

STUDY ON OFFICIAL STATISTICS IN SUPPORT OF THE CLIMATE CHANGE AND ENERGY RELATED INDICATORS FOR SGS IN THE ARAB REGION

Economic And Social Commission For Western Asia



UNITED NATIONS

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ESCWA

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Worrying Records on Global Warming in the Region



The Arab Region Has Been Subject To Extreme Climate Events, Such As Droughts, Floods, Dust Storms And Intense Heat Waves

Extreme Temperatures Included 53.9 Degrees Celsius In Basra, Iraq
High Temperatures Were Also Reported In Libya, Morocco, Tunisia, and UAE



Record Temperatures Reaching 54 Degrees Celsius In Mitribah, Kuwait, On 21 July 2016 - The Highest Temperature On Record For Asia.

2016 New Global Annual Temperature Record For The Third Consecutive Year In
NOAA's 137-year Series



Models Using High-resolution Regional Climate Model Simulations Have Projected That Extremes Of Wet-bulb Temperature In The Region Around The Arabian Gulf Are Likely To Approach And Exceed A Critical Threshold, Which Defines A Limit Of Survivability For Human Beings Under The Business-as-usual Scenario Of Future Greenhouse Gas Concentrations.

Background for the Study

Climate Change A Major Challenge to Sustainable Development In Arab Countries

2030 Agenda For Sustainable Development Address Climate Change In Goal 13: Urges Countries “To Take Urgent Action To Combat Climate Change And Its Impacts”.

Requirement of New and Improved Statistics on Resilience, Adaptive Capacity and Resource Mobilization for Measuring and Monitoring Climate Change Economic and Social Impacts at the National and Regional Levels.

UN Statistical Commission Urged Countries to Develop Climate Change Related Statistics at 47th Session In 2016.

National Statistical Offices (NSOs) In The Arab Region are Aware of the Complexity of Climate Change and The Challenge Related to the Compilation of Statistics.

Arab National Statistical Offices (NSOs) Supported the Recommendations of The Statistical Commission On Climate Change-related Statistics

Arab NSOs Requested ESCWA ‘S Assistance to Build Statistical Capacity to Respond to the Need for Climate Change-related Statistics.

1. <http://unstats.un.org/unsd/statcom/47th-session/documents/2016-1-Provisional-agenda-and-annotations-E.pdf>

2. <http://unstats.un.org/unsd/statcom/47th-session/documents/2016-15-Climate-change-statistics-A.pdf>

ESCWA's Study on the Role of Official Statistics in CC Indicators in the Arab Region*

Special Issue of the Compendium of Environment Statistics in the Arab Region 2017

Introduction

Purpose of The Report

Background

**Conference of European Statisticians
Recommendations on Climate Change-Related**

**Task Force on a Set of Key Climate Change-Related
Statistics Using SEEA**

The UN Sustainable Development Goals

**The UN System of Environmental-Economic
Accounting (SEEA)**

**The UN Framework for Developing Environmental
Statistics**

**The Sendai Framework for Disaster Risk
Reduction**

The Scope of Climate Change-Related Statistics

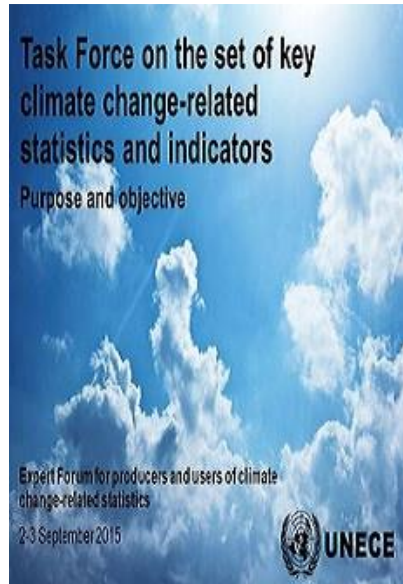
**The Role of National Statistical Offices in Climate
Change-Related Statistics**

