

**United Nations Division for Sustainable Development
Expert Group Meeting on
Indicators of Sustainable Development
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SUSTAINABLE DEVELOPMENT INDICATORS

Indicators provide an effective means to evaluate trends in environmental conditions and associated economic and social parameters. They allow policy-makers and others, to assess the benefits and costs of investments in the environment, and help to set the future interventions priorities.



An examination of the **Great Pyramids** of Egypt and other buildings clarifies that the Egyptians at a very early stage incorporated a measurement system.

In old Egypt, Certainly There was a need for the measurement units because of the ancient Egyptian belief in the other world and in judgment of the dead by weighting the heart.



We are well aware of the Egyptian measurement systems because a number of measuring rods of different materials used by craftsmen and surveyors have survived. However, our knowledge comes from ceremonial cubit-rods cut in stone and deposited in **temples**, or sometimes buried with officials.



Other useful information was sometimes recorded on these devices, such as the inundation levels of the **Nile River** or references to nomes (provinces) of ancient Egypt. The principal unit of measurement in ancient Egypt was the royal cubit, a length of approximately 52.4 cm.



Nilometer is a station that shows the height of the Nile waters. Egyptians began measuring the rise of the Nile flood probably even before historic times in order to predict the harvest.



The most important **Nilometer** lays on the island of Elephantine, others were built at different times at Philae, Edfu, Khenu, Memphis, Heliopolis, Buto and other places



Also during the Islamic period the Egyptian knew measurement such as the Nilometer (**Mikyas al-Nil**) which is the oldest aquatic structure in Islamic Egypt. It has the shape of a well. In the middle of the well there is an octagonal marble pillar with measuring signs. The Nilometer is on the southern tip of **Rawda (Roda)** Island.



The strategy adopted to build Egypt's Indicator has several steps:

1- Assess which indicators proposed by the “Blue Plan” and the Arab League are meaningful, useful, and important in the Egyptian context.

“Some are irrelevant or structured in ways that reflect European rather than Egyptian realities and need to be reframed”.



The Strategy Adopted Steps...

2- Assess data availability, since the lack of data for a particular indicator will make the effort much more difficult and costly in time and resources.

Thus, the availability of data is likely to be important at least in structuring Egypt's initial indicator set.



The Strategy Adopted Steps...

3- Set priorities among the indicators that are both important and feasible, to choose those which would be part of a first Egyptian Environmental Indicators Set.



The Strategy Adopted Steps...

4-Develop a road map for how to build indicators in the areas selected for the initial indicator Set.



Environmental Natural Resources (ENR) Indicator Development

Development Steps...

The plan of action for carrying out this work suggested a series of steps:

Development Steps...

Step 1...

Develop a comprehensive list of potential indicators by ENR sector/sub-sectors, building on the “Blue Plan”, the Arab League, and other sources. The indicators would be categorized and a determination made of what data would be needed and where it might be found.

Development Steps...

Step 2...

- 1- Identify potential data sources and evaluate available data.
- 2-Identify focal points in the cooperating agencies and create an Indicator Working Group (WG) joining those focal points along with representatives from EEAA.
- 3-Develop criteria for evaluating the data sources and a framework for the collection and provision of data.

Development Steps...

Step 3...

Analyze the data to identify its strengths, weaknesses, and gaps, using the evaluation criteria developed in step 2.

Development Steps...

Step 4...

Develop criteria for the assessment of potential indicators in step 1 above. Based on that assessment, prepare a list of indicators

Development Steps...

Step 5...

Determine the technical requirements for a decision support system on ENR based on the indicators proposed above.

