	...	...	...	...
Total additions to stock	6.8	-	11.2	9,711.0	7.5	-	-	-
Reductions in stock								
Managed regression	...	6.8	5,819.0	18.7	3,892.0	...	...	...
Natural regression	...	...	...	...	...	...	...	...
Downward reappraisals	...	...	...	...	...	...	...	...
Total reductions to stock	-	6.8	5,819.0	18.7	3,892.0	-	-	-
Closing stock	15,608.7	227,691.7	449,523.5	800,032.0	300,665.0	..	13,034.1	22,812.8

Note: (...) Data not available

(..) Not applicable

(-) Nil or Zero

Appendix Table 15
Physical Account for Land Cover, CAR: 2013 (in Hectares)

	Artificial Surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies	
Opening stock of resources	15,608.7	227,691.7	449,523.5	800,032.0	300,665.0	..	13,034.1	22,812.8	
Additions to stock									
Managed expansion	6.1	...	157.5	29,400.0	105.3	...	...	...	...
Natural expansion	...	...	...	...	...	...	...	...	...
Upward reappraisals	...	...	...	...	...	...	...	...	...
Total additions to stock	6.1	-	157.5	29,400.0	105.3	-	-	-	-
Reductions in stock									
Managed regression	...	6.1	17,616.9	262.8	11,783.1	...	...	...	...
Natural regression	...	...	...	...	...	...	...	...	...
Downward reappraisals	...	...	...	...	...	...	...	...	...
Total reductions to stock	-	6.1	17,616.9	262.8	11,783.1	-	-	-	-
Closing stock	15,614.8	227,685.6	432,064.1	829,169.2	288,987.3	..	13,034.1	22,812.8	

Note: (...) Data not available

(..) Not applicable

(-) Nil or Zero

Appendix Table 16
Physical Account for Land Cover, CAR: 2014 (in Hectares)

	Artificial Surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies
Opening stock of resources	15,614.8	227,685.6	432,064.1	829,169.2	288,987.3	..	13,034.1	22,812.8
Additions to stock								
Managed expansion	4.2	...	334.6	24,179.0	223.8	...	...	...
Natural expansion	...	...	...	...	...	...	...	...
Upward reappraisals	...	...	...	...	...	...	...	...
Total additions to stock	4.2	-	334.6	24,179.0	223.8	-	-	-
Reductions in stock								
Managed regression	...	4.2	14,488.4	558.4	9,690.6	...	...	...
Natural regression	...	...	...	...	...	...	...	...
Downward reappraisals	...	...	...	...	...	...	...	...
Total reductions to stock	-	4.2	14,488.4	558.4	9,690.6	-	-	-
Closing stock	15,619.0	227,681.4	417,910.3	852,789.8	279,520.5	..	13,034.1	22,812.8

Note: (...) Data not available
 (..) Not applicable
 (-) Nil or zero

Appendix Table 17
Physical Account for Land Cover, CAR: 2015 (in Hectares)

	Artificial Surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies	
Opening stock of resources	15,619.0	227,681.4	417,910.3	852,789.8	279,520.5	..	13,034.1	22,812.8	
Additions to stock									
Managed expansion	0.2	...	407.3	17,746.0	272.5	...	...	...	...
Natural expansion	...	...	...	...	...	...	...	...	...
Upward reappraisals	...	...	...	...	...	...	...	...	...
Total additions to stock	0.2	-	407.3	17,746.0	272.5	-	-	-	-
Reductions in stock									
Managed regression	...	0.2	10,633.7	679.8	7,112.3	...	...	...	...
Natural regression	...	...	...	...	...	...	...	...	...
Downward reappraisals	...	...	...	...	...	...	...	...	...
Total reductions to stock	-	0.2	10,633.7	679.8	7,112.3	-	-	-	-
Closing stock	15,619.2	227,681.2	407,684.0	869,856.0	272,680.6	..	13,034.1	22,812.8	

Note: (...) Data not available

(..) Not applicable

(-) Nil or Zero

Appendix Table 18
Land Cover Change Matrix, CAR: 1999 (in Hectares)

	Increases (positive numbers) and decreases (negative numbers) from other land covers						Net Changes	Closing area
	Opening area	Artificial surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area		
Artificial surfaces	15,539.5	..	10.2	..	..	..	..	10.2
Crops	227,760.9	(10.2)	..	..	..	..	..	(10.2)
Grassland	478,403.2	...	...	..	(2,828.2)	..	..	(2,828.2)
Tree-covered area	751,836.1	...	...	2,828.2	..	1,891.7	..	4,719.9
Shrub-covered area	319,981.3	...	...	...	(1,891.7)	..	..	(1,891.7)
Regularly flooded areas	..	..	..	..	..	..	..	..
Terrestrial barren land	13,034.1	...	...	...	...	..	..	- 13,034.1
Inland water bodies	22,812.8	...	...	...	...	..	..	- 22,812.8

Note: (...) Data not available

(..) Not applicable

(-) Negative Value

(-) Nil or Zero

Appendix Table 19
Land Cover Change Matrix, CAR: 2000 (in Hectares)

	Opening area	Increases (positive numbers) and decreases (negative numbers) from other land covers						Closing area		
		Artificial surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Inland water bodies		
Artificial surfaces	15,549.7	..	3.0	...	...	...	...	...	3.0	15,552.7
Crops	227,750.7	(3.0)	..	...	...	...	...	...	(3.0)	227,747.7
Grassland	475,575.0	...	...	..	(2,031.4)	...	...	...	(2,031.4)	473,543.6
Tree-covered area	756,556.0	...	...	2,031.4	..	1,358.7	...	...	3,390.1	759,946.1
Shrub-covered area	318,089.6	...	...	...	(1,358.7)	..	...	...	(1,358.7)	316,730.9
Regularly flooded areas	..	...	...	...	...	..	..	..	..	..
Terrestrial barren land	13,034.1	...	...	...	...	...	...	...	-	13,034.1
Inland water bodies	22,812.8	...	...	...	...	...	...	...	-	22,812.8