**A Proposed Set of Climate Change-Related
Indicators for The Arab Region**

**Climate Change-Related Statistics in Other
Countries – Case Studies Canada, Kazakhstan,
Slovenia**

Conclusions and Recommendations

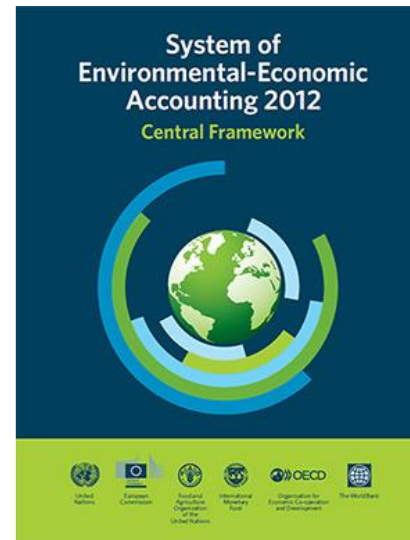
Existing Frameworks



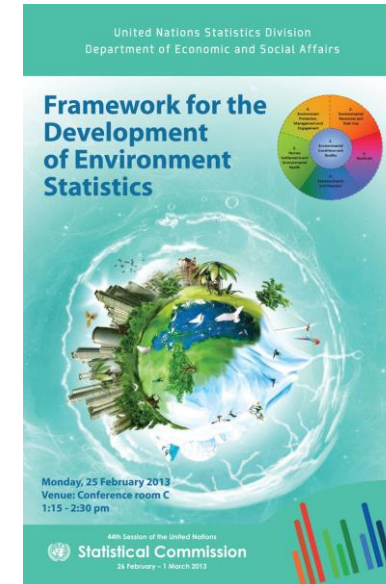
Task Force on a Set of Key Climate Change-Related Statistics



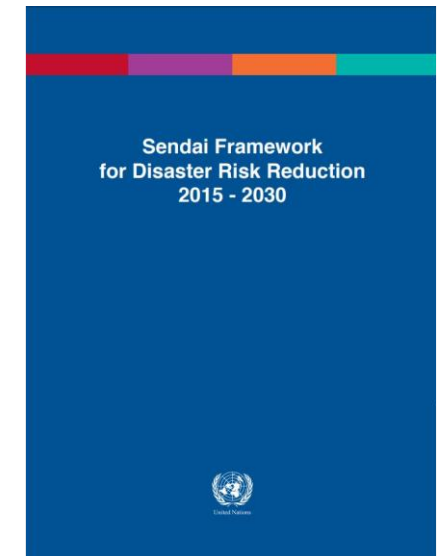
The UN Sustainable Development Goals (SDG)



The UN System of Environmental-Economic Accounting (SEEA)



The UN Framework for Developing Environmental Statistics (FDES)



The Sendai Framework for Disaster Risk Reduction (SF)

Role of National Statistical Offices

Official Statistics



The Scope of Climate Change-Related Statistics



Drivers

Statistics describing the human activities (e.g., fossil fuel combustion) that are the drivers of emission



Emissions

Statistics describing the human-induced emissions of the “greenhouse gases” that contribute to climate change



Mitigation

Statistics describing human efforts to limit climate change (e.g., energy efficiency measures)



Impacts

Statistics describing the human and natural consequences of climate change (e.g., deaths from extreme weather events and changes in precipitation patterns)



Adaptation

Statistics describing the efforts of humans to adapt to the impacts of climate change (e.g., adoption of sustainable farming practices).