Data Availability Findings

Table (1) below summarizes the availability, at the three information nodes (EEAA, CAPMAS, IDSC), of the data associated with each of the 53 suggested indicators. Most data are available for the areas of:

- Demography
- Global air pollution
- Land management
- Protected areas and biodiversity

On the other hand, data are mostly unavailable in any of the three information nodes, for the areas of:

- Hazardous wastes and materials
- Drinking water
- Energy
- Water management
- Level of efforts on environmental management

Table1: Sources of Data for the 53 Proposed Environmental Indicators

Subject	Required Data for Assessment	Data Sources			Data Unavailable
		IDSC	CAPMAS	EEAA	
Demography					
Total population, measured annually	Total population measured annually		•		
Annual population growth rate	Total population measured in different years		•		
Solid Waste					
Total municipal solid waste produced, collected, recycled, and disposed of in other key ways	Total volume of municipal solid waste produced			•	
	Volume of municipal solid waste collected			•	
	Volume of municipal solid waste recycled				
	Volume of municipal solid waste sent to landfills				
	Volume of municipal solid waste composted				
	Volume of municipal solid waste incinerated				

Table 2

presents possible sources for unavailable data, at governmental bodies (ministries, authorities, agencies, etc.)

Table 2 : Proposed Environmental Indicators with Data Unavailable at the Three Information Nodes

Subject	Required Data for Assessment	Top Priority	
		Data Source	Comments
Solid Waste			
Industrial municipal solid waste generated by sector related to production (quantity of output)	Amount of municipal solid waste generated from each of the industrial sectors.		Data needed for calculating this indicator are not available at EEAA and might be available at the Ministry of Industry or the Federation of Egyptian Industries
	Quantity of output generated from each of the industrial sectors.		
Total public and private sector expenditure on solid waste management	Total public expenditure on solid waste management		The total public expenditure on solid waste management is available at EEAA, while the private expenditure is not calculated
	Total private expenditure on solid waste management		
Hazardous Wastes and Materials			
Generation of hazardous waste (by type or source)	Type :Total amount of each of the different types of hazardous wastes generated per year	Data Unavailable	
	Source :Total amount of hazardous waste generated per year within the mandate of each ministry		
Use of hazardous substances	Total imports of hazardous substances		
	Total national production of hazardous substances		

Availability of Information for Data Assessment

The availability of and level of detail contained in information gathered for data assessment significantly varied from one information node to another based on two main issues:

- Data collection processes the methods used by each of the three nodes to obtain data.
- The policies and regulations within each node governing release of information.

Table 3

presents findings concerning data collection and recording and quality assurance for the data available at the three information nodes..

Table 3: Proposed Environmental Indicators with Available Data and Data Assessment Responses

		Form Collection Data Sections of the		
Subject	Data for Required Assessment	Data Collection	Data Recording	Quality Assurance
		Demography		
Total population, measured annually	Total population measured annually	●	○	—
Annual population growth rate	Total population measured at different years	●	○	—
Waste Solid				
Total municipal solid waste produced, collected, recycled, and disposed of in other key ways	Total volume of municipal solid waste produced	○	○	—
	Volume of municipal solid waste collected	○	○	—
	Volume of municipal solid waste recycled	○	○	—
	Volume of municipal solid waste sent to landfills	○	○	—
	Volume of municipal solid waste composted	○	○	—
	Volume of municipal solid waste incinerated	○	○	—

Table 4

summarizes the evaluation of the data needed for the identified 53 indicators.

Table 4: Data Evaluation

Subject	Data Required for Assessment	Data Source	Evaluation Attributes				
			Robustness	Suitability to Purpose	Usability	Transferability	Quality Assurance
Demography							
Total population, measured annually	Total population measured annually	CAPMAS	■	■	■	■	
Annual population growth rate	Total population measured at different years	CAPMAS	■	■	■	■	
Solid Waste							
Total municipal solid waste produced, collected, recycled, and disposed of in other key ways	Total volume of municipal solid waste produced	EEAA	■	■	■	■	
	Volume of municipal solid waste collected	EEAA	■	■	■	■	
	Volume of municipal solid waste recycled	EEA	■	■	■	■	
	Volume of municipal solid waste sent to landfills		■	■	■	■	
	Volume of municipal solid waste composted		■	■	■	■	

Data Assessment Conclusions

The assessment of data required for the calculation of the proposed 53 indicators was carried out based on availability and suitability. Suitability is a qualitative composite of the five attributes (Robustness, Suitability to purpose, Usability, Transferability, Quality assurance) used for data evaluation. This assessment was carried out with a focus on the three information nodes mentioned previously.

