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Statistics Division



INTERNATIONAL ENERGY FORUM



International
Energy Agency



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ENERGY DATA CHALLENGES IN THE ARAB COUNTRIES

United Nations Economic and Social Commission for Western Asia

Joint Organisations Data Initiative 11-12 December 2018
Energy Balances 13-14 December 2018

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Energy Statistics Challenges in the Arab Region

- VERY IMPORTANT SECTOR IN THE ARAB REGION
- ENERGY STATISTICS IS NOT COLLECTED, PRODUCED AND USED WITH THE QUALITY, COVERAGE, PERIODICITY AND TIMELINESS GRANULARITY REQUIRED
- DATA GAP IS DATA THAT IS NOT ACCESSIBLE IN THE PUBLIC DOMAIN IN A CONVENIENT FORM FOR POLICY MAKING AND PROGRAM MONITORING,
- CHALLENGES EXIST IN MANY AREAS
 - × INSTITUTIONAL USERS-PRODUCERS
 - × LACK OF RESOURCES
 - × INEFFICIENT USE OF DATA SOURCES
 - × METADATA
 - × TECHNICAL PROBLEMS

SECONDARY DATA SOURCES

KAPSARC NOV 2018 OPEC OIL PRODUCTION DATA SECONDARY SOURCES

- MOST SOURCES ON OIL DATA PRODUCTION WHICH ARE KEY TO UNDERSTANDING INTERNATIONAL OIL MARKET COME FROM SECONDARY SOURCES,
- HISTORICALLY, MOST OPEC OIL PRODUCTION FIGURES ARE CONFIDENTIAL AND NOT PUBLISHED OR PUBLISHED AS UNRELIABLE NUMBERS

[HTTPS://WWW.KAPSARC.ORG/RESEARCH/PUBLICATIONS/OPEC-OIL-PRODUCTION-DATA-THE-ROLE-OF-SECONDARY-SOURCES/](https://www.kapsarc.org/research/publications/opec-oil-production-data-the-role-of-secondary-sources/)

Energy Data Gaps:

SUPPLY SIDE

- PUBLIC SECTOR ENTITIES SUCH AS OIL AND NATURAL GAS CORPORATION, GAS AUTHORITY
- PRIVATE SECTOR
- PETROLEUM & NATURAL GAS
- ELECTRICITY : DATA ON POWER SUPPLY QUALITY AND RELIABILITY IS NOT PUBLISHED. VOLTAGE AND OUTAGE DATA SHOULD BE PUBLISHED AT THE FEEDER LEVEL IN ADDITION TO TECHNICAL AND COMMERCIAL LOSSES AT TRANSFORMER AND FEEDER LEVEL

Energy Data Gaps:

USE SIDE

- ENERGY CONSUMPTION CAN VARY OVER THE DURATION OF A YEAR BASED ON FACTORS SUCH AS SEASONAL CLIMATIC VARIATIONS. HENCE, IT IS IMPORTANT TO CAPTURE CONSUMPTION DATA AT DIFFERENT TIMES DURING THE YEAR.
- SURVEYS ADMINISTERED AT THE CONSUMER END PROVIDE VALUABLE DISAGGREGATED DATA THAT IS EXTREMELY USEFUL FOR FORMULATING POLICIES, ANALYZING POLICY IMPACT AND FOR UNDERSTANDING CONSUMER BEHAVIOUR.
- SALES SURVEYS DONE AT PRODUCERS AND DEALERS ARE ALSO VERY USEFUL AND PLAY A COMPLEMENTARY ROLE IN AUGMENTING QUALITY OF DATA FROM CONSUMPTION SURVEYS.