Proposed Set of Indicators For CC

	UNESCWA	UNECE
Drivers	4	8
Emissions	3	7
Impacts	7	13
Mitigation	4	6
Adaptation	3	5
Total	21	39

Countries' concerns and comments on original List

The Scope of Mitigation and Adaptation were considered more important than Emissions Scope

Concerns about indicators related to fossil fuels and per capita indicators, as those indicators did not reflect “the real picture” in Gulf countries. ESCWA however suggested keeping fossil fuel indicators for global reporting on climate change

On impact-related indicators, floods and rising sea and river levels were of concern. Consequently, ESCWA included in the revised list under ‘impacts’ a new indicator on “Occurrence of extreme weather events” (table 5, indicator 13), and the effects of those events such as desertification, drought, floods, landslides, storm surge, soil erosion, and saline water intrusion.

On “Incidence and distribution of vector-borne diseases” it was suggested to include waterborne diseases, as the risks in Arab countries were clearly documented

Countries' concerns and comments on original List

All four originally proposed indicators under mitigation were discussed and participants recommended aligning them with other global indicators, and developing indicators that were more region-specific.

Participants found that indicators related to taxes and environmental expenditure and Carbon pricing were not yet applicable in the Arab region. They proposed replacing the indicator on “Share of climate change mitigation expenditure relative to GDP” with the indicator on “Investments in energy efficiency and in renewable energies as a proportion of GDP”, which is in line with means of implementation 7.b.1 of SDG 7.

On adaptation proposed indicators, most participants said that the indicator “Proportion of population living in dwellings with air conditioning” was not particularly relevant.

A new adaptation indicator was added on “Change in water efficiency over time” (table 5, indicator 18). This is a key indicator for target 4 of SDG 6 on water efficiency and scarcity.

Proposed Indicators Related to Climate Change for the Arab Region

Area	Nbr.	Energy Related	SDG	Indicator	Rationale
Drivers	1	x		Total Primary Energy Supply	Energy use is the most important contributor to greenhouse gas emissions.
	2	x		Share Of Fossil Fuels In Total Primary Energy Consumption	Fossil fuel combustion is the largest source of greenhouse gas emissions.
	3	x		Public Financial Support For Fossil Fuel Production	Fossil fuel combustion is the largest source of greenhouse gas emissions. Subsidies reduce the cost of fossil fuels to consumers and, therefore, increase their consumption.
	4	X (GTF)	7.3.1	Energy Intensity Of The Economy	Energy use per unit of economic output is a useful means of tracking progress in decoupling growth of energy use from growth of the economy
Emissions	5	x		Total Greenhouse Gas Emissions	Total GHG emissions represents the national contribution to the primary cause of human-induced climate change
	6	x		CO2 Emissions From Fossil Fuel Combustion	Fuel combustion especially fossil fuel is the largest source of CO2 emissions and CO2 is the most important greenhouse gas in terms of contribution to climate change
	7	x		GHG Emissions Intensity Of The Economy	Emissions per unit of economic output are a useful means of tracking progress in decoupling growth of emissions from growth of the economy

Proposed Indicators Related to Climate Change for the Arab Region

Area	Nbr. Energy Related	SDG	Indicator	Rationale
Impacts	8		Temperature Departure From Normal	Departures of temperatures from historical normals are a means of tracking change in temperature over time. Surface air temperature is considered by the World Meteorological Organization-Global Climate Observing System as an Essential Climate Variable
	9		Precipitation Departure From Normal	Departures of precipitation from historical normals are a means of tracking change in precipitation over time. Precipitation is considered by the World Meteorological Organization-Global Climate Observing System as an Essential Climate Variable
	10	15.3.1	Share Of Agricultural Land Affected By Drought	Changes in precipitation patterns associated with climate change are expected to lead to increased drought in the region (Verner, 2012).
	11	6.4.2	Level Of Water Stress: Freshwater Withdrawals As A Share Of Renewable Freshwater Resources	Changes in precipitation as a result of climate change will change the availability of freshwater resources. Water is a key resource in the Arab region.
	12	1.5.1 11.5.1 13.1.2	Number Of Deaths And Missing Persons Attributed To Hydrometeorological Disasters, Per 100,000 Population	Climate change is expected to increase global average surface temperatures, which is a particular concern in the Arab region where normal summertime temperatures are already high.
	13		Number Of Extreme Heat Events	Climate change is expected to increase global average surface temperatures, which is a particular concern in the Arab region where normal summertime temperatures are already high, resulting in desertification, drought, floods, landslides, storm surge, soil erosion, and saline water intrusion.
				Incidence And Distribution Of Vector

