

**Table S1.** Social indicators classified by Andries et al. [1].

Number	SDG indicator
1.1.1.	Proportion of the population living below the international poverty line by sex, age, employment status and geographic location (urban/rural)
1.2.1.	Proportion of population living below the national poverty line, by sex and age
1.2.2.	Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions
1.3.1.	Proportion of population covered by social protection floors/systems, by sex, distinguishing children, unemployed persons, older persons, persons with disabilities, pregnant women, newborns, work-injury victims, and the poor and the vulnerable
1.4.1.	Proportion of population living in households with access to basic services
1.4.2.	Proportion of total adult population with secure tenure rights to land, (a) with legally recognized documentation, and (b) who perceive their rights to land as secure, by sex and type of tenure;
1.a.1.	Total official development assistance grants from all donors that focus on poverty reduction as a share of the recipient country's gross national income
1.a.2.	Proportion of total government spending on essential services (education, health and social protection)
1.b.1	Pro-poor public social spending
10.6.1.	Proportion of members and voting rights of developing countries in international organizations
10.7.2.	Number of countries with migration policies that facilitate orderly, safe, regular and responsible migration and mobility of people
10.7.3	Number of people who died or disappeared in the process of migration towards an international destination
10.7.4	Proportion of the population who are refugees, by country of origin
16.1.1.	Number of victims of intentional homicide per 100,000 population, by sex and age
16.1.2.	Conflict-related deaths per 100,000 population, by sex, age and cause
16.1.3.	Proportion of population subjected to (a) physical violence, (b) psychological violence and (c) sexual violence in the previous 12 months
16.1.4.	Proportion of population that feel safe walking alone around the area they live
16.2.1.	Proportion of children aged 1–17 years who experienced any physical punishment and/or psychological aggression by caregivers in the past month
16.2.2.	Number of victims of human trafficking per 100,000 population, by sex, age and form of exploitation
16.2.3.	Proportion of young women and men aged 18–29 years who experienced sexual violence by age 18
16.3.1.	Proportion of victims of violence in the previous 12 months who reported their victimization to competent authorities or other officially recognized conflict resolution mechanisms
16.3.2.	Unsented detainees as a proportion of the overall prison population
16.3.3.	Proportion of the population who have experienced a dispute in the past two years and who accessed a formal or informal dispute resolution mechanism, by type of mechanism
16.4.2.	Proportion of seized, found or surrendered arms whose illicit origin or context has been traced or established by a competent authority in line with international instruments
16.5.1.	Proportion of persons who had at least one contact with a public official and who paid a bribe to a public official, or were asked for a bribe by those public officials, during the previous 12 months

16.5.2.	Proportion of businesses that had at least one contact with a public official and that paid a bribe to a public official, or were asked for a bribe by those public officials during the previous 12 months
16.6.2.	Proportion of population satisfied with their last experience of public services
16.7.1.	Proportions of positions in national and local institutions, including (a) the legislatures; (b) the public service; and (c) the judiciary, compared to national distributions, by sex, age, persons with disabilities and population groups
16.7.2.	Proportion of population who believe decision-making is inclusive and responsive, by sex, age, disability and population group
16.8.1.	Proportion of members and voting rights of developing countries in international organizations
16.9.1.	Proportion of children under 5 years of age whose births have been registered with a civil authority, by age
16.10.1.	Number of verified cases of killing, kidnapping, enforced disappearance, arbitrary detention and torture of journalists, associated media personnel, trade unionists and human rights advocates in the previous 12 months
2.1.1.	Prevalence of undernourishment
2.1.2.	Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)
2.2.1.	Prevalence of stunting (height for age <-2 standard deviation from the median of the World Health Organization (WHO) Child Growth Standards) among children under 5 years of age
2.2.2.	Prevalence of malnutrition (weight for height >+2 or <-2 standard deviation from the median of the WHO Child Growth Standards) among children under 5 years of age, by type (wasting and overweight)
2.2.3.	Prevalence of anaemia in women aged 15 to 49 years, by pregnancy status (percentage)
3.1.1.	Maternal mortality ratio
3.1.2.	Proportion of births attended by skilled health personnel
3.2.1.	Under-5 mortality rate
3.2.2.	Neonatal mortality rate
3.3.1.	Number of new HIV infections per 1,000 uninfected population, by sex, age, and key populations
3.3.2.	Tuberculosis incidence per 100,000 population
3.3.3.	Malaria incidence per 1,000 population
3.3.4.	Hepatitis B incidence per 100,000 population
3.3.5.	Number of people requiring interventions against neglected tropical diseases
3.4.1.	Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease
3.4.2.	Suicide mortality rate
3.5.1.	Coverage of treatment interventions (pharmacological, psychosocial and rehabilitation and aftercare services) for substance use disorders
3.5.2.	Alcohol per capita consumption (aged 15 years and older) within a calendar year in litres of pure alcohol
3.6.1.	Death rate due to road traffic injuries
3.7.1.	Proportion of women of reproductive age (aged 15–49 years) who have their need for family planning satisfied with modern methods
3.7.2.	Adolescent birth rate (aged 10–14 years; aged 15–19 years) per 1,000 women in that age group
3.8.1.	Coverage of essential health services
3.8.2.	Proportion of population with large household expenditures on health as a share of total household expenditure or income
3.9.1.	Mortality rate attributed to household and ambient air pollution
3.9.2.	Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)

