Applications of Earth Observations to SDG Monitoring in Japan

13th Meeting of the IAEG- SDGs
Data innovations and initiatives for SDGs
9 November, 2022

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Earth Observations for SDG Monitoring

2030 Agenda for Sustainable Development

Follow up and review

76. We will support developing countries, particularly African countries, least developed countries, small island developing States and landlocked developing countries, in strengthening the capacity of national statistical offices and data systems to ensure access to high-quality, timely, reliable and disaggregated data. We will promote transparent and accountable scaling-up of appropriate public-private cooperation to exploit the contribution to be made by a wide range of data, including earth observation and geospatial information, while ensuring national ownership in supporting and tracking progress.

Statistics Japan

Public-Private Cooperation for the Use of Earth Observations

Master Plan Concerning the Development of Official Statistics (Cabinet Decision on 6 June, 2018)

“Industry-Government-Academia Partnership Meeting for Promotion of the Use of Big Data” (launched on 23 May, 2018)

- Share best practices and solutions to various issues related to the use of big data
- Promote mutual utilisation of the data among ministries, local governments, private companies, etc.

Working Group on Validation of Grid Square Moving Population (launched on 12 Nov. 2018)

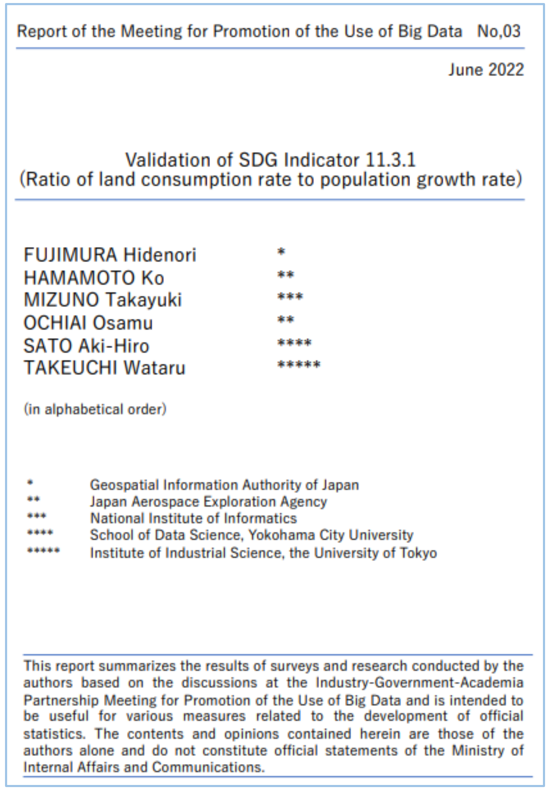
Working Group on Validation of Methods of Using Observation Data (launched on 30 Sep., 2020)

Monitoring Indicators Using Earth Observations (1)

11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries

11.3.1 Ratio of land consumption rate to population growth rate

▶ Publication of the Report of the WG



Report of the Meeting for Promotion of the Use of Big Data No,03

June 2022

Validation of SDG Indicator 11.3.1
(Ratio of land consumption rate to population growth rate)

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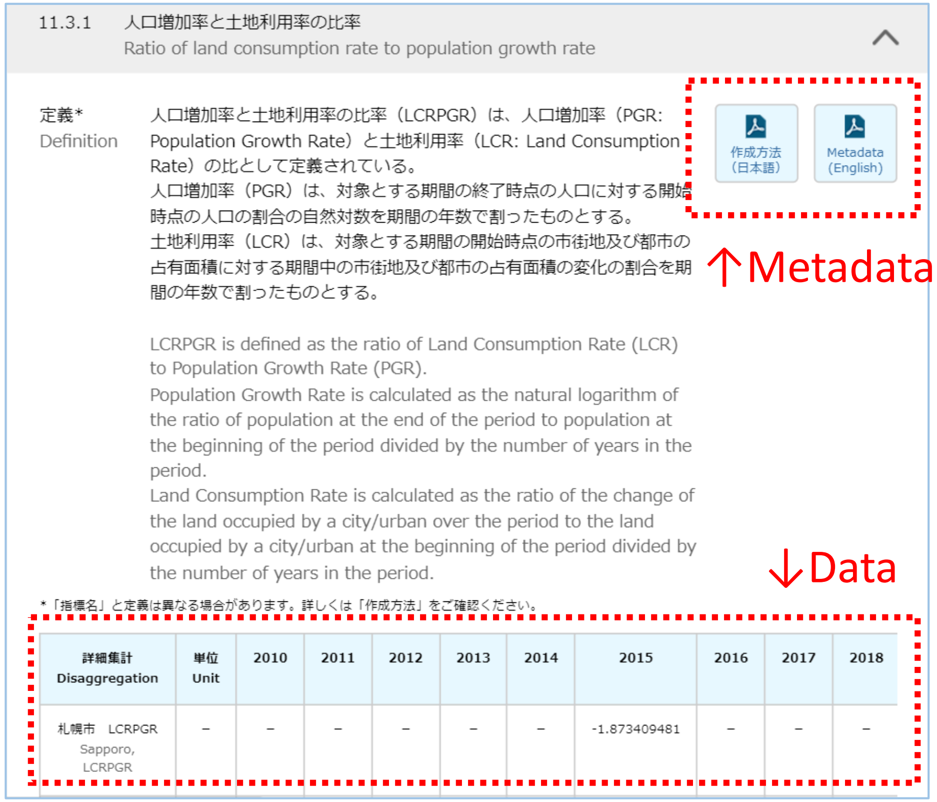
This report summarizes the results of surveys and research conducted by the authors based on the discussions at the Industry-Government-Academia Partnership Meeting for Promotion of the Use of Big Data and is intended to be useful for various measures related to the development of official statistics. The contents and opinions contained herein are those of the authors alone and do not constitute official statements of the Ministry of Internal Affairs and Communications.