Note: (...) Data not available

(..) Not applicable

(-) Negative Value

(+) Nil or Zero

Appendix Table 20
Land Cover Change Matrix, CAR: 2001 (in Hectares)

	Opening area	Increases (positive numbers) and decreases (negative numbers) from other land covers						Closing area			
		Artificial surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies	Net Changes	Closing area
Artificial surfaces	15,552.7	..	...	...	...	...	...	...	...	-	15,552.7
Crops	227,747.7	...	..	...	...	...	...	...	...	-	227,747.7
Grassland	473,543.6	...	...	..	(2,131.2)	...	...	...	...	(2,131.2)	471,412.4
Tree-covered area	759,946.1	...	...	2,131.2	..	1,425.4	...	...	...	3,556.6	763,502.7
Shrub-covered area	316,730.9	...	...	...	(1,425.4)	..	...	...	...	(1,425.4)	315,305.5
Regularly flooded areas	..	...	...	...	...	..	..	..	..	-	..
Terrestrial barren land	13,034.1	...	...	...	...	...	...	..	..	-	13,034.1
Inland water bodies	22,812.8	...	...	...	...	...	...	..	..	-	22,812.8

Note: (...) Data not available

(..) Not applicable

(-) Negative Value

(-) Nil or Zero

Appendix Table 21
Land Cover Change Matrix, CAR: 2002 (in Hectares)

	Opening area	Increases (positive numbers) and decreases (negative numbers) from other land covers						Closing area
		Artificial surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	
Artificial surfaces	15,552.7	..	8.0	...	...	...	...	8.0
Crops	227,747.7	(8.0)	..	...	..	..	..	(8.0) 227,739.7
Grassland	471,412.4	...	...	..	(1,273.6)	...	...	(1,273.6) 470,138.8
Tree-covered area	763,502.7	...	...	1,273.6	..	851.9	...	2,125.5 765,628.2
Shrub-covered area	315,305.5	...	...	...	(851.9)	..	...	(851.9) 314,453.6
Regularly flooded areas	..	...	...	...	...	..	..	..
Terrestrial barren land	13,034.1	...	...	...	...	...	..	- 13,034.1
Inland water bodies	22,812.8	...	...	...	...	...	..	- 22,812.8

Note: (...) Data not available

(..) Not applicable

(-) Negative Value

(+) Nil or Zero

Appendix Table 22
Land Cover Change Matrix, CAR: 2003 (in Hectares)

	Increases (positive numbers) and decreases (negative numbers) from other land covers						Net Changes	Closing area
	Opening area	Artificial surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area		
Artificial surfaces	15,560.7	..	11.0	...	...	...	...	11.0
Crops	227,739.7	(11.0)	..	...	...	...	...	(11.0)
Grassland	470,138.8	...	...	..	(724.0)	...	...	(724.0)
Tree-covered area	765,628.2	...	...	724.0	..	484.2	...	1,208.2
Shrub-covered area	314,453.6	...	...	...	(484.2)	..	...	(484.2)
Regularly flooded areas	..	...	...	...	...	..	..	..
Terrestrial barren land	13,034.1	...	...	...	...	...	...	-
Inland water bodies	22,812.8	...	...	...	...	...	...	-

Note: (...) Data not available

(..) Not applicable

(-) Negative Value

(-) Nil or Zero

Appendix Table 23
Land Cover Change Matrix, CAR: 2004 (in Hectares)

	Opening area	Increases (positive numbers) and decreases (negative numbers) from other land covers						Closing area
		Artificial surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	
Artificial surfaces	15,571.8	..	5.2	...	...	...	...	5.2
Crops	227,728.6	(5.2)	..	...	...	...	...	(5.2)
Grassland	469,414.8	...	...	..	(114.1)	...	...	(114.1)
Tree-covered area	766,836.4	...	...	114.1	..	76.3	...	190.4
Shrub-covered area	313,969.4	...	...	...	(76.3)	..	...	(76.3)
Regularly flooded areas	..	...	...	...	...	..	...	..
Terrestrial barren land	13,034.1	...	...	...	...	...	..	-
Inland water bodies	22,812.8	...	...	...	...	...	...	22,812.8

Note: (...) Data not available

(..) Not applicable

(-) Negative Value

(+) Nil or Zero

Appendix Table 24
Land Cover Change Matrix, CAR: 2005 (in Hectares)

	Increases (positive numbers) and decreases (negative numbers) from other land covers						Net Changes	Closing area
	Opening area	Artificial surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area		
Artificial surfaces	15,577.0	..	0.8	...	...	...	...	0.8
Crops	227,723.4	(0.8)	..	...	...	...	...	(0.8)
Grassland	469,300.8	...	...	..	(347.1)	...	...	(347.1)
Tree-covered area	767,026.8	...	...	347.1	..	232.1	...	579.2
Shrub-covered area	313,893.1	...	...	...	(232.1)	..	...	(232.1)
Regularly flooded areas	..	...	...	...	...	..	..	..
Terrestrial barren land	13,034.1	...	...	...	...	...	...	- 13,034.1
Inland water bodies	22,812.8	...	...	...	...	...	...	- 22,812.8

Note: (...) Data not available

(..) Not applicable

(-) Negative Value

(-) Nil or Zero

Appendix Table 25
Land Cover Change Matrix, CAR: 2006 (in Hectares)

