

# 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

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



- 54 Degrees Celsius: Record World High In 2 Arab Countries Kuwait And Iraq



- Gulf Countries Among Top 10 CO2 Per Capita (WDI 2015)

# 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 Its 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 (1).**

**National Statistical Offices (NSOs) In The Arab Region Aware Of The Complexity Of Climate Change And The Challenge Related To The Compilation Of Statistics.**

**Support The Recommendations Of The Statistical Commission On Climate Change-related Statistics**

**Requested ESCWA ‘S Assistance To Build Statistical Capacity To Respond To The Need For Climate Change-related Statistics.**

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

## Introduction

**I. Purpose of This Report**

**II. Background**

## The Scope of Climate Change-Related Statistics

**I. Conference of European Statisticians Recommendations on Climate Change-Related Statistics**

**II. Task Force on A Set of Key Climate Change-Related Statistics Using SEEA**

**III. The Un Sustainable Development Goals**

**IV. The Un System of Environmental-Economic Accounting (SEEA)**

**V. The Un Framework for Developing Environmental Statistics**

**VI. The Sendai Framework for Disaster Risk Reduction**

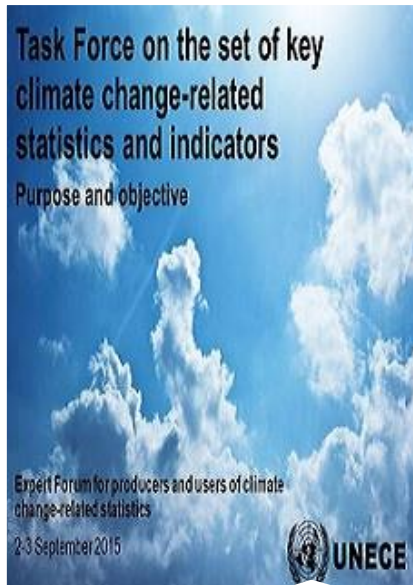
## The Role of National Statistical Offices in Climate Change-Related Statistics

## 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

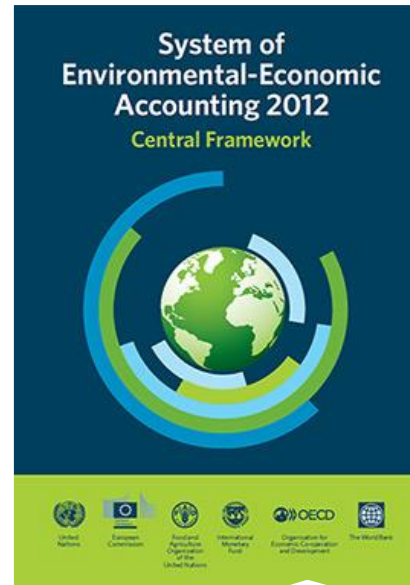
# Existing Frameworks



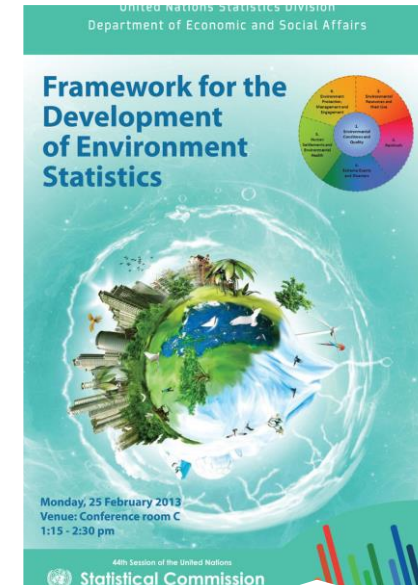
**Task Force on a Set of Key Climate Change-Related Statistics**