3.9.3.	Mortality rate attributed to unintentional poisoning
3.a.1.	Age-standardized prevalence of current tobacco use among persons aged 15 years and older
3.b.1	Proportion of the target population covered by all vaccines included in their national programme
3.b.2.	Total net official development assistance to medical research and basic health sectors
3.b.3.	Proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis
3.c.1.	Health worker density and distribution
3.d.1.	International Health Regulations (IHR) capacity and health emergency preparedness
3.d.2.	Percentage of bloodstream infections due to selected antimicrobial-resistant organisms
4.1.1.	Proportion of children and young people (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex
4.1.2	Completion rate (primary education, lower secondary education, upper secondary education)
4.2.1	Proportion of children aged 24–59 months who are developmentally on track in health, learning and psychosocial well-being, by sex
4.2.2.	Participation rate in organized learning (one year before the official primary entry age), by sex
4.3.1.	Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex
4.4.1.	Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill
4.5.1.	Parity indices (female/male, rural/urban, bottom/top wealth quintile, and others such as disability status, indigenous peoples and conflict-affected, as data become available) for all education indicators on this list that can be disaggregated
4.6.1	Proportion of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex
4.7.1.	Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment
4.a.1.	Proportion of schools offering basic services, by type of service
4.b.1	Volume of official development assistance flows for scholarships by sector and type of study
4.c.1.	Proportion of teachers with the minimum required qualifications, by education level
5.1.1	Whether or not legal frameworks are in place to promote, enforce and monitor equality and non-discrimination on the basis of sex
5.2.1.	Proportion of ever-partnered women and girls aged 15 years and older subjected to physical, sexual, or psychological violence by a current or former intimate partner in the previous 12 months, by form of violence and by age
5.2.2.	Proportion of women and girls aged 15 years and older subjected to sexual violence by persons other than an intimate partner in the previous 12 months, by age and place of occurrence
5.3.1.	Proportion of women aged 20–24 years who were married or in a union before age 15 and before age 18
5.3.2.	Proportion of girls and women aged 15–49 years who have undergone female genital mutilation/cutting, by age
5.4.1.	Proportion of time spent on unpaid domestic and care work, by sex, age and location
5.5.1.	Proportion of seats held by women in (a) national parliaments and (b) local governments
5.5.2.	Proportion of women in managerial positions
5.6.1.	Proportion of women aged 15–49 years who make their own informed decisions regarding sexual relations, contraceptive use and reproductive health care

5.6.2.	Number of countries with laws and regulations that guarantee full and equal access to women and men aged 15 years and older to sexual and reproductive health care, information, and education
5.a.1.	(a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure
5.a.2.	Proportion of countries where the legal framework (including customary law) guarantees women's equal rights to land ownership and/or control
5.b.1.	Proportion of individuals who own a mobile telephone, by sex
5.c.1.	Proportion of countries with systems to track and make public allocations for gender equality and women's empowerment
7.1.1.	Proportion of population with access to electricity
8.8.1.	Fatal and non-fatal occupational injuries per 100,000 workers, by sex and migrant status
8.8.2.	Level of national compliance with labour rights (freedom of association and collective bargaining) based on International Labour Organization (ILO) textual sources and national legislation, by sex and migrant status