INSTITUTIONAL

- **STRUCTURAL:** IN MOST ARAB NSOS, ENERGY STATISTICS IS WITH INDUSTRY (EGYPT, IRAQ, QATAR,...) OR ENVIRONMENT (UAE) OR NA (TUNISIA) EXCEPT IN PALESTINE
- **LACK OF COORDINATION:** DIFFERENT GOVERNMENT ENTITIES PRODUCING/PUBLISHING ENERGY DATA
- **REPORTING:**
 - IN OIL EXPORTING ARAB COUNTRIES, OIL & GAS ARE OWNED & OPERATED BY NATIONAL OIL COMPANIES AND THERE ARE NO TAXES, THE DATA REPORTING STILL NOT FULLY DEVELOPED.
 - CUSTOMS DO NOT ADMINISTER TRADE OF OIL AND GAS. (MINISTRIES OF OIL, FINANCES AND CENTRAL BANKS).
 - CONFIDENTIALITY ON PRODUCTION AND EXPORTS DATA (IF ONLY ONE COMPANY IS OPERATING)
 - DELAYS IN PRODUCING AND PUBLISHING ENERGY REPORTS

RESOURCES

- INSUFFICIENT STAFF WORKING ON ENERGY STATISTICS
- LACK IN UNDERSTANDING THE ENERGY PROCESSES AND THE INFORMATION REQUIRED TO PRODUCE QUALITY ENERGY DATA;
- ABSENCE OF FUNDING FOR THE ESTABLISHMENT OF EFFECTIVE DATA COLLECTING, HANDLING, AND DISSEMINATING SYSTEMS

DATA SOURCES SURVEYS

- ECONOMIC/BUSINESS /INDUSTRIAL SURVEYS: EXTRACTION, PRODUCTION, MANUFACTURING, TRANSPORTATION AND DISTRIBUTION, AND INTERMEDIATE AND FINAL CONSUMPTION OF FUELS AND ELECTRICITY (VALUES AND QUANTITIES), INVESTMENTS
- HOUSEHOLD FOR, ACCESS, EXPENDITURES
- AGRICULTURE
- TRANSPORT END USE

DATA SOURCES

BUSINESS REGISTERS

- ADMINISTRATIVE RECORDS:, OIL AND GAS AND ELECTRICITY COMPANIES REPORTS/ GOVERNMENT AGENCIES, ON SUPPLY AND CONSUMPTION, PRICES, INVESTMENTS, ETC.
- CUSTOMS/OTHERS ON IMPORTS AND EXPORTS
- ENVIRONMENT SURVEY: EXPENDITURES ON ENVIRONMENTAL PROTECTION

METADATA

BUILDING METADATA AND ENSURING THE QUALITY AND EXHAUSTIVENESS OF ALREADY EXISTING STATISTICS FOR PETROLEUM, GAS AND ELECTRICITY.

BESIDES BEING INSTRUMENTAL FOR THE USERS, IT WILL HELP THE PRODUCERS OF THE STATISTICS TO ENSURE THE QUALITY AND COMPREHENSIVENESS OF THE DATA.

TECHNICAL ISSUES

- DIFFERENT METHODOLOGIES USED IN CALCULATIONS AND ESTIMATIONS OF ENERGY BALANCE NOT APPLYING INTERNATIONAL STANDARDS AND METHODOLOGIES
- UNITS AND CONVERSION FACTORS MASS/VOLUME TO ENERGY. (LOCAL FACTORS FROM PRODUCERS FOR EACH PRODUCT SHOULD BE USED)

REFERENCE TO THE INTERNATIONAL RECOMMENDATION ON ENERGY STATISTICS, IRES [HTTP://UNSTATS.UN.ORG/UNSD/STATCOM/DOC11/BG-IRES.PDF](http://unstats.un.org/unsd/statcom/doc11/bg-ires.pdf) AND THE IEA MANUALS ON ENERGY STATISTICS

- LACK OF IT TOOLS FOR ENERGY DATA COLLECTION AND MANAGEMENT AND EXCHANGE BETWEEN DATABASES FROM PRODUCERS AND USERS OF ENERGY DATA.