▶ Dissemination of the Results



11.3.1 人口増加率と土地利用率の比率
Ratio of land consumption rate to population growth rate

定義*
Definition

人口増加率と土地利用率の比率（LCRPGR）は、人口増加率（PGR: Population Growth Rate）と土地利用率（LCR: Land Consumption Rate）の比として定義されている。
人口増加率（PGR）は、対象とする期間の終了時点の人口に対する開始時点の人口の割合の自然対数を期間の年数で割ったものとする。
土地利用率（LCR）は、対象とする期間の開始時点の市街地及び都市の占有面積に対する期間中の市街地及び都市の占有面積の変化の割合を期間の年数で割ったものとする。

LCRPGR is defined as the ratio of Land Consumption Rate (LCR) to Population Growth Rate (PGR).
Population Growth Rate is calculated as the natural logarithm of the ratio of population at the end of the period to population at the beginning of the period divided by the number of years in the period.
Land Consumption Rate is calculated as the ratio of the change of the land occupied by a city/urban over the period to the land occupied by a city/urban at the beginning of the period divided by the number of years in the period.

↑Metadata

↓Data

*「指標名」と定義は異なる場合があります。詳しくは「作成方法」をご確認ください。

詳細集計 Disaggregation	単位 Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018
札幌市 LCRPGR Sapporo, LCRPGR	–	–	–	–	–	–	-1.873409481	–	–	–

Statistics Japan

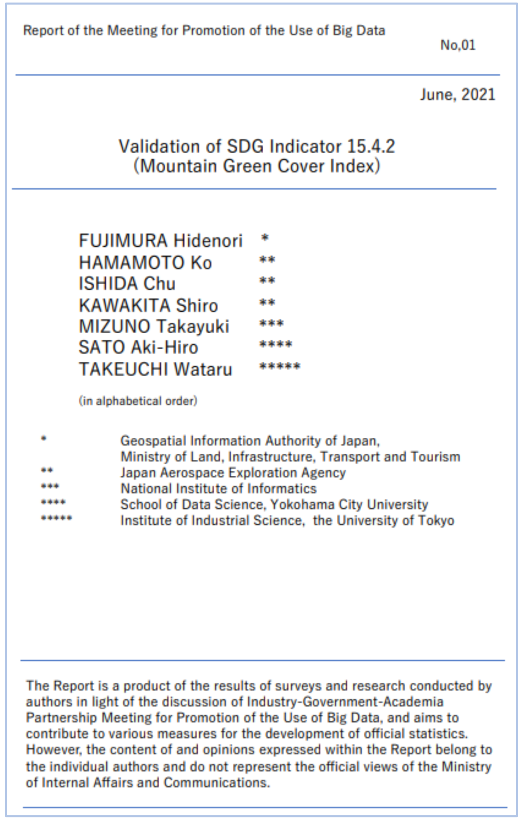
15 LIFE ON LAND

Monitoring Indicators Using Earth Observations (2)

15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development

15.4.2 Mountain Green Cover Index

▶ Publication of the Report of the WG



Report of the Meeting for Promotion of the Use of Big Data
No,01

June, 2021

Validation of SDG Indicator 15.4.2
(Mountain Green Cover Index)