**Table S2.** Socio—economic SDG indicators classified by Andries et al. [1]

Number	SDG indicator
1.5.1.	Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population
1.5.3.	Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030
1.5.4.	Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies
10.2.1.	Proportion of people living below 50 per cent of median income, by sex, age and persons with disabilities
10.3.1.	Proportion of population reporting having personally felt discriminated against or harassed in the previous 12 months on the basis of a ground of discrimination prohibited under international human rights law
10.4.1.	Labour share of GDP
10.5.1.	Financial Soundness Indicators
10.7.1.	Recruitment cost borne by employee as a proportion of monthly income earned in country of destination
10.a.1.	Proportion of tariff lines applied to imports from least developed countries and developing countries with zero-tariff
10.b.1.	Total resource flows for development, by recipient and donor countries and type of flow (e.g. official development assistance, foreign direct investment and other flows)
10.c.1.	Remittance costs as a proportion of the amount remitted
11.1.1.	Proportion of urban population living in slums, informal settlements or inadequate housing
11.2.1.	Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities
11.3.1.	Ratio of land consumption rate to population growth rate
11.3.2.	Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically

11.4.1.	Total per capita expenditure on the preservation, protection and conservation of all cultural and natural heritage, by source of funding (public, private), type of heritage (cultural, natural) and level of government (national, regional, and local/municipal)
11.5.1.	Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population
11.5.2	Direct economic loss in relation to global GDP, damage to critical infrastructure and number of disruptions to basic services, attributed to disasters
11.6.1.	Proportion of municipal solid waste collected and managed in controlled facilities out of total municipal waste generated, by cities
11.7.2.	Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous 12 months
11.a.1	Number of countries that have national urban policies or regional development plans that (a) respond to population dynamics; (b) ensure balanced territorial development; and (c) increase local fiscal space
11.b.1.	Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030
11.b.2	Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies
12.1.1.	Number of countries developing, adopting or implementing policy instruments aimed at supporting the shift to sustainable consumption and production
12.3.1.	(a) Food loss index and (b) food waste index
12.7.1.	Degree of sustainable public procurement policies and action plan implementation
12.8.1.	Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment
12.c.1.	Amount of fossil-fuel subsidies (production and consumption) per unit of GDP
16.4.1.	16.4.1 Total value of inward and outward illicit financial flows (in current United States dollars)
16.6.1.	Primary government expenditures as a proportion of original approved budget, by sector (or by budget codes or similar)
16.b.1.	Proportion of population reporting having personally felt discriminated against or harassed in the previous 12 months on the basis of a ground of discrimination prohibited under international human rights law
17.8.1.	Proportion of individuals using the Internet
17.18.2.	Number of countries that have national statistical legislation that complies with the Fundamental Principles of Official Statistics
17.18.3.	Number of countries with a national statistical plan that is fully funded and under implementation, by source of funding
17.19.2.	Proportion of countries that (a) have conducted at least one population and housing census in the last 10 years; and (b) have achieved 100 per cent birth registration and 80 per cent death registration
2.3.1.	Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size
2.3.2.	Average income of small-scale food producers, by sex and indigenous status
2.4.1.	Proportion of agricultural area under productive and sustainable agriculture
2.5.1.	Number of (a) plant and (b) animal genetic resources for food and agriculture secured in either medium- or long-term conservation facilities
2.a.1.	The agriculture orientation index for government expenditures

6.a.1.	Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan
6.b.1.	Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management
7.3.1.	Energy intensity measured in terms of primary energy and GDP
7.a.1.	International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems
7.b.1.	Installed renewable energy-generating capacity in developing countries (in watts per capita)
8.3.1.	Proportion of informal employment in total employment, by sector and sex
8.5.1.	Average hourly earnings of employees, by sex, age, occupation and persons with disabilities
8.5.2.	Unemployment rate, by sex, age and persons with disabilities
8.6.1.	Proportion of youth (aged 15–24 years) not in education, employment or training
8.7.1.	Proportion and number of children aged 5–17 years engaged in child labour, by sex and age
8.9.1.	Tourism direct GDP as a proportion of total GDP and in growth rate
8.10.1.	(a) Number of commercial bank branches per 100,000 adults and (b) number of automated teller machines (ATMs) per 100,000 adults
8.10.2.	Proportion of adults (15 years and older) with an account at a bank or other financial institution or with a mobile-money-service provider
8.a.1.	Aid for Trade commitments and disbursements
8.b.1.	Existence of a developed and operationalized national strategy for youth employment, as a distinct strategy or as part of a national employment strategy
9.1.1.	Proportion of the rural population who live within 2 km of an all-season road
9.1.2.	Passenger and freight volumes, by mode of transport
9.2.1.	Manufacturing value added as a proportion of GDP and per capita
9.2.2.	Manufacturing employment as a proportion of total employment
9.3.1.	Proportion of small-scale industries in total industry value added
9.3.2.	Proportion of small-scale industries with a loan or line of credit
9.5.1.	Research and development expenditure as a proportion of GDP
9.5.2.	Researchers (in full-time equivalent) per million inhabitants
9.a.1.	Total official international support (official development assistance plus other official flows) to infrastructure
9.b.1.	Proportion of medium and high-tech industry value added in total value added
9.c.1.	Proportion of population covered by a mobile network, by technology

