

## APPENDIX A: LCSDGs

SDGs	Targets and Indicators with “mitigation” / “mitigate” “carbon”/ “CO2”/ “GHG emission”/ “fossil fuel”
Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all	7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner <b>fossil-fuel</b> technology, and promote investment in energy infrastructure and clean energy technology
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	9.4.1 <b>CO2 emission</b> per unit of value added
Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable	11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, <b>mitigation</b> and <b>adaptation</b> to climate change, <b>resilience</b> to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels
Goal 12. Ensure sustainable consumption and production patterns	12.c Rationalise inefficient <b>fossil-fuel</b> subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimising the possible adverse impacts on their development in a manner that protects the poor and the affected communities 12.c.1 Amount of <b>fossil-fuel</b> subsidies per unit of GDP (production and consumption) and as a proportion of total national expenditure on fossil fuels
Goal 13. Take urgent action to combat climate change and its impacts	13.2.1 Number of countries that have communicated the establishment or operationalisation of an integrated policy/strategy/plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and <b>low greenhouse gas emissions</b> development in a manner that does not threaten food production (including a national adaptation plan, nationally determined contribution, national communication, biennial update report or other) 13.3 Improve education, awareness-raising and human and institutional capacity on climate change <b>mitigation, adaptation</b> , impact reduction and early warning 13.a Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilising jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful <b>mitigation</b> actions and transparency on implementation and fully operationalise the Green Climate Fund through its capitalisation as soon as possible

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13.3.1 Number of countries that have integrated **mitigation, adaptation**, impact reduction and early warning into primary, secondary and tertiary curricula

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13.3.2 Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement **adaptation, mitigation** and technology transfer, and development actions

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## APPENDIX B: RSDGs

SDGs	Targets and Indicators with “resilience”/ “resilient”/ “adaptation” / “adapt”
Goal 1. End poverty in all its forms everywhere	1.5 By 2030, build the <b>resilience</b> of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters
Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture	2.4 By 2030, ensure sustainable food production systems and implement <b>resilient</b> agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for <b>adaptation</b> to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation	9.1 Develop quality, reliable, sustainable and <b>resilient</b> infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all 9.a Facilitate sustainable and <b>resilient</b> infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing States
Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable	11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and <b>adaptation</b> to climate change, <b>resilience</b> to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels 11.c Support least developed countries, including through financial and technical assistance, in building sustainable and <b>resilient</b> buildings utilizing local materials
Goal 13. Take urgent action to combat climate change and its impacts	13.1 Strengthen <b>resilience</b> and adaptive capacity to climate-related hazards and natural disasters in all countries 13.1 Strengthen resilience and <b>adaptive</b> capacity to climate-related hazards and natural disasters in all countries 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, <b>adaptation</b> , impact reduction and early warning 13.2.1 Number of countries that have communicated the establishment or operationalisation of an integrated policy/strategy/plan which increases their ability to <b>adapt</b> to the adverse impacts of climate change, and foster climate resilience and low <b>greenhouse gas emissions</b> development in a manner that does not threaten food production (including a national adaptation plan, nationally determined contribution, national communication, biennial update report or other) 13.3.1 Number of countries that have integrated <b>mitigation, adaptation, impact reduction and early warning</b> into primary, secondary and tertiary curricula

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13.3.2 Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement **adaptation**, **mitigation** and technology transfer, and development actions

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Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development

14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their **resilience**, and take action for their restoration in order to achieve healthy and productive oceans

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## APPENDIX C: Reports Included in The Analysis of Low-carbon Indicators