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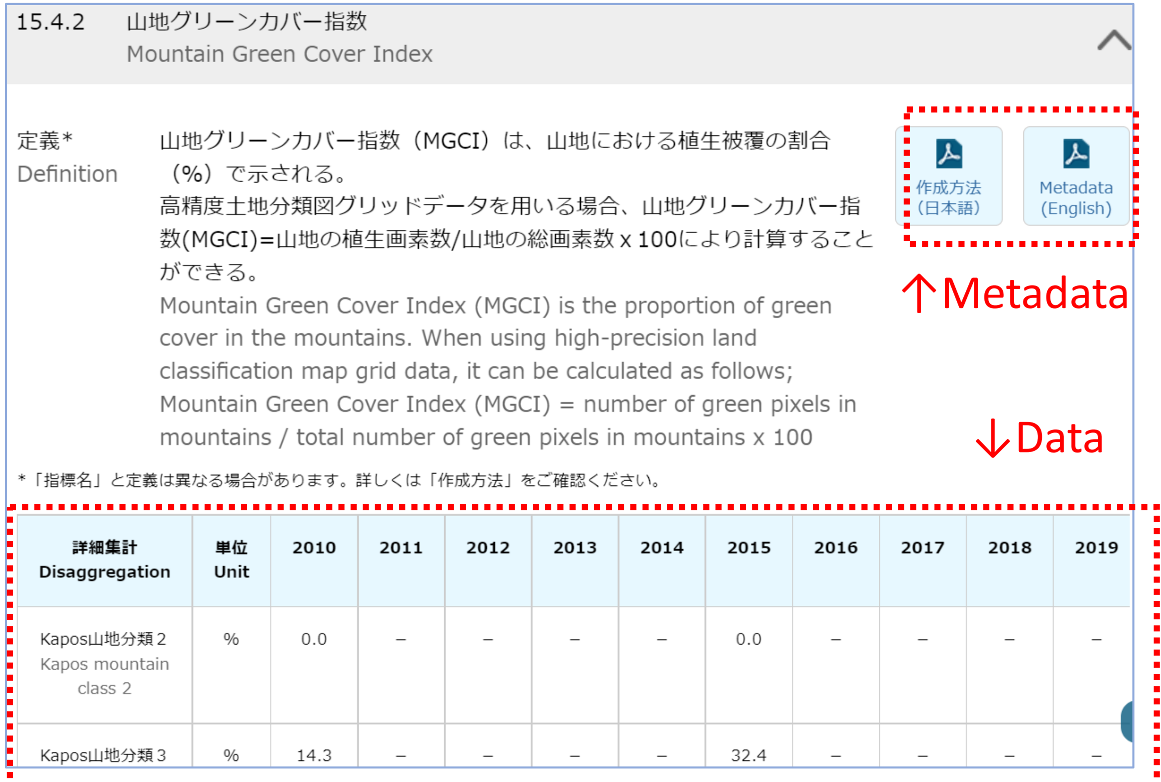
The Report is a product of the results of surveys and research conducted by authors in light of the discussion of Industry-Government-Academia Partnership Meeting for Promotion of the Use of Big Data, and aims to contribute to various measures for the development of official statistics. However, the content of and opinions expressed within the Report belong to the individual authors and do not represent the official views of the Ministry of Internal Affairs and Communications.

▶ Dissemination of the Results



15.4.2 山地グリーンカバー指数
Mountain Green Cover Index

定義*
Definition

山地グリーンカバー指数（MGCI）は、山地における植生被覆の割合（%）で示される。
高精度土地分類図グリッドデータを用いる場合、山地グリーンカバー指数(MGCI)=山地の植生画素数/山地の総画素数 x 100により計算することができる。
Mountain Green Cover Index (MGCI) is the proportion of green cover in the mountains. When using high-precision land classification map grid data, it can be calculated as follows;
Mountain Green Cover Index (MGCI) = number of green pixels in mountains / total number of green pixels in mountains x 100

↑Metadata

↓Data

* 「指標名」と定義は異なる場合があります。詳しくは「作成方法」をご確認ください。

詳細集計 Disaggregation	単位 Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Kapos山地分類 2 Kapos mountain class 2	%	0.0	–	–	–	–	0.0	–	–	–	–
Kapos山地分類 3	%	14.3	–	–	–	–	32.4	–	–	–	–

Application of Earth Observations for SDG Monitoring

Industry-Government-Academia Partnership Meeting for Promotion of the Use of Big Data
“Directions for Further Use of Big Data toward Policy Improvements” (2 June, 2022)

Keys to promoting the use of big data

(1) Conduct experimental estimation using big data and share the results for validation and improvement via feedback
(2) Extend the use of big data such as earth observations that are already used for some official statistics
(3) Make use of outsiders’ opinions, agile development, and a needs-driven approach
(4) Use the partnership to enhance collaboration between industry, government, and academia

Reference

- **Industry-Government-Academia Partnership Meeting for Promotion of the Use of Big Data**

  https://www.soumu.go.jp/main_sosiki/kenkyu/big_data/index.html (Only in Japanese)

- **Validation of SDG Indicator 11.3.1 (Ratio of land consumption rate to population growth rate)**

  https://www.soumu.go.jp/main_content/000837974.pdf

- **Validation of SDG Indicator 15.4.2 (Mountain Green Cover Index)**

  https://www.soumu.go.jp/main_content/000763968.pdf

- **Japan SDGs Action Platform, SDGs Indicators**

  https://www.mofa.go.jp/mofaj/gaiko/oda/sdgs/statistics/index.html