**Table S3.** Socio-environmental SDG indicators classified by Andries et al. [1]

Number	SDG indicator
11.6.2.	Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)
11.7.1.	Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities
12.2.1.	Material footprint, material footprint per capita, and material footprint per GDP
12.2.2.	Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP

12.4.1.	Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement
12.4.2.	(a) Hazardous waste generated per capita; and (b) proportion of hazardous waste treated, by type of treatment
12.5.1.	National recycling rate, tons of material recycled
12.6.1.	Number of companies publishing sustainability reports
12.a.1	Installed renewable energy-generating capacity in developing countries (in watts per capita)
12.b.1.	Implementation of standard accounting tools to monitor the economic and environmental aspects of tourism sustainability
13.1.1.	Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population
13.1.2.	13.1.2 Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030
13.1.3.	Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies
13.2.1.	Number of countries with nationally determined contributions, long-term strategies, national adaptation plans and adaptation communications, as reported to the secretariat of the United Nations Framework Convention on Climate Change
13.3.1.	Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment
13.a.1.	Amounts provided and mobilized in United States dollars per year in relation to the continued existing collective mobilization goal of the \$100 billion commitment through to 2025
13.b.1.	Number of least developed countries and small island developing States with nationally determined contributions, long-term strategies, national adaptation plans and adaptation communications, as reported to the secretariat of the United Nations Framework Convention on Climate Change
14.7.1.	Sustainable fisheries as a proportion of GDP in small island developing States, least developed countries and all countries
14.a.1.	Proportion of total research budget allocated to research in the field of marine technology
14.b.1.	Degree of application of a legal/regulatory/policy/institutional framework which recognizes and protects access rights for small-scale fisheries
14.c.1.	Number of countries making progress in ratifying, accepting and implementing through legal, policy and institutional frameworks, ocean-related instruments that implement international law, as reflected in the United Nations Convention on the Law of the Sea, for the conservation and sustainable use of the oceans and their resources
6.1.1.	Proportion of population using safely managed drinking water services
6.2.1.	Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water
6.3.1.	Proportion of domestic and industrial wastewater flows safely treated
6.5.2.	Proportion of transboundary basin area with an operational arrangement for water cooperation
7.1.2.	Proportion of population with primary reliance on clean fuels and technology
7.2.1.	Renewable energy share in the total final energy consumption
8.4.1.	Material footprint, material footprint per capita, and material footprint per GDP
8.4.2.	Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP
9.4.1.	CO2 emission per unit of value added