	Opening area	Increases (positive numbers) and decreases (negative numbers) from other land covers						Closing area
		Artificial surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	
Artificial surfaces	15,577.7	..	5.5	...	...	...	...	5.5
Crops	227,722.7	(5.5)	..	...	...	...	...	(5.5)
Grassland	468,953.7	...	...	..	(22.2)	...	...	(22.2)
Tree-covered area	767,606.0	...	...	22.2	..	14.8	...	37.0
Shrub-covered area	313,661.0	...	...	...	(14.8)	..	...	(14.8)
Regularly flooded areas	..	...	...	...	...	..	...	..
Terrestrial barren land	13,034.1	...	...	...	...	...	...	-
Inland water bodies	22,812.8	...	...	...	...	...	...	-
								22,812.8

Note: (...) Data not available

(..) Not applicable

(-) Negative Value

(+) Nil or Zero

Appendix Table 26
Land Cover Change Matrix, CAR: 2007 (in Hectares)

	Increases (positive numbers) and decreases (negative numbers) from other land covers						Inland water bodies	Net Changes	Closing area
	Opening area	Artificial surfaces	Crops	Grassland	Tree- covered area	Shrub- covered area			
Artificial surfaces	15,583.3	..	8.7	..	..	..	..	..	8.7
Crops	227,717.2	(8.7)	..	..	..	..	..	(8.7)	227,708.5
Grassland	468,931.5	...	...	..	(1,628.2)	..	..	(1,628.2)	467,303.3
Tree-covered area	767,642.9	...	...	1,628.2	..	1,089.0	..	..	2,717.2
Shrub-covered area	313,646.1	...	...	...	(1,089.0)	..	..	(1,089.0)	312,557.1
Regularly flooded areas	..	..	..	..	..	..	..	..	..
Terrestrial barren land	13,034.1	...	...	...	...	...	..	..	- 13,034.1
Inland water bodies	22,812.8	...	...	...	...	...	..	..	- 22,812.8

Note: (...) Data not available

(..) Not applicable

(-) Negative Value

(-) Nil or Zero

Appendix Table 27
Land Cover Change Matrix, CAR: 2008 (in Hectares)

	Opening area	Increases (positive numbers) and decreases (negative numbers) from other land covers						Closing area
		Artificial surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	
Artificial surfaces	15,591.9	..	0.2	...	...	...	...	0.2
Crops	227,708.5	(0.2)	..	...	..	..	..	(0.2)
Grassland	467,303.3	...	...	..	(2,505.0)	...	...	(2,505.0)
Tree-covered area	770,360.2	...	...	2,505.0	..	1,675.4	...	4,180.4
Shrub-covered area	312,557.1	...	...	...	(1,675.4)	..	...	(1,675.4)
Regularly flooded areas	..	...	...	...	...	..	..	..
Terrestrial barren land	13,034.1	...	...	...	...	...	..	-
Inland water bodies	22,812.8	...	...	...	...	...	...	-
								22,812.8

Note: (...) Data not available

(..) Not applicable

(/) Negative Value

(-) Nil or Zero

Appendix Table 28
Land Cover Change Matrix, CAR: 2009 (in Hectares)

	Increases (positive numbers) and decreases (negative numbers) from other land covers						Net Changes	Closing area
	Opening area	Artificial surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area		
Artificial surfaces	15,592.1	..	4.6	...	...	...	...	4.6
Crops	227,708.3	(4.6)	..	...	...	...	...	(4.6) 227,703.6
Grassland	464,798.4	...	...	..	(5,052.8)	...	...	(5,052.8) 459,745.5
Tree-covered area	774,540.6	...	...	5,052.8	..	3,379.6	...	8,432.4 782,973.0
Shrub-covered area	310,881.7	...	...	...	(3,379.6)	..	...	(3,379.6) 307,502.1
Regularly flooded areas	..	...	...	...	...	..	..	..
Terrestrial barren land	13,034.1	...	...	...	...	...	...	- 13,034.1
Inland water bodies	22,812.8	...	...	...	...	...	...	- 22,812.8

Note: (...) Data not available

(..) Not applicable

(-) Negative Value

(-) Nil or Zero

Appendix Table 29
Land Cover Change Matrix, CAR: 2010 (in Hectares)

	Opening area	Increases (positive numbers) and decreases (negative numbers) from other land covers						Closing area
		Artificial surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	
Artificial surfaces	15,596.8	..	0.2	...	...	...	...	0.2
Crops	227,703.6	(0.2)	..	...	...	...	...	(0.2)
Grassland	459,745.5	...	...	..	(268.6)	...	...	(268.6)
Tree-covered area	782,973.0	...	...	268.6	..	179.7	...	448.3
Shrub-covered area	307,502.1	...	...	...	(179.7)	..	...	(179.7)
Regularly flooded areas	..	...	...	...	...	..	...	..
Terrestrial barren land	13,034.1	...	...	...	...	...	...	-
Inland water bodies	22,812.8	...	...	...	...	...	...	-
								22,812.8

Note: (...) Data not available

(..) Not applicable

(-) Negative Value

(+) Nil or Zero

Appendix Table 30
Land Cover Change Matrix, CAR: 2011 (in Hectares)

	Increases (positive numbers) and decreases (negative numbers) from other land covers						Net Changes	Closing area
	Opening area	Artificial surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area		
Artificial surfaces	15,597.0	..	4.9	...	...	...	...	4.9
Crops	227,703.4	(4.9)	..	...	...	...	...	(4.9) 227,698.5
Grassland	459,476.9	...	...	..	(4,145.6)	...	...	(4,145.6) 455,331.3
Tree-covered area	783,421.3	...	...	4,145.6	..	2,772.8	...	6,918.4 790,339.7
Shrub-covered area	307,322.4	...	...	...	(2,772.8)	..	...	(2,772.8) 304,549.6
Regularly flooded areas	..	...	...	...	...	..	...	..
Terrestrial barren land	13,034.1	...	...	...	...	...	...	- 13,034.1
Inland water bodies	22,812.8	...	...	...	...	...	...	- 22,812.8