GAPS IN RENEWABLE

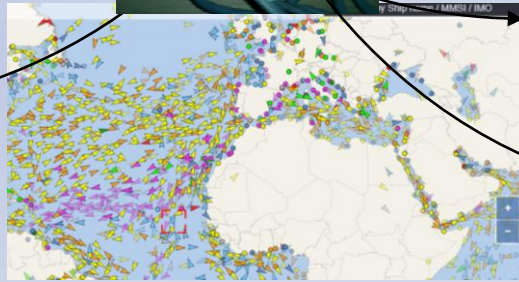
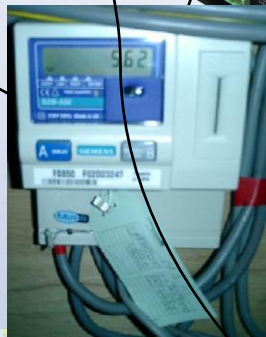
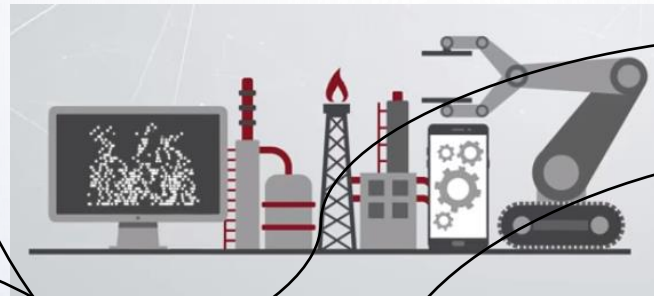
- RENEWABLE ENERGY IS A FAST GROWING SECTOR IN THE REGION BUT IN MOST COUNTRIES IE. UAE, SO FAR NO STATISTICS ON RENEWABLE ENERGY IS PUBLISHED.
- DIFFICULTIES IN ESTIMATING RE (SMALL SCALE USE, BIOMASS, ETC..)

VALUES AND QUANTITIES

- INFORMATION ON ENERGY USE IS AVAILABLE FOR EITHER VALUES OR QUANTITIES. NEED TO CONVERT VALUES INTO QUANTITIES AND VICE VERSA. UNIT PRICES (I.E. VALUE PER PHYSICAL UNIT)
- UNIT PRICES ARE NOT ALWAYS READILY AVAILABLE, I.E. BECAUSE THE ENERGY GROUP IN QUESTION MAY BE TOO HETEROGENEOUS TO BE REPRESENTED BY A SINGLE ENERGY PRODUCT
- BASIC INFORMATION AT A SUFFICIENT DETAILED LEVEL AND FOR GROUPS, IDENTIFIABLE OR COMPARABLE WITH OTHER GROUPS.

TECHNOLOGY AND ENERGY DATA COLLECTION

- Big Data
- Geospatial
- Primary and Secondary Data
- Official vs Private Data



- DIGITIZATION KEY FACTOR IN ENERGY INDUSTRY
- MINING ANALYSIS AND DISSEMINATION
- ENERGY MAPPING SYSTEM
- SENSORS SMART METERS
- REAL-TIME TRACK OF SHIPMENTS FROM PRODUCER TO PORT

