

ECOSYSTEM ACCOUNTING @ STATISTICS CANADA 2015: WORK IN PROGRESS

No one country has developed a complete, or even partial, set of ecosystem asset or ecosystem service accounts. Guidelines, concepts and classification systems are still being developed, data are still being figured out, inter-departmental collaboration are being worked out, and much of the work remains experimental in nature. However, progress is being made, and Statistics Canada is happy to contribute.

StatCan released a study on experimental ecosystem accounting back in 2013 (<http://www.statcan.gc.ca/pub/16-201-x/16-201-x2013000-eng.htm>). This study included an experimental land cover change matrix (<http://www.statcan.gc.ca/pub/16-201-x/2013000/t002-eng.htm>). The release of these data, along with the formal adoption of Framework for Environmental Statistics based on natural capital, led our group to receive permanent funding to produce land cover / land use data annually, with the ultimate goal of producing a complete annual change matrix as official statistics.

While working towards our goal of producing these data non-experimentally, we have been producing data progressively, and, last November, we released official results in the 2014 edition of Human Activity and the Environment, with a focus on agricultural lands (<http://www.statcan.gc.ca/pub/16-201-x/16-201-x2014000-eng.htm>). This included data derived from the whole suite of asset accounts presented in SEEA EEA White Cover.

1. The ecosystem extent account : HAE 2014 contains data on the extent of agricultural land by ecological areas (<http://www.statcan.gc.ca/pub/16-201-x/2014000/ct002-eng.htm>);
2. The ecosystem condition account : we derived and discussed contextual variables describing some aspect of the condition of the land, but we have many more on the way (<http://www.statcan.gc.ca/pub/16-201-x/2014000/part-partie2-eng.htm>);
3. The ecosystem services generation account : we compiled a number of agricultural production statistics, but limiting ourselves to traditional agricultural production variables. We could extend the data to include all biomass, flood protection, recreational capacity, etc (e.g. <http://www.statcan.gc.ca/pub/16-201-x/2014000/ct003-eng.htm>) ;
4. The ecosystem Service Use Account presenting the local, regional and global beneficiaries of Canadian agriculture (<http://www.statcan.gc.ca/pub/16-201-x/2014000/part-partie4-eng.htm>). And finally, perhaps more interestingly;
5. The ecosystem capacity account measuring change in the extent and use of agricultural lands based on the capacity of the land to support production (i.e., 10 classes, from most to least dependable for agricultural production) (e.g. <http://www.statcan.gc.ca/pub/16-201-x/2014000/t003-eng.htm>)
6. The article was organised around our own version of the “cascade model” (<http://www.statcan.gc.ca/pub/16-201-x/2014000/i001-eng.htm>)
7. Our results were picked up by the media, and led to interesting policy discussions (e.g. <http://www.macleans.ca/news/canada/the-editorial-protecting-canadas-farmland-the-right-way/>)

What's next?

We are continuing to work on producing a complete set of land cover extent accounts. Our next target is to generate the data for all Canadian metropolitan areas and their surrounding ecosystem area. *Human Activity and the Environment 2015: The changing landscapes of Canadian metropolitan areas* will provide an analysis of land cover and land use change in and around Canada's 33 largest cities:

Changes in land cover and land use are among the greatest pressures affecting ecosystems. As urbanization progresses in Canada and elsewhere, so too does the interest in quantifying land cover and land use changes in and around cities, particularly from the perspective of urban expansion and densification. The expansion of built-up areas results in the loss of agricultural and natural land covers—cropland, grasslands, forests, wetlands are replaced by houses, apartment blocks, industrial parks, commercial strips, roads and parking lots. Densification may curb some of the pressure on agricultural and natural land, but is not without its own challenges including the loss of green space and other amenities within existing settlements.

The report applies a methodology using satellite data, population and agricultural statistics and other measures, as well as administrative data, to describe land cover and land use in and around Canada's 33 census metropolitan areas (CMAs), a first comprehensive analysis of this sort. It also contains related statistics and links to relevant social, economic and health data.

Other related data

Early in the new year, we will be updating some of the basic data relevant to these and other initiatives. For example:

TABLE 153-0035 [HTTP://WWW5.STATCAN.GC.CA/CANSIM/PICK-CHOISIR?LANG=ENG&P2=33&ID=1530035](http://www5.statcan.gc.ca/cansim/pick-choisir?lang=eng&p2=33&id=1530035)

The surface area of a country can be classified according to its physical characteristics (land cover) or according to the use of the area (land use). Land cover accounts describe the physical and biological characteristics of a given area according to various classifications of land cover. Remotely-sensed data (such as satellite imagery and aerial photography) and land surveys provide the source data for these accounts, which can be used in conjunction with both socio-economic or environmentally defined land areas.

TABLES 153-0036 AND 153-0057

[HTTP://WWW5.STATCAN.GC.CA/CANSIM/A26?LANG=ENG&RETRLANG=ENG&ID=1530036&&PATTERN=&STBYVAL=1&P1=1&P2=-1&TABMODE=DATATABLE&CSID=](http://www5.statcan.gc.ca/cansim/A26?lang=eng&retrlang=eng&id=1530036&&pattern=&stbyval=1&p1=1&p2=-1&tabmode=datatable&csid=)

[HTTP://WWW5.STATCAN.GC.CA/CANSIM/A26?LANG=ENG&RETRLANG=ENG&ID=1530037&&PATTERN=&STBYVAL=1&P1=1&P2=-1&TABMODE=DATATABLE&CSID=](http://www5.statcan.gc.ca/cansim/A26?lang=eng&retrlang=eng&id=1530037&&pattern=&stbyval=1&p1=1&p2=-1&tabmode=datatable&csid=)

Socio-economic data, which are generally collected according to administrative boundaries such as provinces, can be re-cast into environmentally defined geographies. Examples of environmentally defined areas include ecoregions, ecozones, and drainage areas. This type of data compilation allows for use of socio-economic data in conjunction with land cover and land use accounts that also use environmentally defined geographies.