Proposed Indicators Related to Climate Change for the Arab Region

Area	Nbr. Energy Related SDG	Indicator	Rationale
Mitigation	15 7.2.1	Renewable Energy Share In Final Energy Consumption	Production of energy from renewable sources is a means of meeting energy needs without (or with substantially reduced) greenhouse gas emissions.
	16	Investments In Energy Efficiency And In Renewable Energies As A Proportion Of GDP	Investments represent a measure of the effort on the part of governments and business to address the need to maintain environmental quality. The share of these expenditures devoted to climate change mitigation is an indicator of the seriousness with which climate change is considered.
	17	Share Of Energy And Transport Related Taxes As Percentage Of Total Taxes And Social Contributions	Taxes on energy and transportation products area means of ensuring that their prices reflect the true social cost of their use, including the costs of damages associated with climate change.

Proposed Indicators Related to Climate Change for the Arab Region

Area	Nbr. Energy Related SDG	Indicator	Rationale
Adaptation	18 6.4.1	Change in water use efficiency over time	For inclusion: This indicator is defined as the output over time of a given major sector per volume of (net) water withdrawn (showing the trend in water use efficiency).
	19 2.4.1	Proportion of farmland area using sustainable management practices	Adaptation Rationale for inclusion: In order to cope with changing temperature and precipitation patterns due to climate change, farmers will have to adopt new management practices that increase yields while requiring less water and increasing tolerance to heat and prolonged drought.
	20 1.5.3	Adoption of disaster risk management strategies	Formal disaster risk reduction strategies are a means of ensuring that the impacts of climate change have the minimum possible effect on the well-being of individuals, society and the economy.

Seven of The Proposed Indicators Are SDG Indicators

- Four are indicators derived from the recommended global indicators for measuring the targets of the Sendai Framework on Disaster Risk Reduction
- Proposed indicators can be produced from accounts of the SEEA-Central Framework (SEEA-CF)
- Some indicators are already produced in the countries

Goal 13 Take Urgent Action to Combat Climate Change and Its Impacts

SDG ENVIRONMENTAL TARGETS	SDG ENVIRONMENTAL INDICATORS
<p>13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p>	<p>13.1.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population</p> <p>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</p>
<p>13.2 Integrate climate change measures into national policies, strategies and planning</p>	<p>13.2.1 Number of countries that have communicated the establishment or operationalization of an integrated policy/strategy/plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions 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)</p>
<p>13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning</p>	<p>13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula</p> <p>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</p>

SDG ENVIRONMENTAL TARGETS	SDG ENVIRONMENTAL INDICATORS
<p>13.a Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible</p>	<p>13.a.1 Mobilized amount of United States dollars per year between 2020 and 2025 accountable towards the \$100 billion commitment</p>
<p>13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities</p>	<p>13.b.1 Number of least developed countries and small island developing States that are receiving specialized support, and amount of support, including finance, technology and capacity-building, for mechanisms for raising capacities for effective climate change-related planning and management, including focusing on women, youth and local and marginalized communities</p>

Guiding Framework for the Environmental Dimension of the 2030 Agenda for Sustainable Development in the Arab Region

Consultative Meeting on the Implementation Framework for the Environmental Dimension of the 2030 Agenda in the Arab Region 18-20 SEPTEMBER 2017

Guiding Framework for the Environmental Dimension of the 2030 Agenda for Sustainable Development in the Arab Region and List of Agreed Priority Environment-Indicators (26 Indicators)

Half of the The Climate Change Proposed Indicators are common to the Agreed List of Environment Related Indicators

final report and the guiding framework.