CHALLENGES AND SOLUTIONS- COMMON CHALLENGES FOR SURVEY IMPLEMENTATION

Pros

Accuracy

Consumer behavior

Cons

Respondent Imprecise estimation on amount of fuel consumed

Seasonal Variation consumption differences

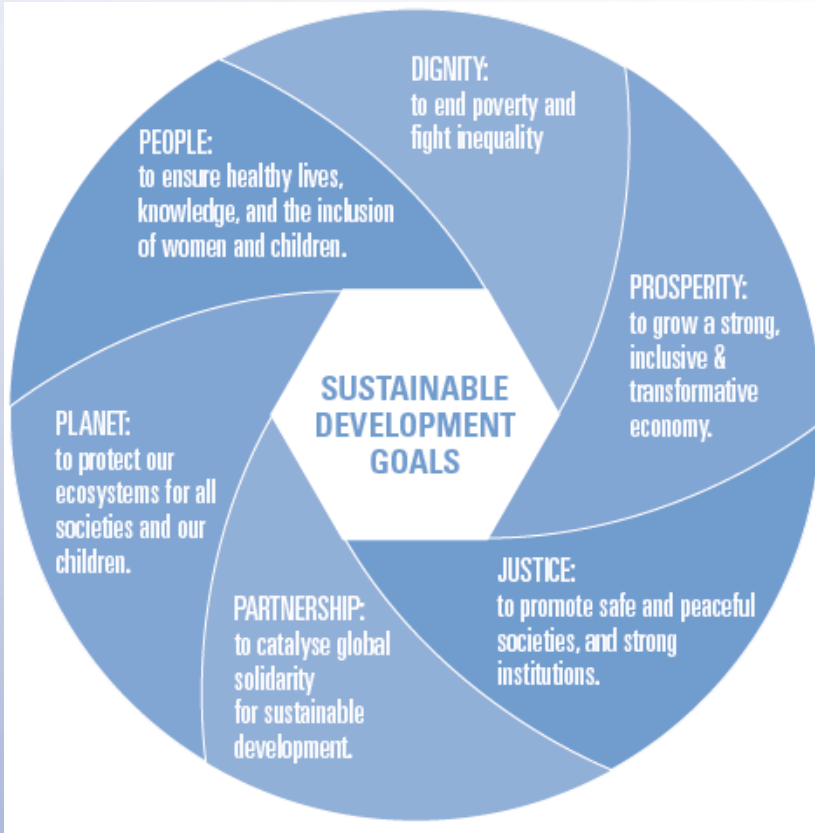
Not Cost effective



SPECIFIC ISSUES FOR GULF COUNTRIES

- FUEL FOR ELECTRICITY PRODUCTION AND DESALINATION
- HOW TO ALLOCATE THE INPUT OF NATURAL GAS BY ISIC ACTIVITIES FOR ELECTRICITY PRODUCTION AND DESALINATION.
- DISTRICT COOLING
- LOCAL SALES VERSUS EXPORTS (BETWEEN EMIRATES)

