

Appendix G

International Urban Sustainability Indicators Studies

Table G.1 International urban sustainability indicators list

Category		Indicators
En1	Geographically balanced settlement	<ul style="list-style-type: none"> En1-1: Population growth En1-2: Planned settlements
En2	Freshwater	<ul style="list-style-type: none"> En2-1: Proportion of total water resources used En2-2: Water use intensity by economic activity En2-3: Presence of fecal coliforms in freshwater En2-4: Biochemical oxygen demand in water bodies
En3	Wastewater	<ul style="list-style-type: none"> En3-1: Percentage of city population served by wastewater collection En3-2: Percentage of wastewater receiving no/preliminary/secondary/tertiary treatment
En4	Quality of ambient air and atmosphere	<ul style="list-style-type: none"> En4-1: Number of times the limit values for selected air pollutants are exceeded En4-2: Existence and level of implementation of air-quality management plan En4-3: Emissions of greenhouse gases En4-4: Consumption of ozone depleting substances
En5	Noise pollution	<ul style="list-style-type: none"> En5-1: Share of population exposed to long-term high level of environmental noise En5-2: Noise levels in selected areas En5-3: Existence and level of implementation of a noise action plan
En6	Sustainable land use	<ul style="list-style-type: none"> En6-1: Artificial surfaces as percentage of the total municipal area En6-2: Extent of derelict and contaminated land En6-3: Number of inhabitants per km² En6-4: Quota of new edification taking place on virgin area and quota taking place on derelict and contaminated land in % per year En6-5: Restoration of urban land <ol style="list-style-type: none"> Renovation, conversion of derelict buildings Redevelopment of derelict land for new urban uses Cleansing of contaminated land En6-6: Protected areas as percentage of total municipal area En6-7: Land affected by desertification En6-8: Area under organic farming En6-9: Proportion of land area covered by forests
En7	Waste generation and management	<ul style="list-style-type: none"> En7-1: Percentage of city population with regular solid waste collection En7-2: Percentage of solid waste disposed to sanitary landfill/incinerated and burned openly/disposed to open dump/recycled/other En7-3: Total solid waste generation per capita En7-4: Generation of hazardous waste En7-5: Waste treatment and disposal En7-6: Management of radioactive waste

Table G.1 International urban sustainability indicators list (continued)

Category		Indicators
En8	Effective and environmentally sound transportation systems	<ul style="list-style-type: none"> • En8-1: Travel time • En8-2: Transport modes • En8-3: Energy intensity of transport
En9	Mechanism to prepare and implement environmental plans	<ul style="list-style-type: none"> • En9-1: Local environmental plan • En9-2: Latest approval date of Master Plan
En10	Biodiversity	<ul style="list-style-type: none"> • En10-1: Proportion of terrestrial area protected • En10-2: Management effectiveness of protected areas • En10-3: Area of selected key ecosystems • En10-4: Fragmentation of habitats • En10-5: Change in threat status of species • En10-6: Abundance of invasive alien species
Ec1	Consumption and production patterns	<ul style="list-style-type: none"> • Ec1-1: Material consumption • Ec1-2: Material intensity of the economy • En1-3: Domestic material consumption • En1-4: Annual energy consumption, total and by user category • Ec1-5: Share of renewable energy sources in total energy use • Ec1-6: Intensity of energy use, total and by economic activity
Ec2	Economic development	<ul style="list-style-type: none"> • Ec2-1: Macroeconomic performance <ul style="list-style-type: none"> a) Gross domestic product (GDP) per capita b) Gross saving c) Investment share in GDP d) Adjusted net savings as percentage of gross national income (GNI) e) Inflation rate • Ec2-2: Employment <ul style="list-style-type: none"> a) Employment-population ratio b) Vulnerable employment c) Labor productivity and unit labor costs d) Share of women in wage employment in the non-agricultural sector • Ec2-3: Information and communication technologies <ul style="list-style-type: none"> a) Internet users per 100 population b) Fixed telephone lines per 100 population c) Mobile cellular telephone subscribers per 100 population • Ec2-4: Research and development <ul style="list-style-type: none"> a) Gross domestic expenditure on Research and Development as a percentage of GDP • Ec2-5: Tourism <ul style="list-style-type: none"> a) Tourism contribution to GDP

Table G.1 International urban sustainability indicators list (continued)