Table 5

Summarizes data availability for indicators, categorized by area of focus. This gives a helpful overview of the areas for which obtaining the necessary data, and the areas where data availability might be problematic.

Table 5: Data Availability for Environmental Indicators by Area

Priority Areas	Number of Indicators	Data Available	Data Partially Available	Total with Some or All Data Available	No Data Available
Demography	2	2	-	2	-
Solid waste	4	1	2	3	1
Hazardous wastes and materials	3	-	-	-	3
Global air pollution	2	2	-	2	-
Local air pollution	3	-	1	1	2
Water pollution	4	2	-	2	2
Drinking water	4	-	-	-	4
Water management	5	-	-	-	5
Land management	4	3	1	4	-
Agriculture	5	2	2	5	-
Energy	3	-	-	-	3
Protected areas and biodiversity	4	3	-	3	1
Level of effort on environmental management	4	-	-	-	4
TOTAL	47	15	7	22	25
Second Priority Areas					
Fisheries	2	1	-	1	1
Coastal zones	1	-	1	1	-
Transport	3	1	1	2	1
TOTAL	6	2	2	4	2

With regards to data suitability, and based on the findings summarized in table 4, indicators can be generally categorized into groups I to IV

Group I: comprises indicators with the associated data available at one or more of the three information nodes. These indicators could be calculated and used immediately.

Group II: comprises indicators with the associated data available at one or more of the three information nodes but which need some limited efforts to render these data suitable, through further information

Group II: comprises indicators with the associated data available at one or more of the three information nodes but which need some limited efforts to render these data suitable, through further information

Group III: comprises indicators with the associated data available at one or more of the three information nodes, but which need extensive efforts to render these data suitable.

Group IV: comprises indicators with most or all of the associated data unavailable at any of the three information nodes. These indicators could be used only if data is either available at other sources, or efforts carried out to collect the data.

Table 6 summarizes these categories.

Table 6: Possibility of Using Environmental Indicators Based on Data Availability and Suitability, by Area

	EEAA	IDSC	CAPMAS
Group I Indicators			
Demography			Total population measured annually Annual population growth rate
Global Air Pollution	Annual greenhouse gases emissions index		
Local Air Pollution	Ambient air quality]		
Water Pollution	Ambient water quality		
Land Management		Growth of urban area	

Table 7
Summarizes the conditions applied to evaluate the data attributes discussed above.

Table 7 : Criteria for Data Evaluation Attributes

Key											
Satisfactory	●	Unsatisfactory	◐	Unusable	○	Unidentified	?	Not shared	⊗	Unavailable	-
Data Assessment Form Fields		Evaluation Attributes									
		Robustness	Suitability to Purpose	Usability	Transferability						
Fields 1-6 (Administrative Unit)											
Administrative Unit providing the data having direct access to on-field data collection (regardless of assurance of data reliability)		▮									
Administrative Unit providing the data having no access to on-field data collection (i.e. receives the data from another unit with direct access to on-field data collection)		▮									
Data value(s) provided is/are interpolated at the Information Node, based on direct or indirect on-filed data collection		▮									

What have been done so far...

1-The Sustainable Development Indicators

has been studied and classified:

- socially
- economical
- environmental

2-Involved Institutions and ministries have

been addressed by sending full documents including its related indicators.

3-A workshop has been conducted and all involved ministries was introduced to the Sustainable Development Indicators.

4-Up to 24 Indicators were collected and received .

Table of the collected Sustainable Development Indicators received so far...