2030 AGENDA FOR SUSTAINABLE DEVELOPMENT- SDG ESSENTIAL ELEMENTS



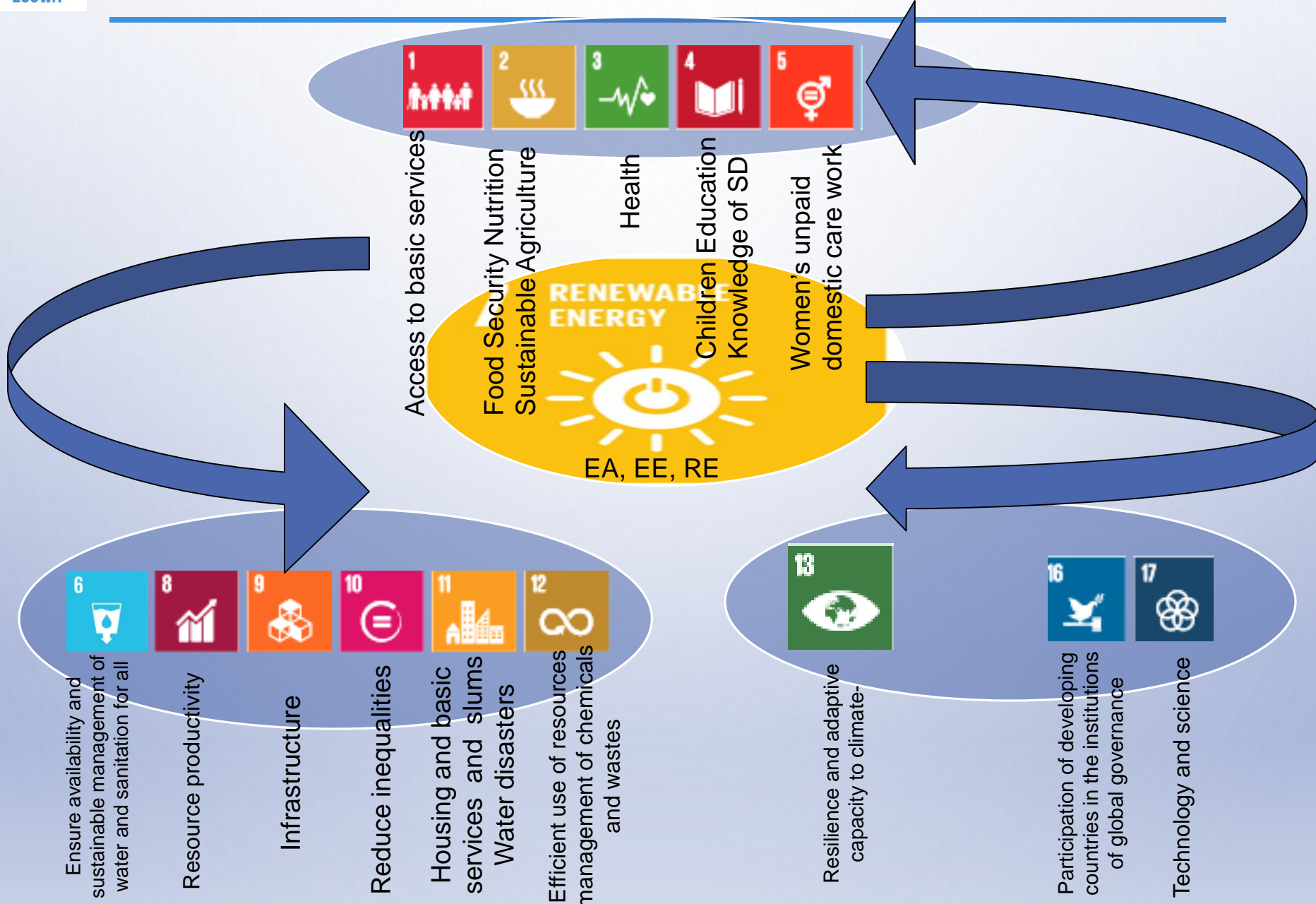
Elements for delivering SDGs



Energy is recognized as an integral part of the 2030 Agenda for Sustainable Development. Water and Sanitation are identified as a stand-alone Sustainable Development Goal (SDG 6) and as a central component of many of the 17 goals and 169 targets agreed in the agenda.

Goals Number	Goals	Targets	Indicators	Tier	Indic. Number	المؤشرات	الغايات	الأهداف	الأهداف
7	Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all	Target 7.1: By 2030, ensure universal access to affordable, reliable and modern energy services	Indicator 7.1.1: Proportion of population with access to electricity	I	7.1.1	1. 1. 7 النسبة المئوية للسكان المستفيدين من خدمات الكهرباء	1. 7 ضمان حصول الجميع بتكلفة ميسورة على خدمات الطاقة الحديثة الموثوقة بحلول عام 2030	الهدف 7 ضمان حصول الجميع بتكلفة ميسورة على خدمات الطاقة الحديثة الموثوقة والمستدامة	V طاقة نظيفة وأسعار معقولة
		Target 7.2: By 2030, increase substantially the share of renewable energy in the global energy mix	Indicator 7.2.1: Renewable energy share in the total final energy consumption	I	7.2.1	1. 2. 7 حصة الطاقة المتجددة في مجموع الاستهلاك النهائي للطاقة	2. 7 تحقيق زيادة كبيرة في حصة الطاقة المتجددة في مجموعة من مصادر الطاقة العالمية بحلول عام 2030		
		Target 7.3: By 2030, double the global rate of improvement in energy efficiency	Indicator 7.3.1: Energy intensity measured in terms of primary energy and GDP	I	7.3.1	1. 3. 7 كثافة الطاقة التي تقاس من حيث الطاقة الأولية والنتاج المحلي الإجمالي	3. 7 مضاعفة المعدل العالمي للتحسن في كفاءة استخدام الطاقة بحلول عام 2030		

