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FAOSTAT ANALYTICAL BRIEF 15

Land statistics

Global, regional and country trends

1990–2018

>> FAO Statistics Division

HIGHLIGHTS

- → In 2018, world total land area plus inland waters was 13.5 billion hectares, of which more than one-third were agricultural land (4.8 billion hectares), and a bit less than one-third were forest land (4.1 billion hectares).
- → Of total agricultural land, one-third was used as cropland (1.6 billion hectares), the remaining two-thirds were permanent meadows and pastures used for livestock (3.2 billion hectares).
- → The total agricultural land grew on average by 0.1 percent per year since 1961, with a steady expansion up to the 1990s and a decrease in more recent decades.
- → Cropland area increased globally by 5 percent since 1990 whereas the global land used for permanent meadows and pastures decreased by 2 percent.
- → During the period 1990–2018, cropland used for permanent crops increased by 25 percent while the area of annual crops remained roughly constant.
- → World forest land decreased by almost 4 percent over the period 1990 to 2018, with an average yearly reduction of 0.1 percent.
- → Area equipped for irrigation was 340 million hectares in 2018, or nearly 22 percent of world total cropland area. It increased by 30 percent since 1990.
- → Inland waters covered some 430 million hectares globally, or about 3 percent of the total.
- → Land cover information derived from remote sensing was highly consistent with land use information. It showed in 2018 a range of 13.2–13.5 billion hectares of total land area, of which 1.2–1.9 billion hectares were herbaceous and woody crops; 3.2–3.5 billion hectares were grasslands and shrubland; 4.4–5.0 billion hectares were tree cover; and 382–480 million hectares were inland water bodies.
- → Artificial surfaces (including urban areas) covered less than 0.5 percent of the global land, though they had more than doubled since 1990.

FAOSTAT LAND STATISTICS

INTRODUCTION

The land surface comprises the relevant biophysical features of its living and non-living components, including natural and managed ecosystems such as cropland and forests, urban areas, etc. Land cover statistics codify the visible features of these components into simplified classes, such as grassland, shrubs, tree cover, etc. Land use statistics, in the other hand, seek to describe the use of those same components for human benefits, for instance activities for crop and livestock production, nature conservation, infrastructure development. Both land cover and land use statistics

are central in understanding key local, regional and planetary trends, including agricultural and forest landscapes, to reveal changes such as conversion of land to or from agriculture, deforestation, cropland management, etc. In this perspective, land cover information often serves as a proxy for land use information.

The FAOSTAT Land Use statistics and associated land indicators provide information on the full land use matrix by country, including agricultural land (1961–2018) and forest land (1990–2018). These statistics are based on data collected annually from countries via a standard Land Use, Irrigation and Agricultural Practices questionnaire. Forest land statistics in the dataset are collected separately from countries through the FAO Global Forest Resources Assessment (FRA, 2020). The FAOSTAT Land Cover statistics are conversely produced by FAO, based on its Land Cover Classification System (FAO-LCCS) (De Gregorio, 2015). Information is derived from remote sensing products generated independently by specialized Agencies, currently NASA (MODIS land cover) and the European Copernicus Climate Change service (CCI land cover).

FAO land use and land cover classifications are international statistical standards for environmental statistics and the system of environmental-economic accounting (e.g., FAO and UN 2020). Additionally, the FAO land use classification is consistent with the land use classes of the Intergovernmental Panel on Climate Change (IPCC), used by countries for reporting to the United Nations Framework Convention on Climate Change (UNFCCC).