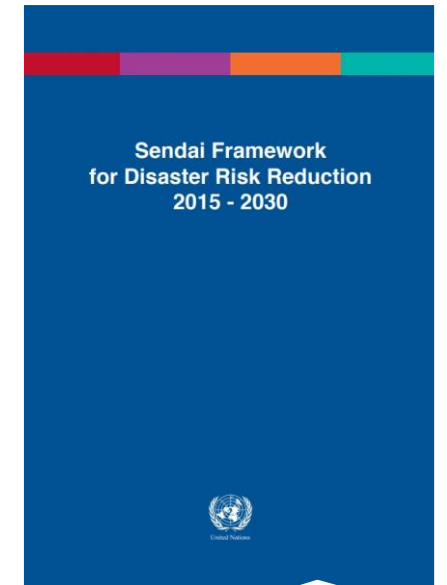
**The UN Sustainable Development Goals (SDG)**



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



**The UN Framework for Developing Environmental Statistics (FDES)**



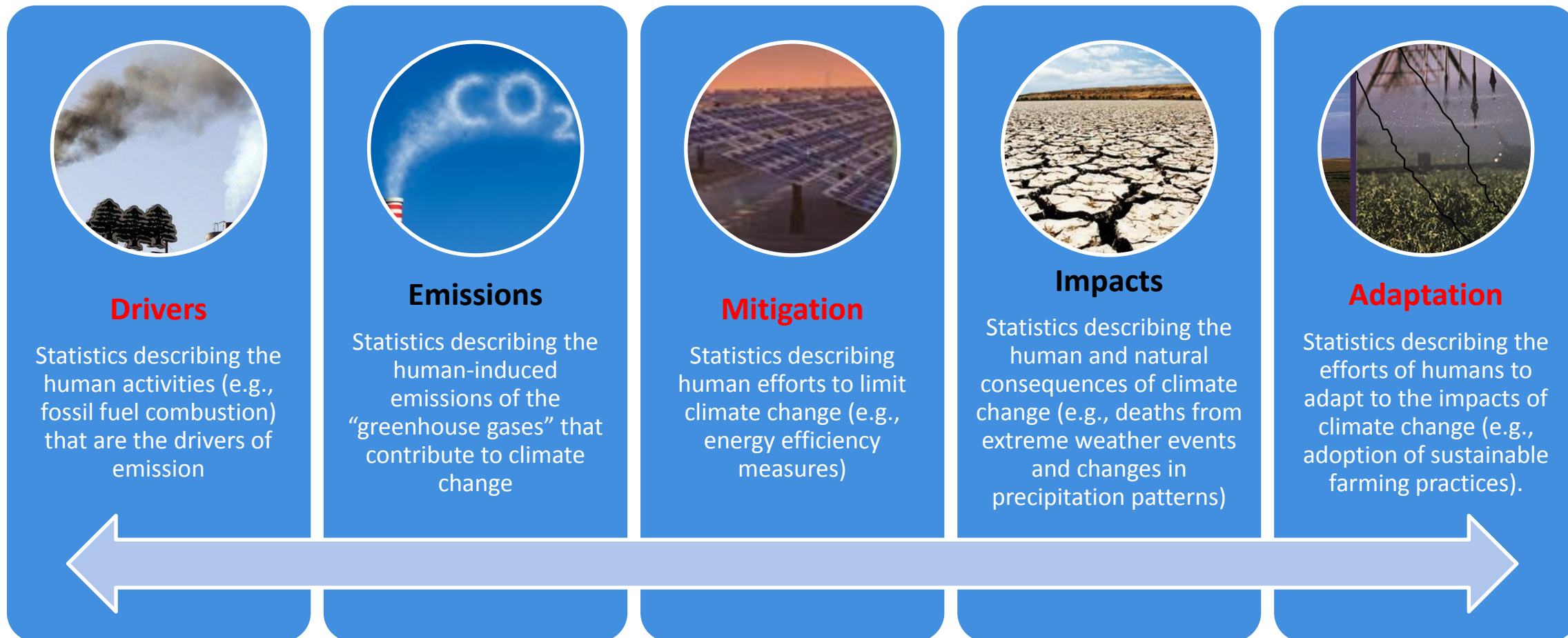
**The Sendai Framework for Disaster Risk Reduction (SF)**

# Role of National Statistical Offices

## Official Statistics



# The Scope of Climate Change-Related Statistics



## Proposed Set of Indicators For CC

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



# 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 energy consumption (% of total)	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 (Suggestion to remove fossil however, CO2 emissions originate for 90% 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.[1]
	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.[2]
	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.
	14			Incidence and Distribution of Vector-borne diseases	Vector-borne disease transmission is expected to increase as a result of changes in temperature and rainfall patterns associated with climate change.