LINKAGES: ENERGY WITH OTHER SDGs



Goals and Targets (from the 2030 Agenda)	Indicators	Tier	Custodian Agency(ies)	Other Agencies	المؤشرات	الأهداف والغايات (من خطة عام 2030)
GOAL 7: ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL						
هدف 7- ضمان حصول الجميع بتكلفة ميسورة على خدمات الطاقة الحديثة الموثوقة والمستدامة						
7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	7.1.1 Proportion of population with access to electricity	Tier I	World Bank	International Energy Agency, FAO, GACC	7 - 1 - 1 النسبة المئوية للسكان المستفيدين من خدمات الكهرباء	7 - 1 ضمان حصول الجميع بتكلفة ميسورة على خدمات الطاقة الحديثة الموثوقة بحلول عام 2030
	7.1.2 Proportion of population with primary reliance on clean fuels and technology	Tier I	WHO		7 - 1 - 2 النسبة المئوية للسكان الذي يعتمدون أساساً على الوقود والتكنولوجيا النظيفين	
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	Tier I	World Bank, UNSD?	IEA, IRENA, OECD	7 - 2 - 1 حصة الطاقة المتجددة في مجموع الاستهلاك النهائي للطاقة	7 - 2 تحقيق زيادة كبيرة في حصة الطاقة المتجددة في مجموعة من مصادر الطاقة العالمية بحلول عام 2030
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)	Tier I	World Bank, UNSD	IEA& OECD	7 - 3 - 1 كثافة الطاقة التي تقاس من حيث الطاقة الأولية والنتاج المحلي الإجمالي	7 - 3 مضاعفة المعدل العالمي للتحسُّن في كفاءة استخدام الطاقة بحلول عام 2030

GOAL 7. ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL

<p>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</p>	<p>7.a.1 Mobilized amount of United States dollar per year starting in 2020 accountable towards the \$100 billion commitment</p>	<p>Tier III</p>	<p>OECD</p>	<p>UNFCCC, UNEP</p>	<p>7 - أ- 1 جمع مبلغ مقوم بدولارات الولايات المتحدة في السنة ابتداء من عام 2020 بهدف الوفاء بالالتزام بتوفير مبلغ 100 بليون دولار</p>	<p>7-أ تعزيز التعاون الدولي من أجل تيسير الوصول إلى بحوث وتكنولوجيا الطاقة النظيفة، بما في ذلك تلك المتعلقة بالطاقة المتجددة، والكفاءة في استخدام الطاقة وتكنولوجيا الوقود الأحفوري المتقدمة والأتظف، وتشجيع الاستثمار في البنى التحتية للطاقة وتكنولوجيا الطاقة النظيفة، بحلول عام 2030</p>
<p>7.b By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States and landlocked developing countries, in accordance with their respective programmes of support</p>	<p>7.b.1 Investments in energy efficiency as a proportion of GDP and the amount of foreign direct investment in financial transfer for infrastructure and technology to sustainable development services</p>	<p>Tier III</p>	<p>IEA</p>	<p>7-ب- 1 نسبة القيمة المضافة إلى صافي استخدام الطاقة المحلية، بحسب الصناعة</p>	<p>7-ب توسيع نطاق البنى التحتية وتحسين مستوى التكنولوجيا من أجل تقديم خدمات الطاقة الحديثة والمستدامة للجميع في البلدان النامية، وبخاصة في أقل البلدان نمواً والدول الجزرية الصغيرة النامية، والبلدان النامية غير الساحلية، وفقاً لبرامج الدعم الخاصة بك منها على حدة، بحلول عام 2030</p>	<p>7-ب توسيع نطاق البنى التحتية وتحسين مستوى التكنولوجيا من أجل تقديم خدمات الطاقة الحديثة والمستدامة للجميع في البلدان النامية، وبخاصة في أقل البلدان نمواً والدول الجزرية الصغيرة النامية، والبلدان النامية غير الساحلية، وفقاً لبرامج الدعم الخاصة بك منها على حدة، بحلول عام 2030</p>

TIER SYSTEM

UNSC and the Inter-Agency and Expert Group on Sustainable Development Goal Indicators classified proposed indicators

- 1. Methodologically sound (internationally agreed definition)**
- 2. Measurable**
- 3. Accessible and easy to interpret**
- 4. Relevant**
- 5. Timely**
- 6. Regularly produced over time**