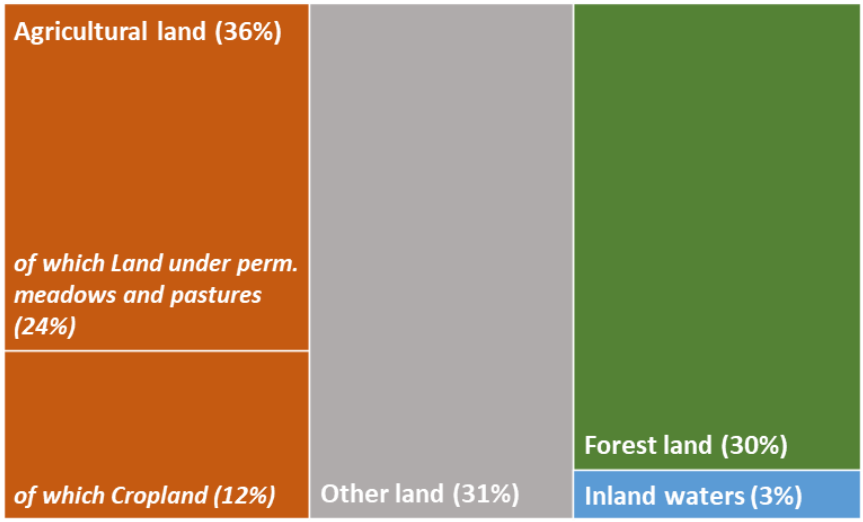
This report is composed of two sections. Firstly, it provides an overview of the main results and changes over time in land use statistics with a focus on agricultural land uses, and with details at global, regional and country level. Additional information is provided in the first section on important irrigation and agricultural practices also collected via the above-mentioned FAO questionnaire. Secondly, it presents some of the results from the land cover dataset also at global, regional and country level and compares them to land use statistics, thus giving for the first time a joint view of land statistics in FAOSTAT.

LAND USE STATISTICS

GLOBAL HIGHLIGHTS

In 2018, the total world land area excluding Antarctica plus the inland waters were about 13.5 billion hectares (ha).Overall, three land uses: Agricultural land, Forest land and Other land occupy about one third each of the total (Figure 1), although the largest share was used for agriculture. In 2018, agricultural land was about 4.8 billion ha; the forest land was 4.1 billion ha; and other land was 4.2 billion ha. In turn, about one-third of the total agricultural land was used for cropland (1.6 billion hectars (ha) and 12 percent of the total) whereas two-thirds were permanent meadows and pastures, covering 3.2 billion ha and nearly one fourth of the global land.

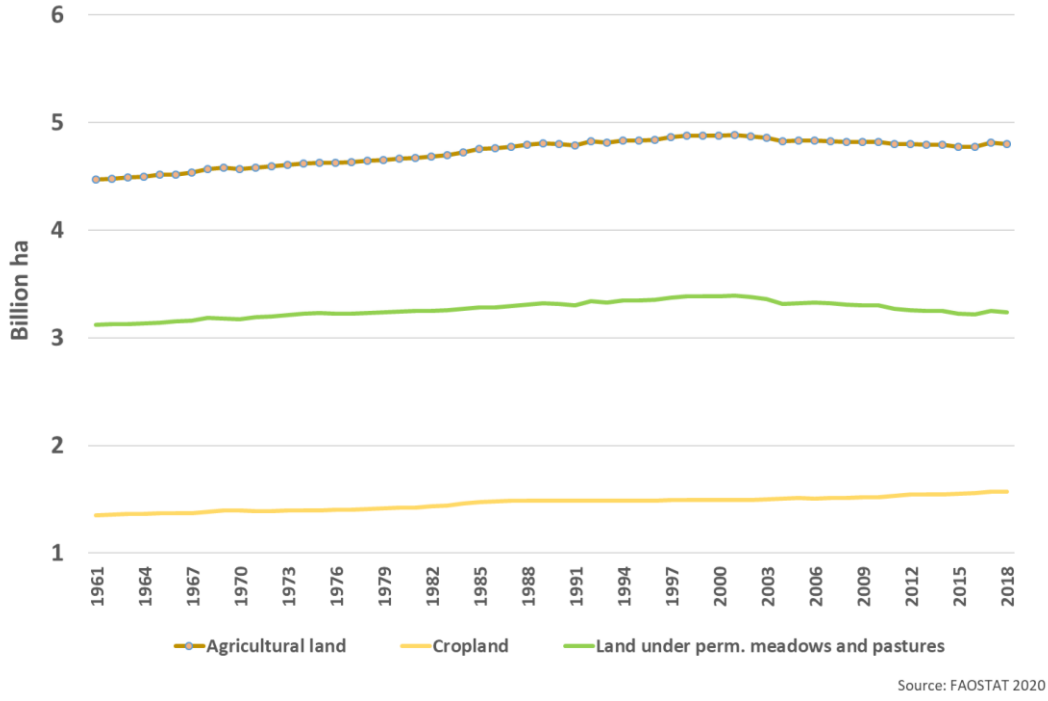
Figure 1. Global land composition in 2018.