https://www.unescwa.org/sites/www.unescwa.org/files/events/files/guiding_framework_final.pdf

Annex 2 on high priority and other high priority Targets ad indicators. (26 indicators)

https://www.unescwa.org/sites/www.unescwa.org/files/u593/final_report_-_4_april.pdf



SDG ENVIRONMENTAL TARGETS	SDG ENVIRONMENTAL INDICATORS (with alternative [ALT] and additional [ADD] Indicators)	UNITS FOR INDICATORS	TIER	3.1 BASELINE VALUE	3.2 PROGRESS/ TREND
<p>1.5 By 2030, build the resilience 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</p>	<p>1.5.1 Number of deaths, missing persons and persons affected by disaster per 100,000 people (11.5.1; 13.1.2)</p> <p>[1.5.1 ALT Number of persons affected by disaster per 100,000 people]</p>	Number p.100,000	2	5699	-
	<p>1.5.2 Direct disaster economic loss in relation to global gross domestic product (GDP)</p> <p>[1.5.2.ALT Direct economic loss attributed to disasters]</p>	USD	2	1.9m	-
	<p>1.5.3 Number of countries with national and local disaster risk reduction strategies (11.b.2; 13.1.1)</p>	Number or Percent	1	50%	●




SDG ENVIRONMENTAL TARGETS	SDG ENVIRONMENTAL INDICATORS (with alternative [ALT] and additional [ADD] Indicators)	UNITS FOR INDICATORS	TIER	3.1 BASELINE VALUE	3.2 PROGRESS/ TREND
<p>2 ZERO HUNGER</p>  <p>2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality</p>	<p>2.4.1 Proportion of agricultural area under productive and sustainable agriculture</p> <p>[2.4.1.ALT Average carbon content in the topsoil as a % in weight]</p>	<p>Percent</p> <p>Percent</p>	<p>3</p>	<p>N/A</p> <p>0.59</p>	<p>-</p> <p>-</p>



2 ZERO HUNGER






2 ZERO HUNGER



	SDG ENVIRONMENTAL TARGETS	SDG ENVIRONMENTAL INDICATORS (with alternative [ALT] and additional [ADD] Indicators)	UNITS FOR INDICATORS	TIER	3.1 BASELINE VALUE	3.2 PROGRESS/ TREND
<p>6 CLEAN WATER AND SANITATION</p> 	<p>6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity</p>	<p>6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources</p>	<p>Percent</p>	<p>1</p>	<p>312.3</p>	
<p>6 CLEAN WATER AND SANITATION</p> 						

SDG ENVIRONMENTAL TARGETS	SDG ENVIRONMENTAL INDICATORS (with alternative [ALT] and additional [ADD] Indicators)	UNITS FOR INDICATORS	TIER	3.1 BASELINE VALUE	3.2 PROGRESS/ TREND
<p>7 AFFORDABLE AND CLEAN ENERGY</p>  <p>7.2 By 2030, increase substantially the share of renewable energy in the global energy mix</p>	<p>7.2.1 Renewable energy share in the total final energy consumption</p>	percent	1	4	●
<p>7 AFFORDABLE AND CLEAN ENERGY</p>  <p>7.3 By 2030, double the global rate of improvement in energy efficiency</p>	<p>7.3.1 Energy intensity measured in terms of primary energy and GDP</p> <p>7.3.1.ADD Energy consumption per capita, 2012 (kilogram of oil equivalent)</p>	Megajoule per USD constant 2011 PPP GDP	1	5.1	●
		Kgoe		1813	●

	SDG ENVIRONMENTAL TARGETS	SDG ENVIRONMENTAL INDICATORS (with alternative [ALT] and additional [ADD] Indicators)	UNITS FOR INDICATORS	TIER	3.1 BASELINE VALUE	3.2 PROGRESS/ TREND
<p>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</p> 	<p>9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities</p>	<p>9.4.1 CO₂ emission per unit of value added</p>	<p>Kg</p>	<p>1</p>	<p>1.4</p>	
<p>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</p> 						