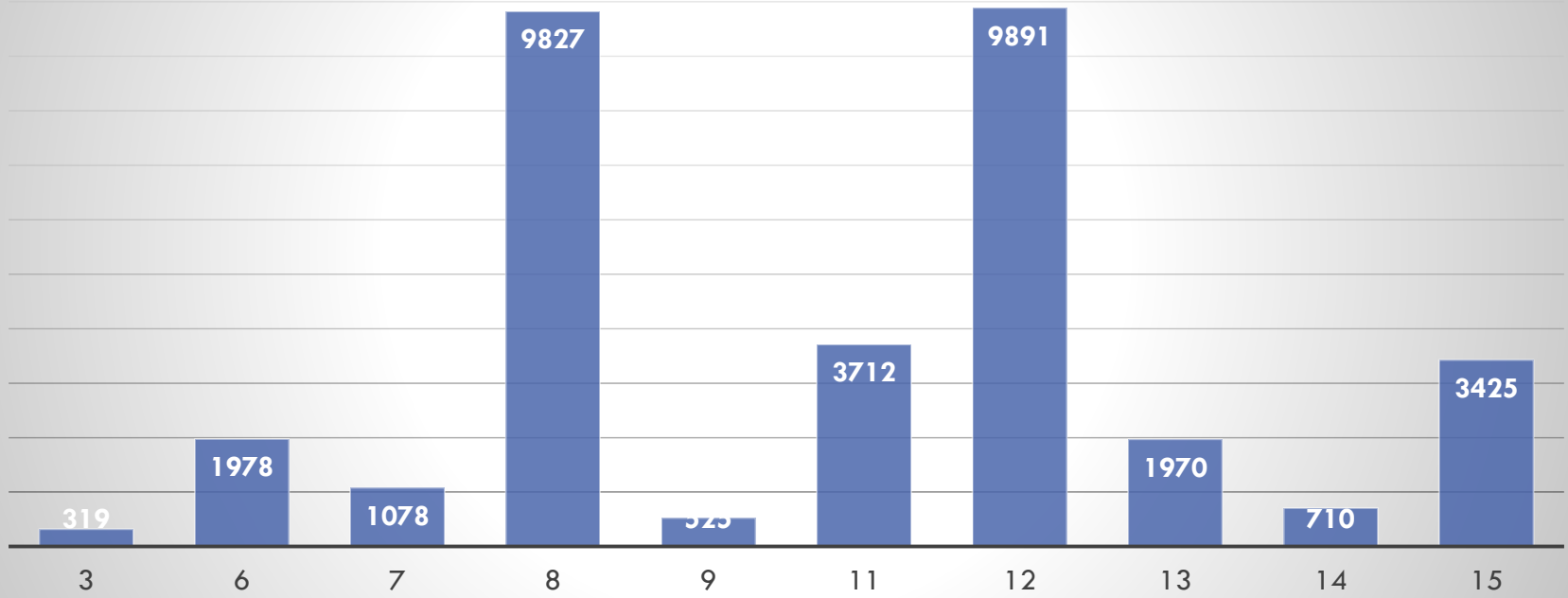
**for global indicators:
Internationally comparable**