# 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.
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 patters 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 (Or Conceptually Identical)

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- ❑ 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

<b>13.1</b> Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	<b>13.1.1</b> Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population <b>13.1.2</b> Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030
<b>13.2</b> Integrate climate change measures into national policies, strategies and planning	<b>13.2.1</b> 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)
<b>13.3</b> Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	<b>13.3.1</b> Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula
	<b>13.3.2</b> 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
<b>13.a</b> 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	<b>13.a.1</b> Mobilized amount of United States dollars per year between 2020 and 2025 accountable towards the \$100 billion commitment
<b>13.b</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	<b>13.b.1</b> 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

# Interlinkages of SDG 13 with SDG Goals

1	<b>Goal 1. End poverty in all its forms everywhere</b>	
	1.5 By 2030, build the <b>resilience of the poor</b> and those in vulnerable situations and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and <b>environmental shocks and disasters</b>	1.5.1* Number of deaths, missing people, injured, relocated or evacuated due to disasters per 100,000 people 1.5.2 Direct disaster economic loss in relation to global gross domestic product (GDP) 1.5.3 Number of countries with national and local disaster risk reduction strategies
	1.b Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions	1.b.1* Number of national action plans related to multilateral environmental agreements that support accelerated investment in actions that eradicate poverty and sustainably use natural resources
2	<b>Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture</b>	
	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	2.4.1* Percentage of agricultural area under sustainable agricultural practices 2.4.2* Percentage of agricultural households using irrigation systems compared to all agricultural households 2.4.3* Percentage of agricultural households using eco-friendly fertilizers compared to all agricultural households using fertilizers
3	<b>Goal 3. Ensure healthy lives and promote well-being for all at all ages</b>	
	3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	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)
6	<b>Goal 6. Ensure availability and sustainable management of water and sanitation for all</b>	
	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	6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources
7	<b>Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all</b>	
	7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	7.1.1 Proportion of population with access to electricity 7.1.2 Proportion of population with primary reliance on clean fuels and technology
	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix	7.2.1 Renewable energy share in the total final energy consumption
	7.3 By 2030, double the global rate of improvement in energy efficiency	7.3.1 Energy intensity measured in terms of primary energy and gross domestic product (GDP)
	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 fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology	7.a.1 Mobilized amount of United States dollar per year starting in 2020 accountable towards the \$100 billion commitment

# Interlinkages of SDG 13 with SDG Goals



## Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

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

9.4.1 CO2 emission per unit of value added



## Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons

11.2.1 Proportion of population that has convenient access to public transport, by age, sex and persons with disabilities

11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations

11.5.1\* Number of deaths, missing people, injured, relocated or evacuated due to disasters per 100,000 people

11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management

11.6.1 Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities



## Goal 12. Ensure sustainable consumption and production patterns



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



## Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

# Recommendations of the Study

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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

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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.

# Key Guiding Questions for Discussion

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1. How do you find the role of official statistics in the Arab region in support of the availability of the climate change and energy related statistics in the context of the 2030 Agenda for Sustainable Development?
2. What are your views on the proposed set of indicators relevant to the region that assist in measuring priority sectors such as the energy sector in the Arab region and sub-regions?
3. What are the challenges with NSOs in the Arab region to compile the indicators? (Institutional, Data, Coordination)
4. How can we improve methods of compilation and availability of quality data that are accessible to the users (Surveys, Administrative Data, Big Data..)?

# Notes

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Renewable energy taking the lead in investments The International Energy Agency (IEA) documented a “historical turning point”: In recent years, investments in renewable energies have already surpassed investments in fossil fuels. For the first time, we now see more newly installed capacity in renewables than in all fossils combined

# THANK YOU

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