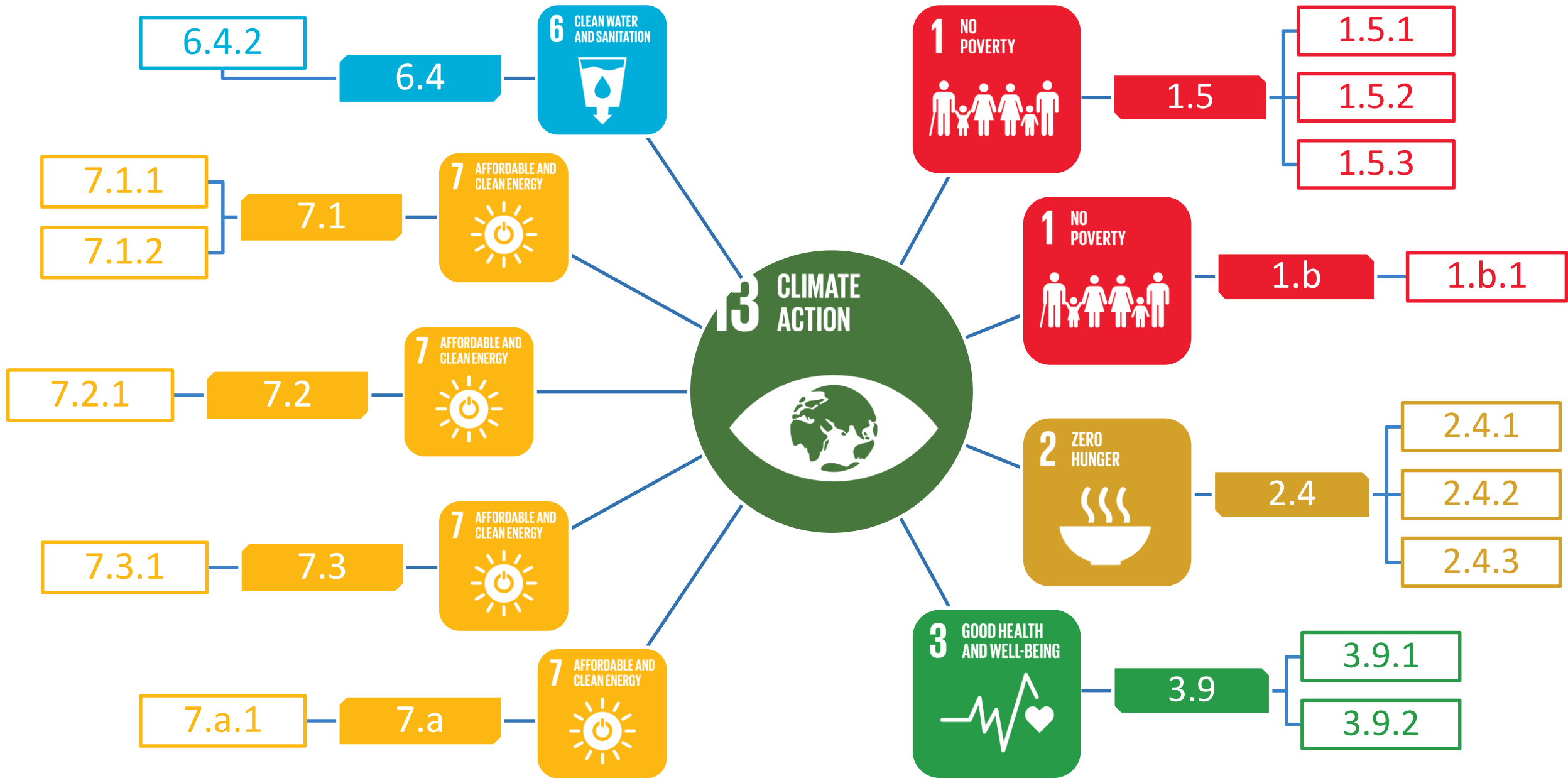


SDG ENVIRONMENTAL TARGETS	SDG ENVIRONMENTAL INDICATORS (with alternative [ALT] and additional [ADD] Indicators)	UNITS FOR INDICATORS	TIER	3.1 BASELINE VALUE	3.2 PROGRESS/ TREND
13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	13.1.1 Number of countries with national and local disaster risk reduction strategies* (1.5.3, 11.b.2)	Number or percent	2	50%	●
	13.1.2 Number of deaths, missing persons and persons affected by disaster per 100,000 people* (1.5.1; 11.5.1) [1.5.1 ALT Number of persons affected by disaster per 100,000 people]	Number p.100,000	1		-
13.2 Integrate climate change measures into national policies, strategies and planning	13.2.1 Number of countries that have communicated the establishment or operationalization of an integrated policy/strategy/plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions 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)	Number	3	N/A	-
	13.2.1.ADD-1 Carbon dioxide emissions (CO2), kg CO2 per \$1 GDP (PPP) (CDIAC)	kg CO2 per \$1 GDP PPP		0.31	●
	13.2.1.ADD-2 Carbon dioxide emissions (CO2), metric tons of CO2 per capita (CDIAC)	metric tons CO2 per capita		5.1	●