Category		Indicators
Ec3	Finance	<ul style="list-style-type: none"> Ec3-1: Debt service ratio Ec3-2: Tax collected as percentage of tax billed Ec3-3: Own-source revenue as percent of total revenues Ec3-4: Capital spending as percentage of total expenditures
Ec4		<ul style="list-style-type: none"> Ec4-1: Price of water Ec4-2: Domestic water consumption per capita
Ec5		<ul style="list-style-type: none"> Ec5-1: Informal employment
So1	Energy Access	<ul style="list-style-type: none"> So1-1: Percentage of city population with authorized electrical service So1-2: Total electrical use per capita So1-3: Number and duration of electrical interruptions per year per customer
So2	Water access	<ul style="list-style-type: none"> So2-1: Percentage of city population with potable water supply service So2-2: Number of interruptions in water service
So3	Education	<ul style="list-style-type: none"> So3-1: Percentage of children completing primary and secondary education So3-2: Percentage of school aged children enrolled in schools (by gender) So3-3: Student/teacher ratio
So4	Health	<ul style="list-style-type: none"> So4-1: Mortality <ul style="list-style-type: none"> a) Under-five b) Mortality rate c) Life expectancy at birth d) Healthy life expectancy at birth So4-2: Health care delivery <ul style="list-style-type: none"> a) Percent of population with access to primary health care facilities b) Contraceptive prevalence rate c) Immunization against infection childhood diseases So4-3: Nutritional status <ul style="list-style-type: none"> a) Nutritional status of children So4-4: Health status and risks <ul style="list-style-type: none"> a) Morbidity of major diseases such as HIV/AIDS, malaria, tuberculosis b) Prevalence of tobacco use c) Suicide rate
So5	Safety	<ul style="list-style-type: none"> So5-1: Number of homicides per 100,000 population So5-2: Number of sworn police officers per 100,000 population So5-3: Violent crime rate per 100,000
So6	Fire and Emergency Response	<ul style="list-style-type: none"> So6-1: Number of firefighters per 100,000 population So6-2: Number of fire related deaths per 100,000 population So6-3: Response time for fire departments from initial call
So7	Poverty	<ul style="list-style-type: none"> So7-1: Income poverty <ul style="list-style-type: none"> a) Proportion of population living below national poverty line b) Proportion of population below \$1 a day So7-2: Income inequality <ul style="list-style-type: none"> a) Ratio of share in national income of highest to lowest quintile

Table G.1 International urban sustainability indicators list (continued)

Category		Indicators
So8	Transportation	<ul style="list-style-type: none"> • So8-1: Km of transportation system per 100,000 population • So8-2: Annual number of public transit trips per capita • So8-3: Commercial air connectivity • So8-4: Average travel speed on primary thoroughfares during peak hours • So8-5: Transportation fatalities per 100,000 population • So8-6: Number of daily trips and time taken per capita by type of trip and by mode of transport • So8-7: Total average daily distance covered per capita by type of trip and by mode of transport • So8-8: Mode of transportation used by children to travel between home and school
So9	Natural hazards	<ul style="list-style-type: none"> • So9-1: Percentage of population living in hazard prone areas • So9-2: Human and economic loss due to natural disasters • So9-3: Disaster prevention and mitigation instruments
So10	Adequate housing	<ul style="list-style-type: none"> • So10-1: Durable structures • So10-2: Overcrowding • So10-3: Right to adequate housing • So10-4: Housing price and rent-to-income
So11	Shelter	<ul style="list-style-type: none"> • So11-1: Percentage of city population living in slums • So11-2: Area size of informal settlements as percent of city area and population
So12	Security of tenure	<ul style="list-style-type: none"> • So12-1: Secure tenure • So12-2: Authorized housing • So12-3: Evictions
So13	Access to credits	<ul style="list-style-type: none"> • So13-1: Housing finance
So14	Access to land	<ul style="list-style-type: none"> • So14-1: Land price-to-income
So15	Promote social integration and support disadvantaged groups	<ul style="list-style-type: none"> • So15-1: Poor households
So16	Culture	<ul style="list-style-type: none"> • So16-1: Number of cultural establishments per 100,000 population • So16-2: City expenditures on culture as a percentage of overall city budget • So16-3: Square meters of public recreation facility space per capita
So17	Recreation	<ul style="list-style-type: none"> • So17-1: Square meters of public recreation as a percentage of overall city budget
So18	Availability of local public green areas and local services	<ul style="list-style-type: none"> • So18-1: Citizens' access to nearby public green areas and basic services
Go1	Participation and civic engagement	<ul style="list-style-type: none"> • Go1-1: Citizens participation • Go1-2: Voters participation • Go1-3: Civic associations

Table G.1 International urban sustainability indicators list (continued)

Category		Indicators
Go2	Transparent, accountable, and efficient government	<ul style="list-style-type: none"> Go2-1: Transparency and accountability
Go3	Government	<ul style="list-style-type: none"> Go3-1: Corruption Go3-2: Percentage of population having paid bribes
Go4	Sustainable management of the authorities and businesses	<ul style="list-style-type: none"> Go4-1: Share of public and private organizations adopting and using environmental and social management procedures

Source: Shen et al. 2011, 26-28.