Note: (...) Data not available

(..) Not applicable

(-) Negative Value

(-) Nil or Zero

Appendix Table 31
Land Cover Change Matrix, CAR: 2012 (in Hectares)

	Increases (positive numbers) and decreases (negative numbers) from other land covers						Net Changes	Closing area
	Opening area	Artificial surfaces	Crops	Grassland	Tree- covered area	Shrub- covered area		
Artificial surfaces	15,601.9	"	6.8	...	...	...	...	6.8
Crops	227,698.5	(6.8)	"	...	...	...	...	(6.8)
Grassland	455,331.3	..."	..."	"(5,807.8)	..."	..."	..."	(5,807.8)
Tree-covered area	790,339.7	..."	..."	5,807.8	..."	3,884.5	..."	9,692.3
Shrub-covered area	304,549.6	..."	..."	..."	(3,884.5)	..."	..."	300,665.0
Regularly flooded areas	"	..."	..."	..."	..."	""	..."	""
Terrestrial barren land	13,034.1	..."	..."	..."	..."	..."	..."	-
Inland water bodies	22,812.8	..."	..."	..."	..."	..."	..."	-
								22,812.8

Note: (...) Data not available

(..) Not applicable

(-) Negative Value

(-) Nil or Zero

Appendix Table 32
Land Cover Change Matrix, CAR: 2013 (in Hectares)

	Increases (positive numbers) and decreases (negative numbers) from other land covers						Closing area
	Opening area	Artificial surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	
Artificial surfaces	15,608.7	..	6.1	...	...	...	6.1
Crops	227,691.7	(6.1)	..	...	..	..	(6.1) 227,685.6
Grassland	449,523.5	...	...	.. (17,459.4)	...	..	(17,459.4) 432,064.1
Tree-covered area	800,032.0	...	...	17,459.4	.. 11,677.8	..	29,137.2 829,169.2
Shrub-covered area	300,665.0	...	...	.. (11,677.8)	..	..	(11,677.8) 288,987.3
Regularly flooded areas	..	...	..	..	..	..	..
Terrestrial barren land	13,034.1	...	...	...	..	..	- 13,034.1
Inland water bodies	22,812.8	...	...	...	..	..	- 22,812.8

[Note: (...) Data not available

(..) Not applicable

(-) Negative Value

(-) Nil or Zero

Appendix Table 33
Land Cover Change Matrix, CAR: 2014 (in Hectares)

	Opening area	Increases (positive numbers) and decreases (negative numbers) from other land covers						Closing area			
		Artificial surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies		
Artificial surfaces	15,614.8	..	4.2	..	..	..	..	..	..	4.2	15,619.0
Crops	227,685.6	(4.2)	..	..	..	..	..	..	..	(4.2)	227,681.4
Grassland	432,064.1	...	...	..	(14,153.8)	...	...	...	...	(14,153.8)	417,910.3
Tree-covered area	829,169.2	...	...	14,153.8	..	9,466.8	..	..	..	..	23,620.6
Shrub-covered area	288,987.3	...	...	...	(9,466.8)	..	..	..	..	(9,466.8)	279,520.5
Regularly flooded areas	..	...	...	...	...	..	..	..	..	..	..
Terrestrial barren land	13,034.1	..	..	..	..	..	..	..	..	-	13,034.1
Inland water bodies	22,812.8	...	...	...	...	...	...	...	...	-	22,812.8

Note: (...) Data not available

(..) Not applicable

(-) Negative Value

(+) Nil or Zero

Appendix Table 34
Land Cover Change Matrix, CAR: 2015 (in Hectares)

	Increases (positive numbers) and decreases (negative numbers) from other land covers						Net Changes	Closing area			
	Opening area	Artificial surfaces	Crops	Grassland	Tree-covered area	Shrub-covered area	Regularly flooded areas	Terrestrial barren land	Inland water bodies		
Artificial surfaces	15,619.0	..	0.2	..	..	..	..	..	..	0.2	15,619.2
Crops	227,681.4	(0.2)	..	..	..	..	..	..	..	(0.2)	227,681.2
Grassland	417,910.3	...	...	..	(10,226.3)	..	..	..	..	(10,226.3)	407,684.0
Tree-covered area	852,789.8	...	...	10,226.3	..	6,839.9	..	..	..	17,066.2	869,856.0
Shrub-covered area	279,520.5	...	...	..	(6,839.9)	..	..	..	..	(6,839.9)	272,680.6
Regularly flooded areas	..	..	..	..	..	..	..	..	..	..	..
Terrestrial barren land	13,034.1	...	...	..	..	..	..	..	..	-	13,034.1
Inland water bodies	22,812.8	...	...	..	..	..	..	..	..	-	22,812.8

Note: (..) Data not available
 (...) Not applicable
 0 Negative Value
 (-) Nil or Zero

Appendix Table 35
Monetary Asset Account for Land, CAR: 1999 (in Pesos)

	Agriculture	Forestry	Types of land use			Land use for maintenance and resto- ration of en- vironmental functions	Other uses of land n.e.c.	Land not in use	Inland water	Closing area
			Land use for aqua- culture	Use of built-up and related areas						
Opening value of stock of land	302,921,963,691.4	105,257,055,457.2	...	18,258,952,101,735.2	...	...	...	...	...	18,667,131,120,883.8
Additions to stock										
Acquisition of land	...	660,783,495.6	...	12,003,095,000.0	...	...	...	...	...	12,663,878,495.6
Reclassifications	...	...	...	...	...	...	...	...	...	-
Total additions to stock	-	660,783,495.6	-	12,003,095,000.0	-	-	-	-	-	12,663,878,495.6
Reductions in stock										
Disposal of land	13,586,482.0	...	...	...	...	...	...	...	...	13,586,482.0
Reclassifications	...	...	...	...	...	...	...	...	...	-
Total reductions in stock	13,586,482.0	-	-	-	-	-	-	-	-	13,586,482.0
Revaluations	-	-	-	-	-	-	-	-	-	-
Closing value of stock of land	302,908,377,209.4	105,917,838,952.8	...	18,270,955,196,735.2	...	...	...	...	...	18,679,781,412,897.4