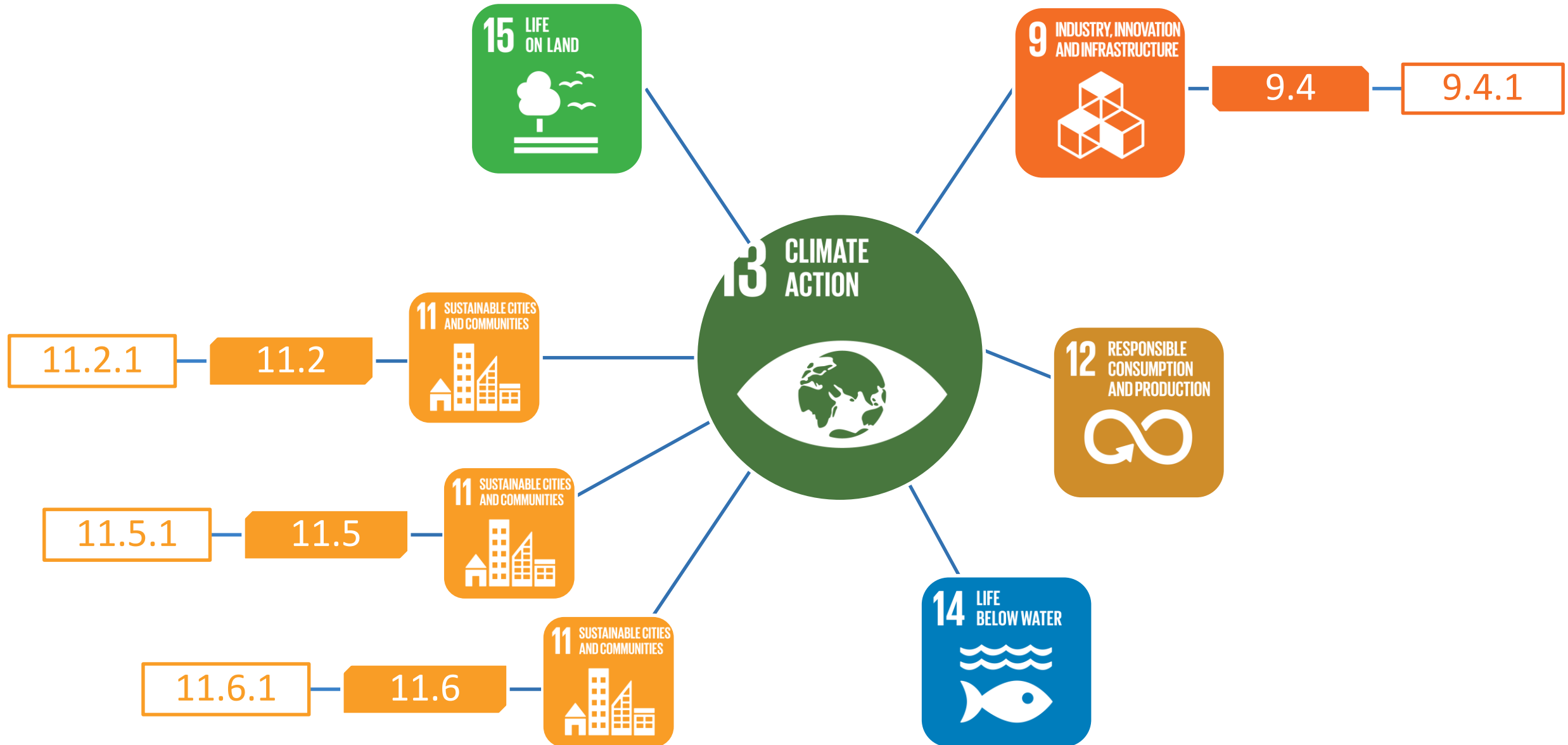


SDG ENVIRONMENTAL TARGETS	SDG ENVIRONMENTAL INDICATORS (with alternative [ALT] and additional [ADD] Indicators)	UNITS FOR INDICATORS	TIER	3.1 BASELINE VALUE	3.2 PROGRESS/ TREND
<p>15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements</p>	<p>15.1.1 Forest area as a proportion of total land area</p>	<p>percent</p>	<p>1</p>	<p>2.8</p>	<p>●</p>
	<p>15.1.2 Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type</p>	<p>percent</p>	<p>1</p>	<p>8.6</p>	<p>●</p>
<p>15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world</p>	<p>15.3.1 Proportion of land that is degraded over total land area</p>	<p>Percent</p>	<p>2</p>	<p>N/A</p>	<p>-</p>
<p>15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species</p>	<p>15.5.1 Red List Index</p>	<p>RLI of 1.0 equates to all species as least concern; 0 indicates all species extinct).</p>	<p>1</p>	<p>0.89</p>	<p>●</p>

Interlinkages of SDG 13 with SDG Goals



Interlinkages of SDG 13 with SDG Goals



Recommendations of the Study

1

NSOs in the Arab region should give high priority to developing climate change-related statistics, cooperating with other relevant agencies and organizations. Reflecting regional priorities, emphasis should be placed on statistics dealing with adaptation and mitigation; statistics dealing with emissions can be considered a lower priority.

2