Source: FAOSTAT, 2020

Since the beginning of the historical data, agricultural land increased overall by 7 percent but remained virtually stable since 1990. Over the period 1990–2018, cropland and land used for pastures showed opposite trends. The former increased by 5 percent (about 0.2 percent per year) whereas the latter decreased by 2 percent (on average by 0.1 percent per year) (Figure 2).

Figure 2c. Trends in the global Agricultural land and its components (Cropland and Land under permanent meadows and pastures), 1961–2018.



In 2018, the area under permanent (tree and shrub) crops—an important subcomponent of cropland—covered about 170 million ha. This land use category showed a significant increase in extent over the period 1990–2018 (+50 percent increase). Conversely, the entire cropland (dominated by much larger areas of annual/temporary crops) did not vary significantly over the period 1990–2018.

Forest land

The global forest land was about 4.1 billion ha in 2018. It declined by almost 4 percent since 1990. While main regional and global features of forest land statistics have been reported elsewhere (e.g., see FRA 2020 and the FAOSTAT forest emissions and removals), the second section of this report will focus on the comparison with relevant land cover information.

Inland Waters and Other Land

Averaged over the period 1900–2018, the global annual extent of inland waters was 430 million hectares, close to 3 percent of the total land area.

Other land was about one third of the global land area and on average 4 billion ha over the period 1990–2018. This category includes the land used for purposes other than agriculture or forestry (e.g. urban zones, barren areas).

Irrigation and Agricultural Practices

In 2018, land area equipped for irrigation covered about 340 million ha, or nearly 22 percent of total cropland area. It increased by 30 percent since 1990.

In 2018, agricultural area under organic agriculture surpassed 71 million ha worldwide, more than tripled its value of 22 million ha recorded in 2004, the first year for which these statistics were available. In 2018, the amount of agricultural area under organic practices was 1.5 percent of the total (4 percent of total cropland area). It is of interest to note that several countries and the European Union report these statistics as a proxy for their national share of sustainable and productive agriculture, including under the Sustainable Development Goal (SDG) 2.4.1.

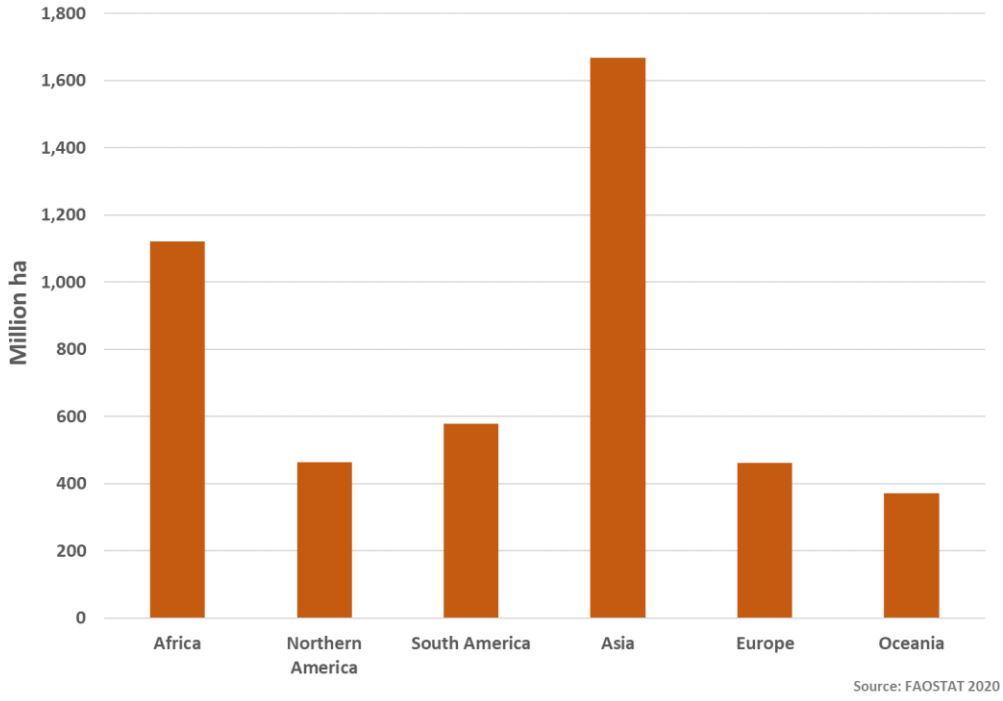
REGIONAL

With nearly 1.7 billion hectares, Asia was the region with the largest area of agricultural land. Africa and South America followed with about 1.1 billion ha and nearly 700 million ha respectively. North America and Europe had similar extent, about 460 million ha each and Oceania had the smallest area (370 million ha) (Figure 3).