Note: (...) Data not available
 (-) Nil or Zero

Appendix Table 36
Monetary Asset Account for Land, CAR: 2000 (in Pesos)

	Agriculture	Forestry	Types of land use				Inland water	Closing area
			Land use for aquaculture	Use of built-up and related areas	Land use for maintenance and restoration of environmental functions	Other uses of land n.e.c.		
Opening value of stock of land	302,908,377,209.4	105,917,838,952.8	...	18,270,955,196,735.2	...	...	...	18,679,781,412,897.4
Additions to stock								
Acquisition of land	...	474,616,380.0	...	3,521,475,000.0	...	...	...	3,996,091,380.0
Reclassifications	...	...	...	...	...	...	...	-
Total additions to stock	-	474,616,380.0	-	3,521,475,000.0	-	-	-	3,996,091,380.0
Reductions in stock								
Disposal of land	3,986,010.0	...	...	...	...	...	...	3,986,010.0
Reclassifications	...	...	...	...	...	...	...	-
Total reductions in stock	3,986,010.0	-	-	-	-	-	-	3,986,010.0
Revaluations	-	-	-	-	-	-	-	-
Closing value of stock of land	302,904,391,199.4	106,392,455,332.8	...	18,274,476,671,735.2	...	...	...	18,683,773,518,267.4

Note: (...) Data not available
 (-) Nil or Zero

Appendix Table 37
Monetary Asset Account for Land, CAR: 2001 (in Pesos)

	Agriculture	Forestry	Types of land use				Closing area
			Land use for aqua- culture	Use of built-up and related areas	Land use for main- tenance and resto- ration of environ- mental functions	Other uses of land n.e.c.	
Opening value of stock of land	302,908,377,209.4	105,917,838,952.8	...	18,270,955,196,735.2	...	...	18,679,781,412,897.4
Additions to stock							
Acquisition of land	...	474,616,380.0	...	3,521,475,000.0	...	...	3,996,091,380.0
Reclassifications	...	...	...	...	...	...	-
Total additions to stock	-	474,616,380.0	-	3,521,475,000.0	-	-	3,996,091,380.0
Reductions in stock							
Disposal of land	3,986,010.0	...	...	...	...	...	3,986,010.0
Reclassifications	...	...	...	...	...	...	-
Total reductions in stock	3,986,010.0	-	-	-	-	-	3,986,010.0
Revaluations	-	-	-	-	-	-	-
Closing value of stock of land	302,904,391,199.4	106,392,455,332.8	...	18,274,476,671,735.2	...	...	18,683,773,518,267.4

*Note: (...) Data not available
(-) Nil or Zero*

Appendix Table 38
Monetary Asset Account for Land, CAR: 2002 (in Pesos)

	Agriculture	Forestry	Types of land use				Closing area
			Land use for aquaculture	Use of built-up and related areas	Land use for maintenance and restoration of environmental functions	Other uses of land n.e.c.	
Opening value of stock of land	592,143,922,645.4	878,028,130,322.9	...	18,274,476,671,735.2	...	...	19,744,648,724,703.5
Additions to stock							
Acquisition of land	...	2,444,274,591.7	...	9,385,547,500.0	...	...	11,829,822,091.7
Reclassifications	...	...	...	...	...	...	-
Total additions to stock	...	2,444,274,591.7	-	9,385,547,500.0	-	-	11,829,822,091.7
Reductions in stock							
Disposal of land	20,768,020.0	...	...	...	...	...	20,768,020.0
Reclassifications	...	...	...	...	...	...	-
Total reductions in stock	20,768,020.0	-	-	-	-	-	20,768,020.0
Revaluations	740,153,943,281.7	99,531,663,164.3	-	-	-	-	839,685,606,446.0
Closing value of stock of land	1,332,277,097,907.1	980,004,068,078.9	...	18,283,862,219,235.2	...	...	20,596,143,385,221.1

Note: (...) Data not available
 (-) Nil or Zero

Appendix Table 39
Monetary Asset Account for Land, CAR: 2003 (in Pesos)

	Agriculture	Forestry	Types of land use			Land use for maintenance and restoration of environmental functions	Other uses of land n.e.c.	Land not in use	Inland water	Closing area
			Land use for aqua- culture	Use of built-up and related areas	...					
Opening value of stock of land	1,332,277,097,907.1	980,004,068,078.9	...	18,283,862,219,235.2	...	...	...	...	...	20,596,143,385,221.1
Additions to stock										
Acquisition of land	...	1,546,469,831.1	...	12,971,530,000.0	...	...	...	...	...	14,517,999,831.1
Reclassifications	...	...	...	...	...	...	...	...	...	-
Total additions to stock	-	1,546,469,831.1	-	12,971,530,000.0	-	-	-	-	-	14,517,999,831.1
Reductions in stock										
Disposal of land	64,581,660.0	...	...	...	...	...	...	...	...	64,581,660.0
Reclassifications	...	...	...	...	...	...	...	...	...	-
Total reductions in stock	64,581,660.0	-	-	-	-	-	-	-	-	64,581,660.0
Revaluations										
Closing value of stock of land	1,332,212,516,247.1	981,550,537,910.0	...	18,296,833,749,235.2	...	...	...	...	...	20,610,596,803,392.2