Arab NSOs and other relevant organizations in the region (for example, the League of Arab States) are invited to consider the set of climate change-related indicators proposed in this study as the basis for an Arab set of Climate Change related indicators which were based set of indicators proposed by the *UNECE Task Force on a Set of Key Climate Change-Related Statistics using the System of Environmental-Economic Accounting* and which have been chosen carefully to be relevant to the region, consistent with global reporting standards (the Global Tracking Framework 2017, for example) and United Nations SDG. Nonetheless, changes to the set should be considered if necessary and appropriate. ESCWA will act a source of assistance in implementing .

Recommendations of the Study

3

Arab NSOs are invited to improve methodologies in the development of climate change-related statistics as they take into consideration the recommendations by the Conference of European Statisticians of the United Nations Economic Commission for Europe on climate change-related statistics and those of the Statistical Commission. In particular, the following points should be considered. It might be necessary, for example, to adjust some of the indicators to reflect any changes proposed by the UNECE Task Force if approved by the United Nations Statistical Commission, expected to occur during 2017.

4

Finally, the study recommends to have the proposed list of 20 indicators tested in volunteering number of pilot countries to see the applicability and the difficulties in data compilation, to scale up successful pilots from other regions and/or sectors, adapting them to the local context.

THANK YOU

Economic And Social Commission For Western Asia



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