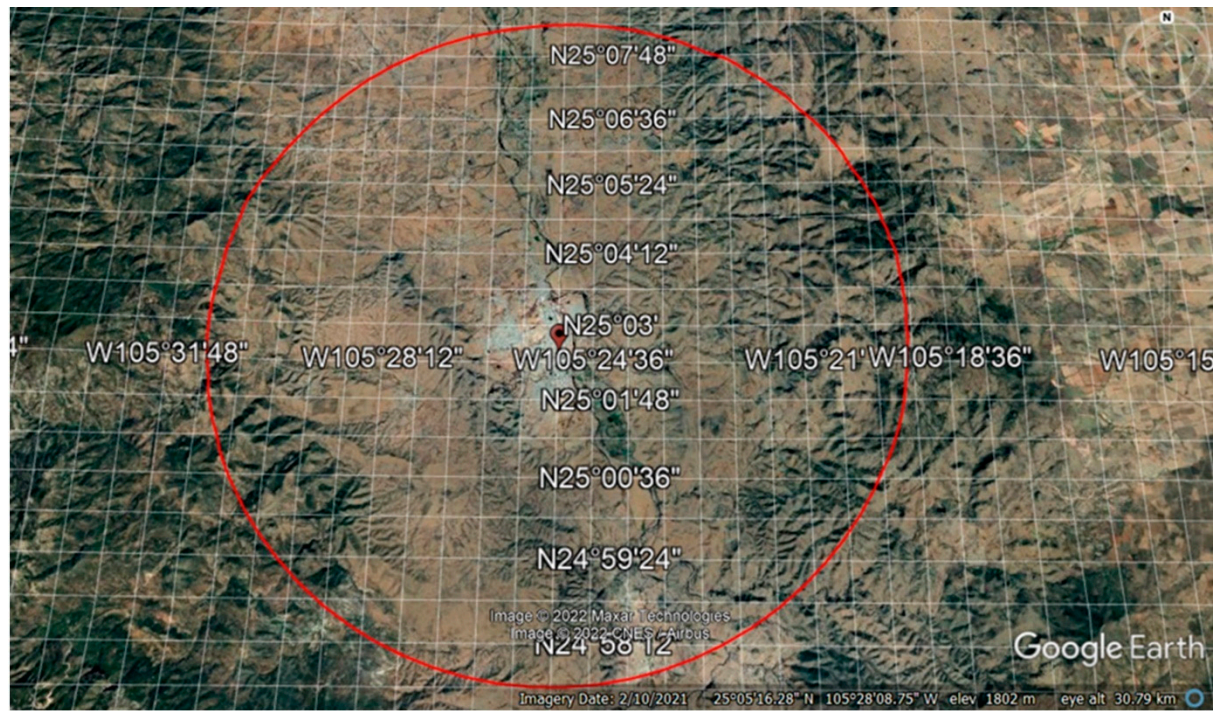
**Table S4.** Indicators used to calculate the Social Gap Index (SGI) in 2010 and 2020, Source: [2]

Main theme	Indicator (% of population)
Educational gap	Illiterate population aged 15 or over
	Population from 6 to 14 years old that does not attend school
	Population aged 15 and over with incomplete basic education
Access to health services	Population without the right to health services
Quality and space of the dwelling	Homes built on earthen floor
Access to basic services in the dwelling	Homes without toilet or sanitation facilities
	Homes without piped water from the public network
	Homes without drainage
	Homes without electricity
	Homes without washing machine
	Homes without refrigerator