Note: (...) Data not available
 (-) Nil or Zero

Appendix Table 40
Monetary Asset Account for Land, CAR: 2004 (in Pesos)

	Agriculture	Forestry	Types of land use				Closing area
			Land use for aquaculture	Use of built-up and related areas	Land use for maintenance and restoration of environmental functions	Other uses of land n.e.c.	
Opening value of stock of land	1,332,212,516,247.1	981,550,537,910.0	...	18,296,833,749,235.2	...	...	...
Additions to stock							20,610,596,803,392.2
Acquisition of land	...	243,728,401.1	...	6,113,290,000.0	...	...	...
Reclassifications	...	...	...	...	...	...	6,357,018,401.1
Total additions to stock	-	243,728,401.1	-	6,113,290,000.0	-	-	6,357,018,401.1
Reductions in stock							
Disposal of land	30,436,380.0	...	...	...	...	...	30,436,380.0
Reclassifications	...	...	...	...	...	...	-
Total reductions in stock	30,436,380.0	-	-	-	-	-	30,436,380.0
Revaluations	-	-	-	-	-	-	-
Closing value of stock of land	1,332,182,079,867.1	981,794,266,311.0	...	18,302,947,039,235.2	...	...	20,616,923,385,413.3

Note: (...) Data not available
 (-) Nil or Zero

Appendix Table 41
Monetary Asset Account for Land, CAR: 2005 (in Pesos)

	Agriculture	Forestry	Types of land use			Closing area
			Land use for aquaculture	Use of built-up and related areas	Land use for maintenance and restoration of environmental functions	
Opening value of stock of land	1,332,182,079,867.1	981,794,266,311.0	...	18,302,947,039,235.2	...	...
Additions to stock						
Acquisition of land	...	741,355,832.9	...	888,300,000.0	...	...
Reclassifications	...	...	...	...	...	...
Total additions to stock	-	741,355,832.9	-	888,300,000.0	-	-
Reductions in stock						
Disposal of land	4,422,600.0	...	...	...	...	4,422,600.0
Reclassifications	...	...	...	...	...	-
Total reductions in stock	4,422,600.0	-	-	-	-	4,422,600.0
Revaluations						
Closing value of stock of land	1,332,177,657,267.1	982,535,622,143.9	...	18,303,835,339,235.2	...	20,618,548,618,646.2

Note: (...) Data not available
 (-) Nil or Zero

Appendix Table 42
Monetary Asset Account for Land, CAR: 2006 (in Pesos)

	Agriculture	Forestry	Types of land use				Closing area
			Land use for aquaculture	Use of built-up and related areas	Land use for maintenance and restoration of environmental functions	Other uses of land n.e.c.	
Opening value of stock of land	1,332,177,657,267.1	982,535,622,143.9	...	18,303,835,339,235.2	...	...	...
Additions to stock							20,618,548,618,646.2
Acquisition of land	...	47,337,819.0	...	6,490,465,000.0	...	...	6,537,802,819.0
Reclassifications	...	...	...	...	...	...	-
Total additions to stock	-	47,337,819.0	-	6,490,465,000.0	-	-	6,537,802,819.0
Reductions in stock							
Disposal of land	32,314,230.0	...	...	...	...	...	32,314,230.0
Reclassifications	...	...	...	...	...	...	-
Total reductions in stock	32,314,230.0	-	-	-	-	-	32,314,230.0
Revaluations	-	-	-	-	-	-	-
Closing value of stock of land	1,332,145,343,037.1	982,582,959,963.0	...	18,310,325,804,235.2	...	...	20,625,054,107,235.2

Note: (...) Data not available
 (-) Nil or Zero

Appendix Table 43
Monetary Asset Account for Land, CAR: 2007 (in Pesos)

	Agriculture	Forestry	Types of land use			Land use for maintenance and restoration of environmental functions	Other uses of land n.e.c.	Land not in use	Inland water	Closing area
			Land use for aqua- culture	Use of built-up and related areas	... 18,310,325,804,235.2					
Opening value of stock of land	1,332,145,343,037.1	982,582,959,963.0	...			...	...	...	...	20,625,054,107,235.2
Additions to stock										
Acquisition of land	...	3,478,076,637.0	...		10,214,040,000.0	...	...	...	...	13,692,116,637.0
Reclassifications	...	...	...		...	...	...	...	...	-
Total additions to stock	-	3,478,076,637.0	-		10,214,040,000.0	-	-	-	-	13,692,116,637.0
Reductions in stock										
Disposal of land	50,852,880.0	...	...		...	...	...	...	...	50,852,880.0
Reclassifications	...	...	...		...	...	...	...	...	-
Total reductions in stock	50,852,880.0	-	-		-	-	-	-	-	50,852,880.0
Revaluations	-	-	-		-	-	-	-	-	-
Closing value of stock of land	1,332,094,490,157.1	986,061,036,599.9	...		18,320,539,844,235.2	...	...	...	...	20,638,695,370,992.2

Note: (...) Data not available
 (-) Nil or Zero

Appendix Table 44
Monetary Asset Account for Land, CAR, 2008 (in Pesos)