Serial	Ministry name	Indicator No.	Indicator Name.
1	Ministry of Health and Population Dr. : Thnaa Ibrahim Ali Saleh	2	Total Fertility Rate
2		1	Population Growth Rate
3		11	Life Expectancy at Birth
4		12	Infant Mortality Rate
5		13	Access to Safe Drinking Water
6		31	Population Density in the Coastal Regions
7	Ministry of Transportation Eng. : Hassan Mohamed Seleem	74	Density of the Road Network
8		15	Number of Passenger Cars per 100 inhabitants
9	Ministry of Tourism Eng.: Saad El Sayed Ali Salem	76	Number of Nights per 100 inhabitants
10		80	Number of International tourists per 100 inhabitants
11		78	Number of bed – places per 100 inhabitants
12		81	Share of tourism receipts in the exportations

Table of the collected Sustainable Development Indicators received so far...

Serial	Ministry name	Indicator No.	Indicator Name.
13	Ministry of Manpower and Immigration Mr.: Al Sayed Ahmad abu alfadl	129	Net Migration Rate
14		3	Women per hundred men in the labour force
15		5	Employment rate
16	Ministry of Electricity and Energy Eng. :Osama Ezz el Dien	14	Annual Energy Consumption Per Inhabitant
17		69	Energy Intensity
18		70	Energy Balance
19		71	Share of Consumption of renewable Energy Resources
20	Ministry of Agriculture and land Reclamation Eng.: Elhamy Mohamed Abdul Monem	50	Use of Agricultural Pesticides
21		51	Use of Fertilizers per hectare of Agricultural Land
22		56	Annual Average of Wheat yield
23	Ministry of communication and Information technology Eng.: Taha Shendy	16	Main telephone lines per 100 habitants
24	Egyptian Environmental Affairs Agency Dr.: Yehya Hafez	113	Consumption of Ozone depleting substances

Sample of Sustainable Development Indicators

Unemployment rate

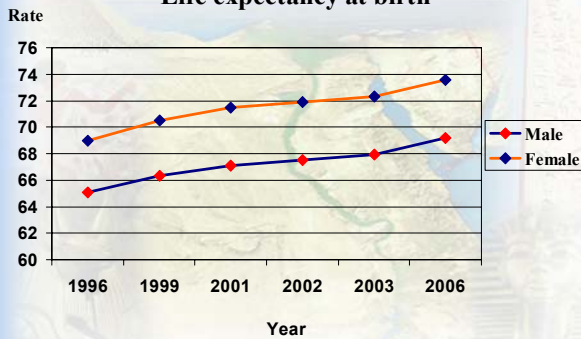
Years	Total of employment		Total	Unemployment rate		
	male	female		male	female	Total
2004	1015	1189	2204	6.19%	25.58%	10.47%

Sample of Sustainable Development Indicators

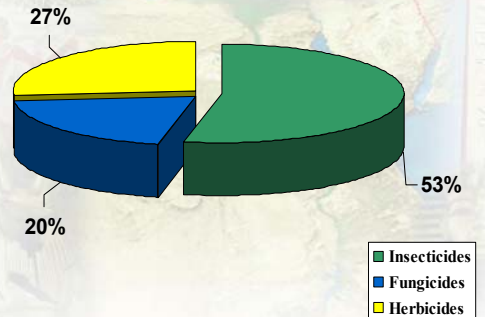
Women per hundred men in labor force

Years	Labor force			Women rate in labor force	Women per hundred men in labor force
	Male	female	total		
2004	16393	4648	21041	22.9%	28.35%

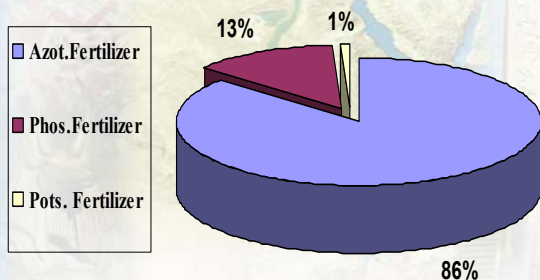
Life expectancy at birth



Use of agricultural pesticides



Fertilizer Av.To Consumption



Thank You