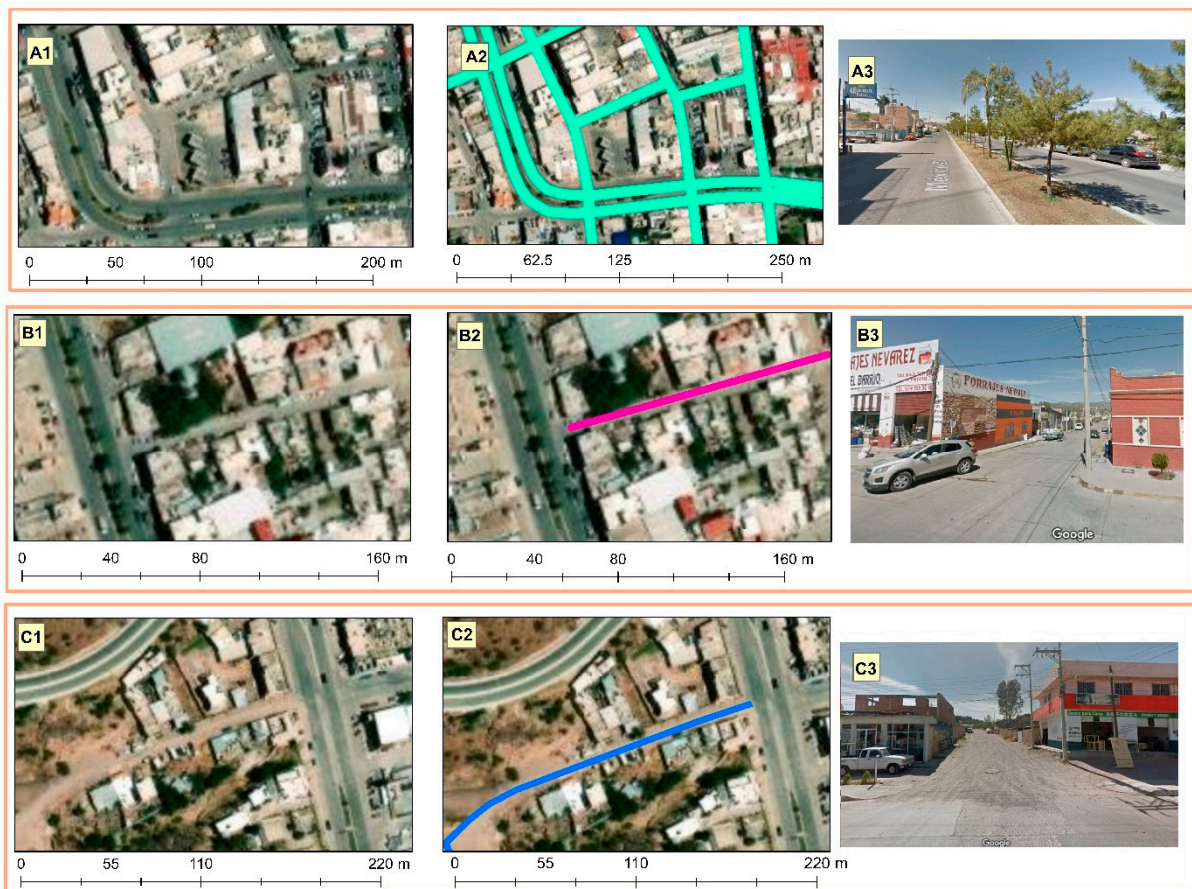








**Figure S2.** Google Earth Pro grid over the AOI



**Figure S3.** Different types of roads, (A) paved with > 10 m width, (B) paved with < 10 m and (C) unpaved with width < 10 m

**Table S5.** SGI and average radiance values in the localities across the AOI, Source for SGI values [2].

ID	Locality name	SGI 2010	SGI 2010 dummy	Average radiance 2014	SGI 2020	SGI 2020 dummy	Average radiance 2021
1.	El Aguajito	-0.074368	0	0.0753	-0.64832	0	0.292
2.	Alamillos	1.411394	1	0	0.94339	1	0
3.	Barrazas	-1.18996	0	0.4325	-0.97074	0	0.37
4.	El Cazadero	-1.260567	0	0.3765	-0.95168	0	0.26
5.	El Venado	-1.043074	0	0.2926	-0.84200	0	0.2614
6.	El Correo	-0.711115	0	0	-0.63052	0	0
7.	Cuevecillas	-0.548092	0	0	-0.70957	0	0.088
8.	La Estancia	-1.249144	0	0.125	-0.99129	0	0.17
9.	Garamé de Abajo	-0.895918	0	0.94	-0.90218	0	0.99
10.	Garamé de Arriba	-0.838589	0	0.16	-0.87351	0	0.4563
11.	La Loma	1.078493	1	0	0.98161	1	0
12.	Martínez de Arriba	-0.894816	0	0.136	-0.77506	0	0.1277
13.	Meleros	1.565255	1	0	1.765255	1	0
14.	El Rincón	0.531564	1	0	0.65899	1	0
15.	La Soledad	0.476178	1	0.4566	0.78553	1	0.1472
16.	El Tambor	-0.895106	0	0.157	-0.90061	0	0.12
17.	Las Cruces	1.366915	1	0.06	1.366915	1	0
18.	El Atascadero	-1.36464	0	0	-1.073586	0	0
19.	La Ciénega de San Jos	1.675112	1	0	1.23326	1	0
20.	La Yerbabuena	-1.056328	0	0	-0.93620	0	0
21.	El Torren	1.414082	1	0	-0.39717	0	0.12
22.	Presa de la Máquina	-0.663877	0	0	-0.29846	0	0
23.	Rancho Lomas del Río	-1.564286	0	0	-0.39154	0	0
24.	Santiago Papasquiaro	-1.336652	0	13.04	-1.06651	0	13.04

## References

1. Andries, A.; Morse, S.; Murphy, R.J.; Lynch, J.; Woolliams, E.R. Using Data from Earth Observation to Support Sustainable Development Indicators: An Analysis of the Literature and Challenges for the Future. *Sustainability* **2022**, *14*, doi:10.3390/su14031191.
2. CONEVAL. Índice Regazo Social. Available online: [https://www.coneval.org.mx/Medicion/IRS/Paginas/Indice\\_Rezago\\_Social\\_2020.aspx](https://www.coneval.org.mx/Medicion/IRS/Paginas/Indice_Rezago_Social_2020.aspx) (accessed on 10 June 2022).