<b>ORGNISATION</b>	<b>REPORT</b>	<b>TIME</b>
<b>Berkeley Lab</b>	China's Development of Low- Carbon Eco-Cities and Associated Indicator Systems	2012
<b>Vivid Economics</b>	G20 low carbon competitiveness index: 2013 update	2013
<b>APEC</b>	Establishing Low Carbon Energy Indicators for Energy Strategy Study in APEC Low Carbon Town	2013
<b>ADB</b>	Low-Carbon Green Growth in Asia Policies and Practices	2013
<b>UNEP</b>	Low Carbon City: A Guidebook for City Planners and Practitioners-final	2013
<b>Su</b>	Evaluation of a Low-Carbon City: Method and Application	2013
<b>OECD</b>	Monitoring the transition to a low-carbon economy	2015
<b>APEC</b>	APEC Low-Carbon Town Indicator System Guideline	2016
<b>Essen</b>	Low-Carbon Indicator System – Sino: Evaluating Low-Carbon City Development Level in China	2016
<b>Tan</b>	A holistic low carbon city indicator framework for sustainable development	2017
<b>NAMAs</b>	Monitoring and Evaluation Framework	2018
<b>ALPTEKIN</b>	Evaluation of Low Carbon Development of European Union Countries and Turkey Using Grey Relational Analysis	2018

## APPENDIX D: Reports Included in The Analysis of Resilience Indicators

<b>ORGANISATION</b>	<b>REPORT</b>	<b>TIME</b>
<b>US Department of Energy (USDE)</b>	COMMUNITY RESILIENCE INDICATOR ANALYSIS County-Level Analysis of Commonly Used Indicators from Peer-Reviewed Research	2019
<b>Feldmeyer et al</b>	Indicators for Monitoring Urban Climate Change Resilience and Adaptation	2019
<b>OECD</b>	Indicators for Resilient Cities	2018
<b>UN</b>	Brief for GSDR 2015: resilience framework for measuring development	2015
<b>The Rockefeller Foundation(TRF)</b>	City Resilience Index	2014
<b>Biodiversity International</b>	Toolkit for The Indicators of Resilience in Socio-ecological Production Landscapes and Seascapes	2014

## APPENDIX E: Low-carbon Indicators

INDICATOR SYSTEMS	NAMAs, 2018	ALPTEKIN, 2018	Tan, 2017	APEC, 2016	Essen, 2016	OECD, 2015	ADB, 2013	UNEP, 2013	APEC, 2013	Vivid Economics, 2013	Su, 2013	Berkeley Lab, 2012	TOTAL
Culture												x	1
Population						x				x			2
Wellbeing	x	x	x			x	x				x	x	7
Education				x		x	x			x		x	5
Energy		x	x	x	x		x	x	x	x	x	x	10
Electricity								x		x			2
Building				x	x				x				3
Transport			x	x	x			x	x	x	x	x	8
Waste			x	x	x							x	4
Water			x	x	x							x	4
Land use			x	x	x						x	x	5
Air	x	x	x				x		x	x	x	x	8
Natural Asset		x				x	x			x	x	x	6
Management & Planning	x			x		x	x		x				5
Policy & Regulations	x			x	x	x	x		x				6
Implementation & Evaluation	x								x				2
Networking	x												1
Economic Structure & Growth			x			x	x			x	x	x	6
Urbanisation		x	x								x		3
Resources productivity			x			x	x	x	x	x	x		7
Pricing						x				x			2
Business & Investment	x					x				x	x		4

<b>Technology</b>						x	x			x			3
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## APPENDIX F: Resilience Indicators

INDICATOR SYSTEMS	USDE, 2019	FELDMEYER, 2019	OEDC, 2018	UN, 2015	TRF, 2014	BI, 2014	TOTOAL
Socio-demographic patterns	x		x	x	x	x	5
Social Inclusion	x	x	x		x		4
Culture & Identity			x	x	x		3
Social equality	x	x			x	x	4
Education & Research	x	x	x	x	x	x	6
Healthcare & Wellbeing	x	x	x		x	x	5
Housing	x	x	x	x	x		5
Transport networks	x	x			x	x	4
Telecommunication	x	x	x	x	x		5
Energy supply		x	x		x	x	4
Water Supply		x	x		x	x	4
Food supply				x	x	x	3
Waste and Sanitation		x		x	x	x	4
Risk assessment & Preparedness		x	x	x	x		4
Natural Conservation		x	x	x	x	x	5
Leadership & Planning		x	x	x	x	x	5
Emergency management			x		x		2
policy and enforcement		x			x	x	3
Administration		x	x	x			3
Collaboration		x	x		x	x	4
Business development		x	x	x	x		4

<b>Economic Structure</b>		x	x		x		3
<b>Technology &amp; innovation</b>		x		x	x	x	4