Tier 1: Satisfy all criteria

Tier 2: Satisfy most criteria but data coverage is insufficient

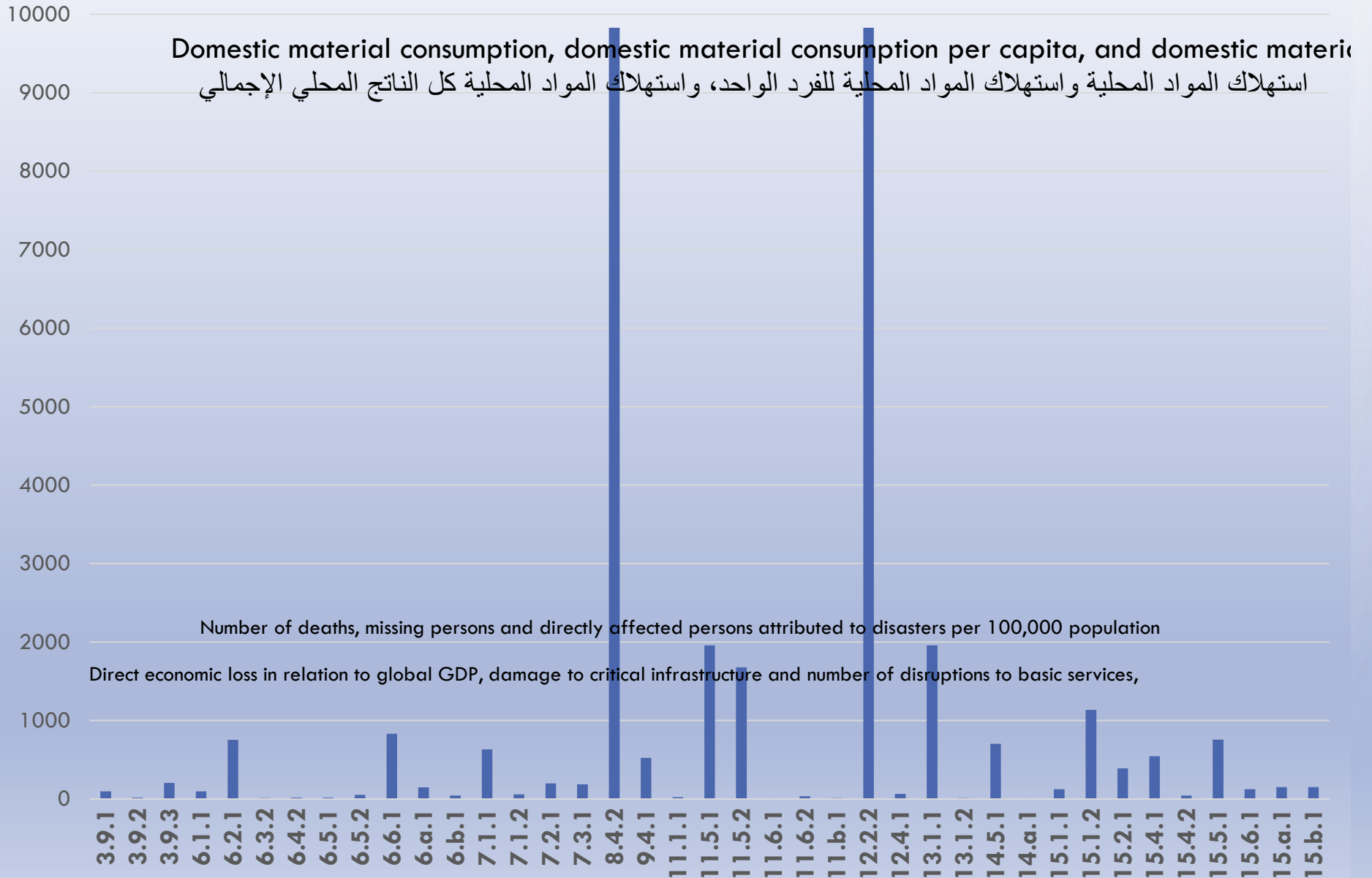
Tier 3: Methodology still being developed

Total Number of Data Points per SDG Environmental Goal إجمالي عدد نقاط البيانات حسب الأهداف البيئية



اهداف التنمية المستدامة البيئية

Total Number of Data Points per Indicator



AT A GLOBAL LEVEL

- DATA AVAILABILITY AND QUALITY: BASIC DATA IS NOT AVAILABLE. ESTIMATION AND CALCULATION IS NOT EASY
- COORDINATION IS NOT STABLE: WITHIN THE COUNTRY IT IS NOT A CLEAR HOW DATA IS COORDINATED
- SOME COUNTRIES REPLY AFTER SEVERAL REMINDERS AND SEND PARTIAL DATA
- ENERGY BALANCE HELPS TO HAVE QUALITY CHECKS
- THE UNSD QUESTIONNAIRE IS LONG
- USE OF COMMON CLASSIFICATIONS AND DEFINITIONS
- USES OF ADMIN DATA
- BIG DATA
- COST OF DATA COLLECTION