	Agriculture	Forestry	Land use for aquaculture	Types of land use				Closing area
				Use of built-up and related areas	Land use for maintenance and restoration of environmental functions	Other uses of land n.e.c.	Land not in use	
Opening value of stock of land	1,332,094,490,157.1	986,061,036,599.9	...	18,320,539,844,235.2	...	...	...	20,638,695,370,992.2
Additions to stock								
Acquisition of land	...	5,350,906,059.4	...	219,960,000.0	...	...	...	5,570,866,059.4
Reclassifications	...	...	...	...	...	...	...	-
Total additions to stock	-	5,350,906,059.4	-	219,960,000.0	-	-	-	5,570,866,059.4
Reductions in stock								
Disposal of land	1,095,120.0	...	...	...	...	...	...	1,095,120.0
Reclassifications	...	...	...	...	...	...	...	-
Total reductions in stock	1,095,120.0	-	-	-	-	-	-	1,095,120.0
Revaluations	444,031,131,679.0	375,652,181,398.3	117,548,000.0	-	-	-	-	819,800,861,077.3
Closing value of stock of land	1,776,124,526,716.1	1,367,064,124,057.6	117,548,000.0	18,320,759,804,235.2	...	...	...	21,464,066,003,008.9

Note: (...) Data not available
 (-) Nil or Zero

Appendix Table 45
Monetary Asset Account for Land, CAR: 2009 (in Pesos)

	Agriculture	Forestry	Types of land use			Land use for maintenance and restoration of environmental functions	Other uses of land n.e.c.	Land not in use	Inland water	Closing area
			Land use for aquaculture	Use of built-up and related areas						
Opening value of stock of land	1,776,124,526,716.1	1,367,064,124,057.6	117,548,000.0	18,320,759,804,235.2	...	...	...	...	...	21,464,066,003,008.9
Additions to stock										
Acquisition of land	...	14,883,237,944.5	...	5,456,582,500.0	...	...	...	...	...	20,339,820,444.5
Reclassifications	...	...	...	...	...	...	...	...	...	-
Total additions to stock	-	14,883,237,944.5	-	5,456,582,500.0	-	-	-	-	-	20,339,820,444.5
Reductions in stock										
Disposal of land	36,222,420.0	...	6,324,000.0	...	...	...	...	...	...	42,546,420.0
Reclassifications	...	...	...	...	...	...	...	...	...	-
Total reductions in stock	36,222,420.0	-	6,324,000.0	-	-	-	-	-	-	42,546,420.0
Revaluations	-	45,020,948,053.9	-	-	-	-	-	-	-	45,020,948,053.9
Closing value of stock of land	1,776,088,304,296.1	1,426,968,310,055.9	111,224,000.0	18,326,216,386,735.2	...	...	...	...	...	21,529,384,225,087.2

Note: (...) Data not available
 (-) Nil or Zero

Appendix Table 46
Monetary Asset Account for Land, CAR: 2010 (in Pesos)

	Agriculture	Forestry	Types of land use				Closing area
			Land use for aquaculture	Use of built-up and related areas	Land use for maintenance and restoration of environmental functions	Other uses of land n.e.c.	
Opening value of stock of land	1,776,088,304,296.1	1,426,968,310,055.9	111,224,000.0	18,326,216,386,735.2	...	...	...
Additions to stock							21,529,384,225,087.2
Acquisition of land	...	817,011,499.2	3,852,000.0	227,245,000.0	...	...	1,048,108,499.2
Reclassifications	...	...	...	...	...	...	-
Total additions to stock	-	817,011,499.2	3,852,000.0	227,245,000.0	-	-	1,048,108,499.2
Reductions in stock							
Disposal of land	1,508,520.0	...	...	...	...	...	1,508,520.0
Reclassifications	...	...	...	...	...	...	-
Total reductions in stock	1,508,520.0	-	-	-	-	-	1,508,520.0
Revaluations	-	-	-	-	-	-	-
Closing value of stock of land	1,776,086,795,776.1	1,427,785,321,555.2	115,076,000.0	18,326,443,631,735.2	...	...	21,530,430,825,066.4

Note: (...) Data not available
 (-) Nil or Zero

Appendix Table 47
Monetary Asset Account for Land, CAR: 2011 (in Pesos)

	Agriculture	Forestry	Types of land use			Land use for maintenance and restoration of environmental functions	Other uses of land n.e.c.	Land not in use	Inland water	Closing area
			Land use for aquaculture	Use of built-up and related areas						
Opening value of stock of land	1,776,086,795,776.1	1,427,785,321,555.2	115,076,000.0	18,326,443,631,735.2	...	...	...	...	...	21,530,430,825,066.4
Additions to stock										
Acquisition of land	...	12,608,819,236.8	2,740,000.0	5,810,845,000.0	...	...	...	...	...	18,422,404,236.8
Reclassifications	...	...	...	...	...	...	...	...	...	-
Total additions to stock	-	12,608,819,236.8	2,740,000.0	5,810,845,000.0	-	-	-	-	-	18,422,404,236.8
Reductions in stock										
Disposal of land	38,574,120.0	...	...	...	...	...	...	...	...	38,574,120.0
Reclassifications	...	...	...	...	...	...	...	...	...	-
Total reductions in stock	38,574,120.0	-	-	-	-	-	-	-	-	38,574,120.0
Revaluations										
Closing value of stock of land	1,776,048,221,656.1	1,440,394,140,791.9	117,816,000.0	18,332,254,476,735.2	...	...	...	...	...	21,548,814,655,183.2

Note: (...) Data not available
 (-) Nil or Zero

Appendix Table 48
Monetary Asset Account for Land, CAR: 2012 (in Pesos)

	Agriculture	Forestry	Types of land use				Closing area
			Land use for aquaculture	Use of built-up and related areas	Land use for maintenance and restoration of environmental functions	Other uses of land n.e.c.	
Opening value of stock of land	1,776,048,221,656.1	1,440,394,140,791.9	117,816,000.0	18,332,254,476,735.2	...	...	...
Additions to stock							21,548,814,655,183.2
Acquisition of land	...	17,664,255,731.3	2,076,000.0	8,012,207,500.0	...	...	25,678,539,231.3
Reclassifications	...	...	...	...	...	...	-
Total additions to stock	-	17,664,255,731.3	2,076,000.0	8,012,207,500.0	-	-	25,678,539,231.3
Reductions in stock							
Disposal of land	53,187,420.0	...	...	...	...	...	53,187,420.0
Reclassifications	...	...	...	...	...	...	-
Total reductions in stock	53,187,420.0	-	-	-	-	-	53,187,420.0
Revaluations	-	-	-	-	-	-	-
Closing value of stock of land	1,775,995,034,236.1	1,458,058,396,523.2	119,892,000.0	18,340,266,684,235.2	...	...	21,574,440,006,994.5