The regional distribution of the agricultural land is mostly driven by the distribution of the land used for pastures. In this respect, the regions with the largest area under permanent meadows and pastures were Asia, with 1 080 million ha and Africa, with 840 million ha. These two regions represented together more than 50 percent of the world total pastures. They were followed by South America, with 440 million ha and Oceania, with 340 million ha. North America and Europe were the two regions with the smallest extent of pastures, with 270 and 170 million ha respectively.

Asia however also had the largest extent of cropland, with nearly 700 million hectares. Africa and Europe followed with 370 and 340 million ha each. The area of cropland was about 230 million ha in South America and nearly 200 million ha in North America. Oceania, at 50 million ha, had the smallest extent.

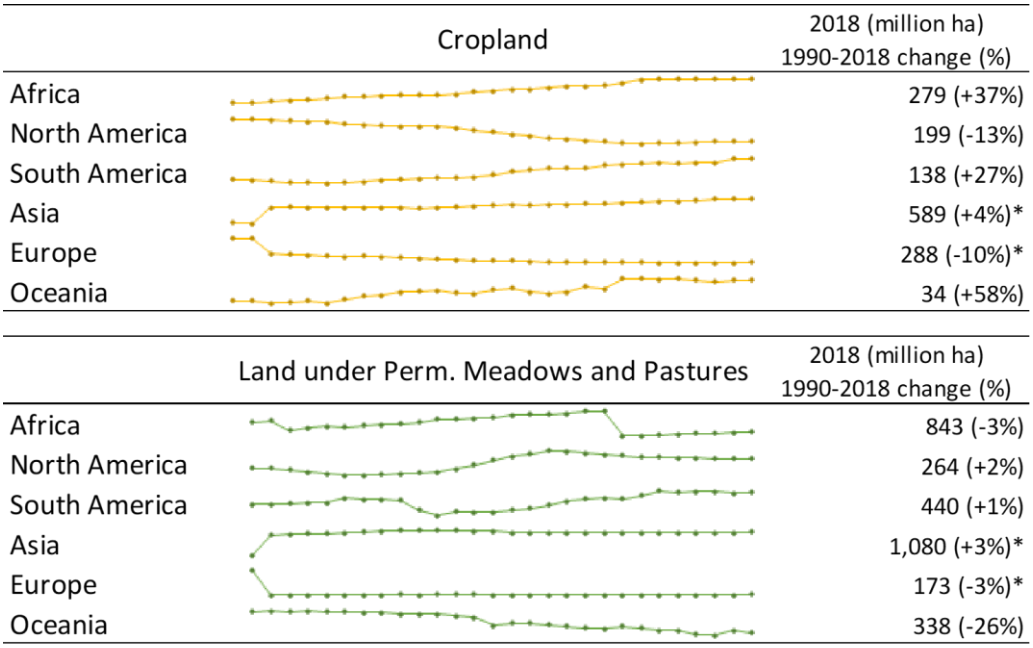
Figure 3. Regional distribution of Agricultural land (composed of Cropland and Land under Permanent Meadows and Pastures), in 2018.



Over 1990–2018, regional trends varied in both size and direction for cropland and land under permanent meadows and pastures (Figure 4)[1]. For cropland, Oceania and Africa recorded the largest expansion (+58 and +37 percent respectively), followed by South America (+27 percent) and then Asia (+4 percent). In the same decades, North America and Europe marked instead important reduction in their cropland (-13 and -10 percent respectively). Relative changes were less important for pastures, with the exception of Oceania where there was a reduction of -26 percent since 1990. Asia and the Americas both increased by 3 percent their land under pastures whereas a similar change with opposite direction was observed in Africa and Europe.

[1] FAOSTAT regional aggregate for Europe includes the Russian Federation whereas most of the other countries generated from the split of the former Soviet Union are included in Asia. For this reason, the change for Asia and Europe are calculated since the split, for the period 1992–2018.

Figure 4. Regional trends in the components of Agricultural land, Cropland and Permanent meadows and pastures, 1990–2018.



*Change in Europe and Asia is calculated for the period 1992-2018, to account for the split of the Soviet Union.