*Note: (...) Data not available
(-) Nil or Zero*

Appendix Table 49
Monetary Asset Account for Land, CAR: 2013 (in Pesos)

	Agriculture	Forestry	Types of land use				Closing area
			Land use for aquaculture	Use of built-up and related areas	Land use for maintenance and restoration of environmental functions	Other uses of land n.e.c.	
Opening value of stock of land	1,775,995,034,236.1	1,458,058,396,523.2	119,892,000.0	18,340,266,684,235.2	...	...	21,574,440,006,994.5
Additions to stock							
Acquisition of land	...	53,102,529,559.0	...	7,119,912,500.0	...	...	60,222,442,059.0
Reclassifications	...	...	...	...	...	...	-
Total additions to stock	-	53,102,529,559.0	-	7,119,912,500.0	-	-	60,222,442,059.0
Reductions in stock							
Disposal of land	47,264,100.0	...	1,758,000.0	...	...	...	49,022,100.0
Reclassifications	...	...	...	...	...	...	-
Total reductions in stock	47,264,100.0	-	1,758,000.0	-	-	-	49,022,100.0
Revaluations							
Closing value of stock of land	1,775,947,770,136.1	1,511,160,926,082.1	118,134,000.0	18,347,386,596,735.2	...	...	21,634,613,426,953.4

Note: (...) Data not available
 (-) Nil or Zero

Appendix Table 50
Monetary Asset Account for Land, CAR: 2014 (in Pesos)

	Agriculture	Forestry	Types of land use				Other uses of land n.e.c.	Land not in use	Inland water	Closing area
			Land use for aquaculture	Use of built-up and related areas	Land use for maintenance and restoration of environmental functions	...				
Opening value of stock of land	1,775,947,770,136.1	1,511,160,926,082.1	118,134,000.0	18,347,386,596,735.2	...	...	...	...	...	21,634,613,426,953.4
Additions to stock										
Acquisition of land	...	43,048,533,173.0	...	4,953,330,000.0	...	...	...	...	...	48,001,863,173.0
Reclassifications	...	...	...	...	...	...	...	...	...	-
Total additions to stock	-	43,048,533,173.0	-	4,953,330,000.0	-	-	-	-	-	48,001,863,173.0
Reductions in stock										
Disposal of land	32,881,680.0	...	4,566,000.0	...	...	...	...	...	...	37,447,680.0
Reclassifications	...	...	...	...	...	...	...	...	...	-
Total reductions in stock	32,881,680.0	-	4,566,000.0	-	-	-	-	-	-	37,447,680.0
Revaluations	-	-	-	-	-	-	-	-	-	-
Closing value of stock of land	1,775,914,888,456.1	1,554,209,459,255.1	113,568,000.0	18,352,339,926,735.2	...	...	...	...	...	21,682,577,842,446.4

Note: (...) Data not available
 (-) Nil or Zero

Appendix Table 51
Monetary Asset Account for Land, CAR: 2015 (in Pesos)

	Agriculture	Forestry	Types of land use			Closing area
			Land use for aquaculture	Use of built-up and related areas	Land use for maintenance and restoration of environmental functions	
Opening value of stock of land	1,775,914,888,456.1	1,554,209,459,255.1	113,568,000.0	18,352,339,926,735.2	...	...
Additions to stock						21,682,577,842,446.4
Acquisition of land	...	31,103,152,280.2	5,530,000.0	257,560,000.0	...	...
Reclassifications	...	...	...	...	...	31,366,242,280.2
Total additions to stock	-	31,103,152,280.2	5,530,000.0	257,560,000.0	-	-
Reductions in stock						31,366,242,280.2
Disposal of land	1,709,760.0	...	...	...	...	1,709,760.0
Reclassifications	...	...	...	...	...	-
Total reductions in stock	1,709,760.0	-	-	-	-	1,709,760.0
Revaluations	-	-	-	-	-	-
Closing value of stock of land	1,775,913,178,696.1	1,585,312,611,535.3	119,098,000.0	18,352,597,486,735.2	...	21,713,942,374,966.6

Note: (...) Data not available
 (-) Nil or Zero

Acronyms

BIR	Bureau of Internal
CAR	Cordillera Administrative Region
DAR	Department of Agrarian Reform
DBM	Department of Budget and Management
DENR	Department of Environment and Natural Resources
EMB	Environmental Management Bureau
ENRA	Environment and Natural Resource Accounting
ENRAD	Environment and Natural Resources Accounts Division
FAO	Food and Agriculture Organization
FMB	Forest Management Bureau
LCCS	Land Cover Classification System
MAS	Macroeconomic Accounts Service
MGB	Mines and Geosciences Bureau
NAMRIA	National Mapping and Resource Information Authority
NEDA	National Economic and Development Authority
PEENRA	Philippine Economic-Environmental and Natural Resources Accounting
PMD	Planning Management Division
PSA	Philippine Statistics Authority
RSET	Regional Social and Economic Trends
SDG	Sustainable Development Goals
SEEA	System of Environmental-Economic Accounting
SNA	System of National Accounts
SOCD	Statistical Operations and Coordination Division
UN	United Nations
UNSC	United Nations Statistical Commission
WWRRC	Watershed and Water Resources Research Center

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