Source: FAOSTAT, 2020

Irrigation and Agricultural Practices

In 2018, Asia, with 240 million hectares, had more than two-thirds of all land equipped for irrigation in the world. The Americas were a distant second, with over 50 million ha. Asia was also the region with the highest relative share of land equipped for irrigation to total cropland area (40 percent), followed by the Americas (14 percent), Europe (9 percent), Oceania (8 percent) and Africa (nearly 6 percent).

In 2018, agricultural area under organic agriculture surpassed 71 million ha worldwide, more than tripled its value of 22 million ha recorded in 2004, the first year for which these statistics were available. In 2018, the amount of agricultural area under organic practices was 1.5 percent of the total (and 4 percent of total cropland area).

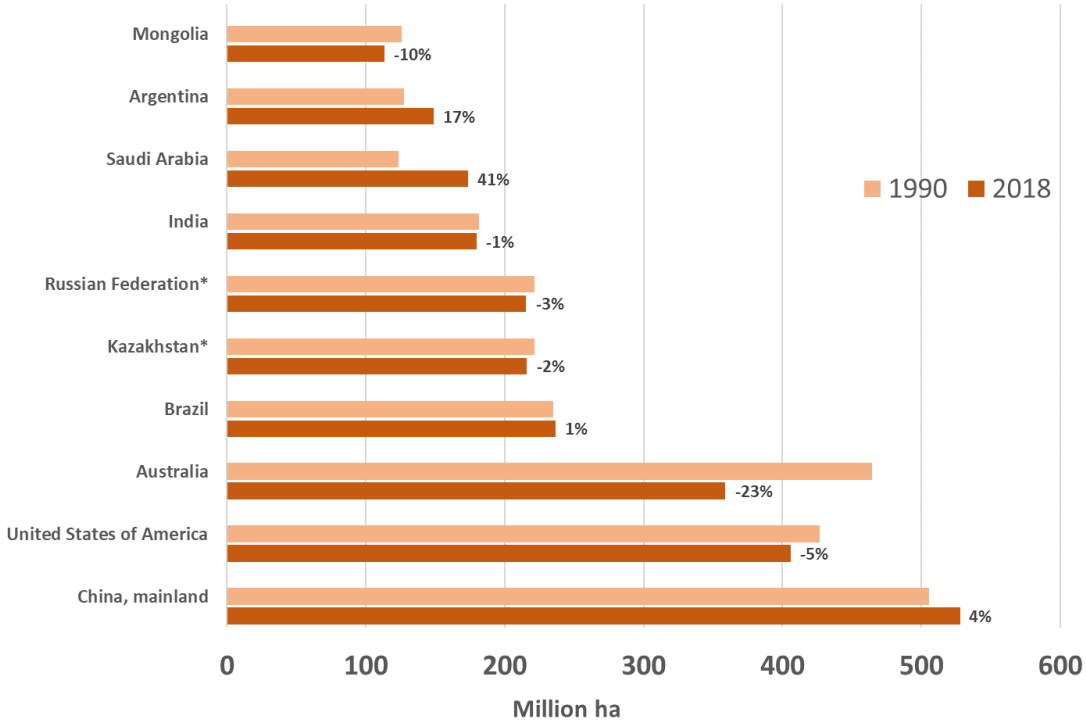
COUNTRY

In 2018, China, mainland had the largest total agricultural land, with nearly 530 million hectares, followed by the United States of America (USA) (405 million ha); Australia (360 million ha) Brazil (240 million ha) and Kazakhstan and Russian Federation (both at about 215 million ha).

Over the period 1990–2018, the top ten countries by the extent of agricultural land showed diverse trends (Figure 5). Argentina and Saudi Arabia were the countries with highest relative growth in

agricultural land since 1990. In the first country, the increase was mainly driven by the growth in cropland area, whereas in Saudi Arabia, it was the land under permanent meadows and pasture that grew the most. Since the early 1990s, the Russian Federation and the USA recorded similar reductions in their agricultural land, which was due in both cases to decline in cropland extent. Over the past decades, the total agricultural land grew by 4 percent in China, mainland due the combined increase in cropland and land under pastures. Finally in Australia, although the cropland area increased by over 80 percent, the concomitant reduction of 26 percent in the land of permanent meadows and pastures, shaped an overall 23 percent decline in the agricultural land over the period 1990–2018.

Figure 5. Top ten countries by the extent in agricultural land area and change, 1990–2018.



* For the Russian Federation and Kazakhstan, 1992 data

Source: FAOSTAT 2020